THE TRAGEDY OF CENTRALIZATION: THE POLITICAL ECONOMICS OF AMERICAN NATURAL RESOURCE FEDERALISM

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INTRODUCTION

This Article develops a formal model of the centralization of natural resource regulation and applies that model to explain selected episodes in the history of American natural resource regulation and to critique the Supreme Court's constitutional federalism doctrine. On my model, political pressure for centralized control over the development of public natural resources arises as a virtually inevitable consequence of economic development and geographic market integration. The model generates a number of positive or descriptive predictions as to when and how regulatory centralization will occur. It also reveals the fundamental normative ambiguity of centralized controls over natural resource development. On the one hand, centralized regulation of natural resource development responds to a "tragedy of the commons"[1] that emerges because local jurisdictions are unable to internalize the full, global value of preserving open-access resources. On the other hand, centralization expressly aims to perpetuate the open-access management regime, thus ensuring continuing political conflict between development and preservation. Regulatory centralization may thus be just as tragic for natural resources as the regime of local control that it is designed to replace.

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1. *See* Garrett Hardin, *The Tragedy of the Commons*, 162 SCI. 1243 (1968).

Regulatory centralization is, of course, a very general phenomenon. In recent history, regulatory centralization in the United States has meant federalization. From its controversial New Deal origins, the federal role in both subsidizing and regulating economic development and market integration had by the late twentieth century come to seem natural and necessary. Virtually any problem—from poverty to pollution to product safety—appeared ripe for solution via a new national program.[2] Recently, however, all branches of the federal government have begun to rethink and reverse the long trend toward increasing federalization. Although the United States Supreme Court waited over fifty years,[3] its recent decisions clearly signal that a majority of the justices have overcome the institutional sting of the New Deal court-packing plan and will once again constitutionally limit the scope of federal regulatory authority.[4] Congress has devolved one of the core areas of federal responsibility in the New Deal vision of the state—the provision of a social safety net against poverty—back to the states.[5] Congress has even passed legislation limiting its own ability to require the expenditure of state funds to promote federal legislative goals.[6]

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2. *See* JERRY L. MASHAW, GREED, CHAOS AND GOVERNANCE: USING PUBLIC CHOICE TO IMPROVE PUBLIC LAW 21–22 (1997).

3. I take *NLRB v. Jones & Laughlin Steel Corp.*, 301 U.S. 1 (1937), as marking the beginning of the Court's New Deal decision not to attempt to constitutionally limit the scope of federal regulation.

4. This broad pattern has occurred in a number of doctrinal areas. The Court has held that the Tenth Amendment ("The powers not delegated to the United States by the Constitution, nor prohibited by it to the States, are reserved to the States respectively, or to the people.") prohibits Congress from "commandeering" the legislative authority of the States. *See* Printz v. United States, 521 U.S. 898 (1997); New York v. United States, 505 U.S. 144 (1992). In *United States v. Lopez*, 514 U.S. 549 (1995), and *United States v. Morrison*, 529 U.S. 598 (2000), the Court decided that Congress's power to "regulate Commerce . . . among the several States" under Article I, Section 8 actually has limits. And in *Seminole Tribe v. Florida*, 517 U.S. 44 (1996), and *Alden v. Maine*, 527 U.S. 706 (1999), the Court held that the Eleventh Amendment prohibits Congress from subjecting the states to potential liability under federal statutes in actions brought either in state or federal court.

5. For the story of welfare reform, see TIMOTHY CONLAN, FROM NEW FEDERALISM TO DEVOLUTION: TWENTY-FIVE YEARS OF INTERGOVERNMENTAL REFORM 257–92 (1998).

6. The Unfunded Mandates Reform Act of 1995, Pub. L. No. 104-4, 109 Stat. 48 (codified at U.S.C. § 1503). The significance of this law should not be overestimated, as it exempts a fairly wide range of federal mandates and requires only a majority vote to override its limitations.

Some of the most important rethinking of the federal role involves natural resource regulation.[7] A large fraction of recent, important constitutional federalism cases consider the constitutionality of federal and state laws regulating wetlands, endangered species, fish and game, water resources, and land.[8] Although the "war on terrorism" initiated after the attack of September 11, 2001, has seemingly muted most criticism of the enhanced federal role in American domestic security, an increasingly intense political debate rages over the proper role of federal versus state and local regulators in the management of the nation's forests, waters, territorial seas, species, and wetland resources.[9] Similarly, rising tensions between the United States and both developed and developing nations increasingly center around the international perception that American national policies promote the development and use of natural resources to the detriment of the global environment and economy.[10]

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7. *See, e.g.*, A WOLF IN THE GARDEN: THE LAND RIGHTS MOVEMENT AND THE NEW ENVIRONMENTAL DEBATE (Philip D. Brick & R. McGreggor Cawley eds., 1996); DANIEL KEMMIS, THIS SOVEREIGN LAND: A NEW VISION FOR GOVERNING THE WEST (2001); JULIA M. WONDOLLECK & STEVEN L. YAFFE, MAKING COLLABORATION WORK: LESSONS FROM INNOVATION IN NATURAL RESOURCE MANAGEMENT (2000); George Cameron Coggins, *"Devolution" in Federal Land Law: Abdication by Any Other Name*, 3 HASTINGS W.-NW. J. ENVTL. L. & POL'Y 211 (1996).

8. *See, e.g.*, Solid Waste Ass'n v. United States Army Corps of Engineers, 531 U.S. 159 (2001) (SWANCC) (interpreting regulation of isolated wetlands as beyond Corps' regulatory jurisdiction under the Clean Water Act in order to avoid unconstitutionality under the Commerce Clause); Nat'l Ass'n of Homebuilders v. Babbitt, 130 F.3d 1041 (D.C. Cir. 1997) (upholding Congress's Commerce Clause authority to regulate private land development in order to protect endangered species); Hughes v. Oklahoma, 441 U.S. 322 (1979) (striking down state ban on the export of naturally occurring minnows under the "dormant" Commerce Clause); *see also* my more extended discussion of these cases, *infra* Part IV.

9. A cornerstone of the Bush Administration's natural resource policy is the Cooperative Conservation Initiative, which is explicitly intended to decentralize natural resource policy by creating incentives for private and local governmental conservation efforts. *See* Gale A. Norton, *Helping Citizens Conserve Their Own Land—And America's*, N.Y. TIMES, Apr. 20, 2002, at A17; U.S. DEPT. OF INTERIOR, QUESTIONS AND ANSWERS ON THE COOPERATIVE CONSERVATION INITIATIVE, *at* http://www.doi.gov/news/confaq.html (last visited Jan. 4, 2003).

10. *See, e.g.*, *Blowing Hot and Cold*, THE ECONOMIST, July 6, 2002, at 9 (discussing the need for American action on global warming); *Environmental Enemy No. 1*, THE ECONOMIST, July 6, 2002, at 11 (discussing the need for America to stop subsidizing coal use and production). Within the U.S., the substantive merits or demerits of American policies are often glossed over in a more general, typically indignant defense of the American right to regulate independent of any centralized international regulatory authority.

The contemporary prominence of debates over which level of government should regulate and control national and global natural resources development mirrors the longstanding significance of natural resource regulation in American political history. The wisdom and constitutionality of federal projects subsidizing natural resource development was the dominant political issue of the Jacksonian Era.[11] Throughout the nineteenth century, federal land policy was dictated by the national objective of settling the western frontier.[12] A signal feature of the Progressive Era that followed soon after the closing of that frontier was a profound elevation of the federal government's role in both preserving and developing American natural resources.[13] After World War II, massive federally subsidized dam building, stream channelization, and coastal waterway dredging and filling projects completely transformed the American environment. These projects generated unprecedented mass affluence, but that mass affluence itself created a new mass demand for natural resource preservation and prompted a major rethinking of the federal role in natural resource regulation.[14]

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11. *See, e.g.*, MICHAEL F. HOLT, THE RISE AND FALL OF THE AMERICAN WHIG PARTY: JACKSONIAN POLITICS AND THE ONSET OF THE CIVIL WAR 69 (1999) (discussing how the proper role of federal government in subsidizing transportation projects and economic development more generally was a crucial issue dividing Whigs and Democrats); HARRY L. WATSON, ANDREW JACKSON V. HENRY CLAY: DEMOCRACY AND DEVELOPMENT IN ANTEBELLUM AMERICA 175–80 (1998) (discussing how Jackson gradually came to oppose federal internal improvement projects and reprinting Jackson's message vetoing the proposed Maysville Road in Clay's Kentucky).

12. *See generally* DANIEL FELLER, THE PUBLIC LANDS IN JACKSONIAN POLITICS (1984); *see also* Robert L. Glicksman & George Cameron Coggins, *Hardrock Minerals, Energy Minerals, and Other Resources on the Public Lands: The Evolution of Federal Natural Resources Law*, 33 TULSA L.J. 765, 777 (1998) (observing that "from ratification of the Constitution until 1934, the United States sold or gave away over a billion acres" of land).

13. The classic account of how Progressive Era conservation went hand in hand with an enhanced role for the federal government remains SAMUEL P. HAYS, CONSERVATION AND THE GOSPEL OF EFFICIENCY: THE PROGRESSIVE CONSERVATION MOVEMENT, 1890–1920 (1959).

14. *See, e.g.*, Charles F. Wilkinson, *The Public Lands and the National Heritage*, 3 HASTINGS W.-NW. J. ENVTL. L. & POL'Y 225, 229 (1996) (calling the massive federal economic development program in the western U.S. the "big buildup"). For a perceptive discussion of how the economic transformation of the western U.S. generated by these government projects has in turn created a new demand for natural resource preservation, see James R. Rasband, *The Rise of Urban Archipelagoes in the American West: A New Reservation Policy?*, 31 ENVTL. L. 1, 20–23 (2001). General discussions of post World War II American environmental-

Given the historical and contemporary significance of regulatory federalization, particularly natural resource federalization, one might expect a vast legal scholarship explaining when and why federalization occurred. The existing literature badly defeats those expectations. Predictably enough, the Court's recent revitalization of constitutional federalism has caused scholars to reexamine precisely what it is about the American federal system that might justify limiting the federal government's regulatory authority.[15] There has been a similar rethinking of the normative justifications for federal involvement in individual fields, such as environmental regulation.[16] Not

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ism include AMERICAN ENVIRONMENTALISM: 1970–1990 (Riley E. Dunlap & Angela G. Mertig eds., 1992); ROBERT GOTTLIEB, FORCING THE SPRING: THE TRANSFORMATION OF THE AMERICAN ENVIRONMENTAL MOVEMENT (1993); SAMUEL P. HAYS, BEAUTY, HEALTH AND PERMANENCE: ENVIRONMENTAL POLITICS IN THE UNITED STATES, 1955–1985 (1987); ADAM ROME, THE BULLDOZER IN THE COUNTRYSIDE: SUBURBAN SPRAWL AND THE RISE OF AMERICAN ENVIRONMENTALISM (2001); VICTOR B. SCHEFFER, THE SHAPING OF ENVIRONMENTALISM IN AMERICA (1991).

15. Interesting statements and discussions of federalism's justifications include Matthew D. Adler & Seth F. Kreimer, *The New Etiquette of Federalism:* New York, Printz *and* Yeskey, 1998 SUP. CT. REV. 71, 77–82 (1999); Barry Friedman, *Valuing Federalism*, 82 MINN. L. REV. 317, 386–405 (1997); Larry Kramer, *Understanding Federalism*, 47 VAND. L. REV. 1485 (1994); Michael W. McConnell, *Federalism: Evaluating the Founders' Design*, 54 U. CHI. L. REV. 1484, 1491–1511 (1987) (reviewing RAOUL BERGER, FEDERALISM: THE FOUNDERS' DESIGN (1987)); Edward L. Rubin & Malcolm Feeley, *Federalism: Some Notes on a National Neurosis*, 41 UCLA L. REV. 903 (1994). Of course, as has traditionally been typical of constitutional law scholarship, much of the scholarly reaction has been directed toward direct normative appraisal. Conservative scholars argue that the Court is now finally doing what it should have done long ago, while liberal scholars have carefully deconstructed the recent decisions to show how they may be limited to the point of practical insignificance. *Compare* Stephen G. Calabresi, *A Government of Limited and Enumerated Powers: In Defense of* United States v. Lopez, 94 MICH. L. REV. 752 (1995) (stating that *Lopez* "marks a revolutionary and long overdue revival of the doctrine that the federal government is one of limited and enumerated powers"), *with* Louis H. Pollak, *Foreword: Symposium—Reflections on* United States v. Lopez, 94 MICH. L. REV. 533, 553 (1995) (observing "there is less in *Lopez* than meets the eye").

16. There are two strands in the literature. Very early on, law and economics critics pointed out that the basic lesson from the economic theory of fiscal federalism was not that decentralization did not work, but that decentralization was presumptively superior given heterogeneous jurisdictions. *See, e.g.*, Bruce A. Ackerman & Richard B. Stewart, *Reforming Environmental Law*, 37 STAN. L. REV 1333 (1985); James E. Krier, *The Irrational National Air Quality Standards: Macro and Micro-Mistakes*, 22 UCLA L. REV. 323, 324–35 (1974). The other strand of the literature points out more specifically that under many quite reasonable assumptions there is no interjurisdictional regulatory race to the bottom. This basic point was made well before the more recent public finance modeling by Richard O. Zerbe, *Optimal Environmental Jurisdictions*, 4 ECOLOGY L.Q. 193

surprisingly, scholars disagree over both the soundness of existing normative justifications for particular federal regulatory programs[17] and the wisdom of the Court's apparent attempt to

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(1974), but Richard L. Revesz, *Rehabilitating Interstate Competition: Rethinking the "Race to the Bottom" Rationale for Federal Environmental Regulation*, 67 N.Y.U. L. REV. 1210 (1992), made the argument significant in public law scholarship. Revesz explains the model developed by Wallace E. Oates & Robert M. Schwab, *Economic Competition Among Jurisdictions: Efficiency Enhancing or Distortion Inducing?*, 35 J. PUB. ECON. 333 (1988). The basic idea underlying Oates and Schwab's model is that if jurisdictions internalize both the costs (lost taxes on mobile capital) and benefits of tougher local environmental quality, then they ought to set locally optimal environmental quality standards. Their result hinges upon many underlying assumptions: e.g., homogeneous populations within jurisdictions, local taxes only on capital that are returned to residents dollar for dollar for their use in purchasing private consumption goods, no non-environmental local public goods, mobile labor, and the absence of any kind of jurisdictional market power in the market for locations. As is typical of general equilibrium models in public finance, all sorts of results (including too much and too little local environmental protection) are generated when different subsets of these assumptions are relaxed. For further explication of this point, see THORSTEN BAYINDIR-UPMANN, FISCAL POLICY AND ENVIRONMENTAL WELFARE (1998); Arik Levinson, *A Note on Environmental Federalism: Interpreting Some Contradictory Results*, 33 J. ENVTL. ECON. & MGMT. 359 (1997); John Douglas Wilson, *Capital Mobility and Environmental Standards*, *in* 1 FREE TRADE AND HARMONIZATION: PRE-REQUISITES FOR FREE TRADE 393 (J. Bhagwati & Robert Hudec eds., 1996). It can be argued that the possibility of States having overly lax environmental regulations in order to attract capital and the jobs and revenues it brings is really just a particular instance of the more general problem that jurisdictions might undersupply costly local public goods in order to keep taxes low. Again, virtually any result is possible depending upon the model's underlying assumptions. *See* DIETMAR WELLISCH, THEORY OF PUBLIC FINANCE IN A FEDERAL STATE 58–87 (2000); David E. Wildasin, *Nash Equilibria in Models of Fiscal Competition*, 35 J. PUB. ECON. 229 (1988).

17. Predictably, all this evidence of weakness in the theoretical justifications for and actual empirical performance of federal environmental regulation has been met by various degrees of denial and defense from its Centralist defenders. A number of commentators correctly note that by tweaking the right assumptions one can construct a perfectly respectable economic model in which interjurisdictional competition does generate a race to the bottom. *See, e.g.*, Daniel A. Farber, *Environmental Federalism in a Global Economy*, 83 VA. L. REV. 1283 (1997). Farber observes that the public finance literature on interjurisdictional regulatory competition indicates that there may be a race to the bottom when:

> i) Optimal fiscal instruments [such as taxes on capital] are not available to local governments;
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> ii) Competition in labor, product or capital markets is imperfect;
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> iii) Public choice problems distort local decisions; and
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> iv) Jurisdictions are large enough to affect global prices.

Id. at 1305; *see also* Daniel C. Esty, *Revitalizing Environmental Federalism*, 95 MICH. L. REV. 570 (1996); Peter P. Swire, *The Race to Laxity and the Race to Undesirability: Explaining Failures in Competition Among Jurisdictions in Environmental Law*, 14 YALE L. & POL'Y REV. 67 (1996). One of the hallmarks of the debate in the legal literature over environmental federalism has been its entirely

resurrect constitutional limits on federal regulatory authority.[18] Yet scholars seem to share the implicit belief that normative analysis of federalization can proceed without either a general positive (that is, descriptive) theory of when and why federalization occurred or supporting historical and empirical data.

The field of natural resource regulation demands such understanding. Despite the longstanding and important national and international debate over which level of government should regulate natural resource development, neither the legal nor policy literature has rigorously analyzed either why the centralization of resource regulation has or has not occurred or the factors determining its normative desirability. The standard natural resource policy literature recognizes that concern over increasing scarcity and a history of decentralized mismanagement led to federal natural resource regulation but contains no analysis either of underlying forces that might account for the success or failure of regulation or of the choice between federal, state, or local regulation.[19] Mainstream natural resource law scholarship advocates increased public participation in federal natural resource management as a way to shift federal policy away from subsidized resource development and extraction and toward resource preservation for low-intensity recreational use and ecosystem protection.[20] Facing this criti-

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theoretical nature. Most recently, Richard L. Revesz, *Federalism and Environmental Regulation: A Public Choice Analysis*, 115 HARV. L. REV. 553 (2001), has introduced an empirical element by presenting a survey of various state environmental programs designed to show that many of the political and economic forces that generally support environmental regulation have been active at the state as well as the federal level.

18. *Compare* Frank B. Cross, *Realism About Federalism*, 74 N.Y.U. L. REV. 1304 (1999) (arguing that recent political science work shows that federal courts are driven by ideology and hence would simply use constitutional federalism doctrines to attempt to enact their own political preferences in defiance of majority preference), *and* Frank B. Cross & Emerson H. Tiller, *The Three Faces of Federalism: An Empirical Assessment of Supreme Court Federalism Jurisprudence*, 73 S. CAL. L. REV. 741 (2000) (offering empirical evidence that Supreme Court justices use "federalism" in precisely such an ideological, political way), *with* Vicki C. Jackson, *Federalism and the Uses and Limits of Law:* Printz *and Principle?*, 111 HARV. L. REV. 2180 (1998), *and* Stephen Guardbaum, *Rethinking Constitutional Federalism*, 74 TEX. L. REV. 795 (1996) (arguing that constitutional federalism can provide helpful and consistent limits on federalization).

19. *See, e.g.*, SAMUEL T. DANA & SALLY K. FAIRFAX, FOREST AND RANGE POLICY: ITS DEVELOPMENT IN THE UNITED STATES 33–68 (2d ed. 1980).

20. This advocacy has had a profound effect on public resource management. *See* Jan G. Laitos & Thomas A. Carr, *The Transformation on Public Lands*, 26 ECOLOGY L.Q. 140 (1999); Rasband, *supra* note 14, at 62–69. For the classic statement of the position that management should favor preservation over devel-

cism and changing public preferences over resource use versus preservation, federal resource managers have decisively moved to cut back on economic development over the last decade.[21] This decision triggered a significant amount of economically inspired criticism advocating the abandonment of public ownership and control or, at the least, its decentralization from the federal to the state level.[22] In critiquing federal natural resource management, both mainstream legal scholarship and the more recent "free market" school rely upon insights from positive political economy.[23] In fashioning this normative critique, however, scholars have for the most part failed to provide a positive account of how and why federalization occurred.

This Article is premised upon the belief that evaluation of proposals to reform or abandon federal natural resource management first requires a rigorous, testable model of how and why federalization arose. A concrete historical fact motivates the model constructed here, a fact that contemporary public law scholars seem either to deny or forget:[24] that for most of

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opment, and an exceptionally detailed and insightful discussion of how federal natural resource management policy came to favor resource development, see CHARLES F. WILKINSON, CROSSING THE NEXT MERIDIAN: LAND, WATER AND THE FUTURE OF THE WEST (1992).

21. As detailed by Rasband, *supra* note 14, at 68–87, during the Clinton Administration this policy change was effected by dramatically redirecting regulation and centralizing resource management.

22. *See, e.g.*, ENVIRONMENTAL FEDERALISM (Terry L. Anderson & Peter J. Hill eds., 1997); DANIEL KEMMIS, THIS SOVEREIGN LAND: A NEW VISION FOR GOVERNING THE WEST (2001) (advocating the devolution of western public lands from national to regional ownership and management).

23. *See, e.g.*, ROBERT H. NELSON, A BURNING ISSUE: A CASE FOR ABOLISHING THE U.S. FOREST SERVICE (2000); Michael C. Blumm, *Public Choice Theory and the Public Lands: Why "Multiple Use" Failed*, 18 HARV. ENVTL. L. REV. 405 (1994); Michael Lyons, *Political Self-Interest and U.S. Environmental Policy*, 39 NAT. RESOURCES J. 271 (1999).

24. *See, e.g.*, Richard L. Revesz, *Federalism and Environmental Regulation: Lessons from the European and the International Community*, 83 VA. L. REV. 1331, 1341 (1997) (stating that "the differences in wealth and economic development are far more salient in the international community than in federal systems"); Edward L. Rubin & Malcolm Feeley, *Federalism: Some Notes on a National Neurosis*, 41 UCLA L. REV. 903, 944 (1994) (arguing that unlike, for instance, the Catalonia region of Spain, in the U.S. "[t]here are no regions in our nation with a separate history or culture . . . . Most of our states, the alleged political communities that federalism would preserve, are mere administrative units, rectangular swatches of the prairie with nothing but their legal definitions to distinguish them from one another."). For an important recent discussion of the crucial role variations in development stages have played in shaping American public lands policy, see Rasband, *supra* note 14. For a fascinating and encyclopedic demonstration of the long term persistence of highly distinct cultures of

American history, American states and regions have exhibited tremendous variation in both their current economic development opportunities and the extent to which prior development has transformed their natural environments.[25] In the model presented in this Article, undeveloped natural resources become increasingly scarce as development proceeds across numerous jurisdictions. At the same time, increasing economic development and improvements in transportation technology lead to interjurisdictional market integration. When jurisdictions are part of a single economic market, the decisions made by one jurisdiction regarding natural resource development increasingly affect non-local users of such resources. As both market integration and scarcity increase over time with the general level of economic development, the global or national[26] value of undeveloped natural resources increases. When the public, however, owns and manages those resources on a free or open-access basis—as with America's wilderness, forests, wildlife, and other natural resources—local residents receive only a small fraction of the total global or national value from preservation. When the benefits from development are primarily local, so that individual jurisdictions get most of the benefits but bear only some of the costs of development, there will be a local or decentralized incentive to develop. This incentive will exist even when the global costs of development, the foregone global benefits of natural resource preservation, exceed the global benefits. By imposing centralized development controls on new, less developed jurisdictions, residents of older, more developed jurisdictions can prevent such globally inefficient development.

To this extent, my model confirms the widely held intuition that centralized natural resource controls are necessary to conserve natural resources for future use and/or preserve them in a relatively undeveloped or natural state. In the United States, this insight has been the dominant justification for the federalization of natural resource regulation from the time the

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British origin within the U.S., see DAVID HACKETT FISHER, ALBION'S SEED: FOUR BRITISH FOLKWAYS IN AMERICA (1989).

25. On the pervasive effect of such profound sectional differences in American political history, see RICHARD FRANKLIN BENSEL, SECTIONALISM AND AMERICAN POLITICAL DEVELOPMENT 1880–1980 (1984).

26. I shall refer interchangeably to "global" or "national" value or markets, by which I mean the aggregate overall jurisdictions in a multi-jurisdictional world.

first federal forest reserves were withdrawn from disposition and settlement in the late nineteenth century[27] until today, when federal natural resource regulations control private land development in order to protect wetlands and endangered species' habitats.[28] The formal modeling approach presented here supports this basic Centralist intuition, but it also reveals this intuition to be badly incomplete. The pressure for centralized natural resource development controls reflects an interjurisdictional externality: the value of undeveloped resources located in one jurisdiction to users who reside outside the jurisdiction. But the fact that such an externality drives centralization does not say anything about the efficiency of centralization—about, that is, the relationship between the global benefits of preserving undeveloped natural resources and the global costs of such preservation. Centralization is the outcome of a political bargaining process within and among central political institutions. For several reasons—including most prominently the inability of legislators to make long-term, binding commitments—political bargaining is unlikely to be efficient.[29] There are some general factors that signal the likely efficiency of central regulatory controls over resource development. For instance, when both the benefits and costs of centralized natural resource development controls are shared between local resource owners and non-local resource preservation beneficiaries, such centralized regulation may well be justified by regulatory economies of scale and is unlikely to represent inefficient interjurisdictional

27. On the question of whether a concern for resource depletion was a motive for the first federal forest reserves, see ANDREW DENNY ROGERS III, BERNHARD EDUARD FERNOW: A STORY OF NORTH AMERICAN FORESTRY 154–96 (1951). Interestingly, Progressive Era conservationists were very concerned that national forests would become yet another item of political patronage, and for this reason repeatedly emphasized the need for forest management by professional, apolitical foresters. *See* Herbert A. Smith, *The Early Forestry Movement in the United States*, 12 AGRIC. HIST. 326, 344 (1938); W.N. Sparhawk, *The History of Forestry in America*, *in* U.S. DEPT. OF AGRIC., TREES: THE 1949 YEARBOOK OF AGRICULTURE 702, 704 (Alfred Stefferud ed., 1949).

28. The statutory basis for the federal wetlands control program is Section 404 of the Federal Water Pollution Control Act, 33 U.S.C. § 1344 (2000), which authorizes the U.S. Army Corps of Engineers to issue permits for the "discharge of dredged or fill material into the navigable waters" of the U.S. Section 9 of the Endangered Species Act, 16 U.S.C. § 1538, authorizes federal restrictions on private land development activities that would "take" (broadly defined by 16 U.S.C. § 1532(19) to include "harm") an endangered animal species.

29. *See* discussion accompanying notes 38–45, *infra*.

rent-seeking.[30] Still, because one cannot in general expect efficient legislation, the intuitive notion that interstate externalities justify federal regulation[31] is as a general matter false: market integration clearly means that local decisions about resource development often affect people across the country, but those effects do not themselves answer the question of whether local versus central controls are best able to balance resource development with resource preservation. The positive and normative implications of the model generate insight into two core areas of constitutional federalism: the Supreme Court's Commerce Clause and Dormant Commerce Clause doctrines. My analysis of the Court's Dormant Commerce Clause jurisprudence comports with the Court's announced normative goals. The Court, not the Constitution, has created Dormant Commerce Clause analysis, and it has done so with the explicit economic goal of promoting an integrated national market free from interstate trade barriers.[32] One Part of this Article considers alternatives to centralization, including various forms of local control over resource development and, in particular, schemes that explicitly discriminate between residents and non-residents in natural resource access and use fees. This Part concludes that decentralized natural resource preservation may require such discriminatory schemes. Applying this conclusion to the Court's numerous Dormant Commerce Clause cases relating to natural resources, I argue that the Court's blind adherence to the goal of national market integration has led it to invalidate successful state-level natural resource protection programs entirely unrelated to interstate trade but that provided a realistic and effective alternative to federalization.

In analyzing the Court's Commerce Clause jurisprudence, I focus on how lower courts have applied the Supreme Court's general test for congressional commerce power to determine the constitutionality of the private land use development controls imposed by the federal endangered species and wetlands protection programs.[33] My positive model reveals a fundamental gap between the actual role played by interstate markets in

30. For the discussion of this and other aspects of my normative analysis, see Part III.A, *infra*.

31. An intuition which is at the core of the fiscal federalism tradition in public finance economics due to WALLACE OATES, FISCAL FEDERALISM (1972).

32. *See, e.g.*, Henry Monahan, *Foreword: Constitutional Common Law*, 89 HARV. L. REV. 1, 15–17 (1975).

33. *See* discussion accompanying notes 361–383, *infra*.

natural resource federalization and the role that courts search for under the Commerce Clause. In my view, federal species and wetlands protection programs arose not because species and wetlands are in interstate commerce, but to ensure that species and wetlands remain public, free-access resources. The interstate market affects species and wetlands protection by generating pressure for both land development and preservation. But the interstate market in real estate constitutes the only interstate market that the federal species and wetlands protection programs even arguably regulate. The Court's recent Commerce Clause opinions, however, suggest that general regulation of local land use may exceed Congress's constitutional authority under that clause.

Before the Article addresses these doctrinal applications, Parts I and II develop the normative and positive implications of my model of regulatory centralization. Part III then applies the positive analysis to explain selected episodes in the history of American natural resource law and regulation. The broad temporal pattern of American natural resource federalization during the late nineteenth-century Progressive and late twentieth-century Environmentalist eras confirms my model's general prediction regarding the relationship between natural resource centralization, economic development, and market integration. The data supplied by recent work in environmental history goes further, revealing how intrastate and interstate redistribution drove Progressive Era natural resource centralization. In addition, I present original data on the regulatory implementation of and congressional voting on the federal Endangered Species Act's private land development program. This data demonstrates that this program unequally affects states, limiting development in only a relatively small number of rapidly growing southern and western states. I thus show that the profound sectional differences in economic and natural resource development that have always driven American natural resource federalization are still very much at work. In the concluding Section, I assess the future of natural resource federalization in the United States.

I. DECENTRALIZED DEVELOPMENT AND THE CENTRALIZATION OF NATURAL RESOURCE REGULATION

In this Part of the Article, I develop a simple two-jurisdiction model of decentralized development. The model

reveals that because under open-access management, local jurisdictions do not internalize resource preservation value that goes to non-residents, there is a basic externality in the local decision whether to develop versus preserve a natural resource that generates value for non-residents in its undeveloped state. That externality drives centralized development controls. Whether the jurisdiction actually imposes such controls, however, depends upon political bargaining costs. The model generates a number of predictions regarding the effects of anticipated regulatory centralization. These predictions—for example, that centralized development limitations may create, rather than solve, an interjurisdictional race-to-develop and may operate to preserve, rather than curb, resource overuse—are non-intuitive and sharply contrast with traditional thinking regarding the effects of centralized natural resource development controls.

A. A Model of Decentralized Development

1. A Simple Model[34]

The fundamental political and economic forces accounting for the evolution of centralized control of open-access natural resources become apparent when considering a simple two-jurisdiction world. Each jurisdiction possesses a natural resource, and they begin in identical situations, with identical populations deriving value from the use of the natural resource in its undeveloped state. Assume for the time being that in its undeveloped state, the natural resource is a pure public good—undegraded by use, at least given existing levels of use. We might imagine that undeveloped use includes some harvesting of both timber and other forest resources but with such primitive technology and small numbers of users that per user value

34. My model builds upon the basic present value calculus for the choice between preservation and irreversible development set out classically by JOHN V. KRUTILLA & ANTHONY C. FISHER, THE ECONOMICS OF NATURAL ENVIRONMENTS: STUDIES IN THE VALUATION OF COMMODITY AND AMENITY RESOURCES (1985) and explicated by Richard C. Porter, *The New Approach to Wilderness Preservation Through Benefit-Cost Analysis*, 9 J. ENVTL. ECON. & MGMT. 59 (1982). Formally, my model simplifies some aspects of the Fisher-Krutilla model (as by assuming a certain future value from preservation), but extends the analysis by embedding the calculus in a non-cooperative, multi-jurisdictional sequential development game.

remains constant over the relevant range of use. Suppose that travel costs are high, so that there is effectively no mobility across jurisdictions and that no major changes in travel technology and cost are foreseen. Thus individuals find costs too high in light of expected benefits to travel to the other jurisdiction either to temporarily use the natural resource it contains or to relocate their residence.

For reasons of historical accident, one of the jurisdictions gets an opportunity to develop its natural asset while the other does not. The development opportunity may be due to an unforeseen technological change or simply due to luck: being the first area settled. The first jurisdiction to develop (Jurisdiction One) will realize some collective value from development. Suppose that the collective value from development, like the value of the resource in its undeveloped state, is distributed equally across all residents of the developing jurisdiction.

2. The Optimality of Decentralized Development Under Autarky

Because I have assumed that neither travel nor migration occurs between the two jurisdictions, no interjurisdictional externality results from Jurisdiction One's decision whether to develop. The benefit D and the cost V—the foregone value of the resource in its undeveloped state—of development falls solely upon the developing community residents. Moreover, because residents of the developing jurisdiction uniformly receive both the benefits and costs of development, its residents will unanimously reach their decision on development. Because everyone in the jurisdiction will be better off under the decision (development or not) than its opposite and the decision will not affect anyone outside the jurisdiction, the decision is Pareto Optimal: the decision does not render anyone else worse off, and the decision makes some (all Jurisdiction One residents) better off.[35] The first jurisdiction develops only if the discounted present value of development D exceeds the dis-

35. On Pareto efficiency, see HAL R. VARIAN, INTERMEDIATE MICROECONOMICS 15–17 (1987).

counted present value V from retaining the natural resource in its undeveloped state.[36]

3. The Effects of Economic Integration on Decentralized Development: Late Stage Over-development

Suppose that Jurisdiction One decided to develop. Some number of time periods later, Jurisdiction Two finally receives a development opportunity. This opportunity may be either the direct commercial exploitation of that asset—such as converting forests to timber, mountains to mines, prairies to farm fields—or industrial development—such as siting a steel mill in a former wetland. Whatever the opportunity, suppose that residents of Jurisdiction Two (which I shall sometimes refer to as the "resource rich" jurisdiction) receive all the benefits from development. Furthermore, suppose that when Jurisdiction Two receives this development opportunity, changes in transportation technology, investment in transportation, and market infrastructure have integrated the two communities'[37] economies into a single potential market. Indeed, market integration—as when a fall in transportation costs makes it economic to mine a resource for shipment to factories located in older, more developed jurisdictions—may directly produce the development opportunity. For clarity of analysis, suppose that the transportation revolution has allowed Jurisdiction One residents to access and use Jurisdiction Two's undeveloped natural resource at no cost. Insofar as the undeveloped natural resource provides non-rival services, the larger the number of users, the greater the total or global value of the resource in an undeveloped state. In terms of the earlier notation, the undeveloped resource's global or total value in the new community

36. Although in the text, for simplicity V and D are treated as discounted present values, in the Appendix, I take V and D to represent the flow values of preservation versus development.

37. Throughout the article, I refer interchangeably to "communities," "jurisdictions," and "regions." These are of course not synonymous. The determinants of the correspondence, or lack thereof, between communities, jurisdictions, and regions are in fact central to many issues in environmental and resource law, but I do not address these issues here.

increases to $2V$ if the communities have identical numbers of residents.[38]

Thus even as market integration increases the development value of Jurisdiction Two's natural resource, it will also increase the aggregate or global value of preserving that natural resource in an undeveloped state. When the resource is managed on an open or free-access basis, however, the local jurisdiction does not charge non-local users an access or use fee. Thus local residents do not garner an economic return from the recreational or other value that their undeveloped resource provides to non-residents. On the other hand, because they own the natural resource located within their jurisdictional borders, Jurisdiction Two residents receive all of the value from developing that resource. Using the simple notation developed earlier, local residents collect the full development value D but internalize only a fraction, $V/2V = ½$, of the resource's value if left undeveloped. Their collective self-interest requires them to develop the resource whenever $D > V$. From a global point of view, however, the total cost of development is actually $2V$, and the local jurisdiction should develop the resource only when $D > 2V$.

This example demonstrates how open-access management prevents resource owners from capturing the increase in resource value that results from undeveloped resources becoming globally scarce. When local resource owners receive the full economic benefit from resource development but capture only a small fraction of the scarcity-induced increase in value under open-access, they realize an incentive to develop even when the global costs of development exceed the global benefits.

B. The Political Economics of Centralized Development Controls

Let us now continue with the simple two-jurisdiction story, but modify our assumptions about the underlying economic,

38. This result is merely a simplification—a case of extreme externalization of the value of preservation beyond jurisdictional borders. The fewer the non-local resource users, the smaller the extent of such externalization. Relatedly, Gerard Gaudet, Michel Moreaux & Stephen W. Salant, *Intertemporal Depletion of Resource Sites by Spatially Distributed Users*, 91 AMER. ECON. REV. 1149 (2001), have recently shown that the globally optimal path of resource depletion (with multiple, spatially distributed jurisdictions) calls for the jurisdiction with the lowest cost of access to be the first to switch and begin using a distant resource.

technological, and political environments to better capture the important stylized historical facts of American regulatory evolution. As an economic matter, the transportation revolution is unlikely to have worked only asymmetrically by allowing residents of the wealthier Jurisdiction One to capture the benefits of the undeveloped resource located in Jurisdiction Two. As a matter of stylized historical fact, market integration and decreased transportation costs will also have lowered the cost of migration for residents of Jurisdiction Two. They may seek the higher wages and higher levels of non-environmental local public goods, such as education, that Jurisdiction One provides.[39] Indeed, the development opportunity in Jurisdiction Two may have arisen from an increase in population and wealth in the older Jurisdiction One that increased the commercial demand for the newer Jurisdiction Two's resources. To reflect this historically plausible fact, let us modify the analytical story by supposing that by the time Jurisdiction Two gets a development opportunity, the national population is concentrated in the older Jurisdiction One.

Suppose also that the two jurisdictions are both economically and politically integrated. They are, I shall henceforth assume, members of a federated democratic nation state. In this nation, legislation is passed by majority vote taken by the central legislature.

When Jurisdiction One residents receive none of the gains from development in Jurisdiction Two but bear its costs of development, Jurisdiction One residents have an incentive to pass centralized legislation that prohibits or at least limits and controls development in Jurisdiction Two. Admittedly, such legislation directly restricts Jurisdiction Two residents from exercising property rights over natural assets that they collectively own. But when the two jurisdictions comprise part of a single, integrated economic market, Jurisdiction One residents receive value from the undeveloped natural resource found in

39. Richard A. Easterlin, *Twentieth Century American Population Growth*, *in* III THE CAMBRIDGE ECONOMIC HISTORY OF THE UNITED STATES: THE TWENTIETH CENTURY 505, 526 (Stanley L. Engerman & Robert E. Gallman eds., 2000), argues that "throughout history the location of population has been determined largely by where people could earn their living—that is, by economic opportunity." Only in the twentieth century has the growth in income, leisure, and technological change given individuals the ability to live distantly from their place of work. *Id.* at 529.

Jurisdiction Two. Because they are part of a single political federation, moreover, the shift in population toward Jurisdiction One resulting from development may provide Jurisdiction One residents with majoritarian political power in the federation.[40]

The extent of this majoritarian power depends upon details of the federation's political structure: whether, for instance, a jurisdiction's representation in the central legislative body depends upon its population (as in the U.S. House) or is instead pro rata (as in the U.S. Senate) and whether there are constitutional limits on the federal legislature's ability to directly override local decisions regarding the development of locally owned natural resources.[41] At this point in the analysis, the impor-

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40. In many models of interjurisdictional competition, residential mobility tends to lessen or eliminate inefficiencies. The reason is that the capitalization of local environmental amenities into property values provides an incentive for localities to provide such amenities by controlling pollution and protecting locally valuable resources. For explications of this point, see Wallace Oates and Robert Schwab, *The Theory of Regulatory Federalism: The Case of Environmental Management*, *in* THE ECONOMICS OF ENVIRONMENTAL REGULATION (Wallace Oates ed., 1996). This result holds true only if the jurisdictions rely upon land taxes as their source of revenue for produced local public goods. *See* JOHN P. CONLEY & ANTONIO RANGEL, INTERGENERATIONAL FISCAL CONSTITUTIONS: HOW TO PROTECT FUTURE GENERATIONS USING LAND TAXES AND FEDERALISM (Nat'l Bureau of Econ. Research, Working Paper No. 8394, 2001). Even more importantly, in my model, undeveloped environmental resources provide benefits not only to residents but to non-residents who travel to make recreational and other use of those resources. Even if localities do rely upon a land tax, local property values do not capitalize the full global value of preserving the undeveloped resources, so that local incentives for preservation are globally inadequate. Moreover, mobility worsens the problem: when individuals migrate from relatively pristine places to be closer to jobs but continue to use the natural resources in the pristine places, they depress property values in their former home jurisdictions and further exacerbate the extent to which preservation values are externalized to those jurisdictions. There are papers that demonstrate that by forcing all jurisdictions to the same equilibrium per capita utility level, perfect and costless mobility ensures that the globally optimal level of pollution control is also a Nash equilibrium in the inter-jurisdictional competition game. *See, e.g.*, E.C. Silva, *Decentralized and Efficient Control of Pollution in Federal Systems*, 32 J. ENVTL. ECON. & MGMT. 95 (1997), where a Nash equilibrium is a set of strategies such that each player's strategy maximizes her payoff given the strategies chosen by the other players. *See* HERBERT GINTIS, GAME THEORY EVOLVING: A PROBLEM-CENTERED INTRODUCTION TO MODELING STRATEGIC BEHAVIOR 12–13 (2000).

41. That the federal Commerce Clause may indeed be used to limit congressional authority to regulate local land use control decisions is the clear implication of the Court's decision in *Solid Waste Ass'n v. United States Army Corps of Engineers*, 531 U.S. 159, 174 (2001) (holding that permitting the Corps to "claim federal jurisdiction over ponds and mudflats . . . would result in a significant impingement of the States' traditional and primary power over land and water use").

tant thing to see is how the pressure for centralized control over resource development decisions almost automatically results from the structural conflicts set forth in the previous Section. Economic development and integration not only make undeveloped resources increasingly scarce but also increase the value of those resources in both recreational and non-recreational use.[42] As development within a federation proceeds, local development decisions increasingly affect non-local residents. Such non-local residents thus have every incentive to pressure the central government to control such decisions.

Such centralized controls may well be justified as dealing with a global externality. In the story I have told, an externality problem clearly exists: local economic development of a publicly held, open-access natural resource generates an un-priced loss in the amount of V to non-local resource users. Because Jurisdiction Two's natural asset is managed on a free-access basis, its residents possibly may decide to develop even though the global cost of development exceeds its benefit (that is, even though $V < D < 2V$). For this reason, a centralized decision to prevent development possibly may prevent inefficient development.

Centralization, however, also provides an opportunity for inefficient rent-seeking by Jurisdiction One residents. Those residents get substantial benefits from preventing Jurisdiction Two from developing but do not bear any of the costs—the foregone benefits of development. For instance, even if Jurisdiction Two residents value development at eighty dollars while development costs Jurisdiction One residents only twenty dollars, Jurisdiction One residents have an incentive to prevent devel-

42. The intuition behind this point can be grasped by considering an array of potential recreational users whose use value ranges from 0 to V. If the cost of traveling to and accessing the resource is c, then only those users with $V > c$ will get a positive net benefit from using the resource. When c falls, the number of users and total use value increases. There are many examples, both old and new, of how a big fall in transportation costs can create new markets for a region's natural resources. For an older example, see THOMAS R. COX, MILLS AND MARKETS: A HISTORY OF THE PACIFIC LUMBER INDUSTRY TO 1900, at 199–226 (1974) (discussing how the shipment of northwest lumber to the eastern states remained uneconomic until the completion of the intercontinental railroad). For more recent examples illustrating this dynamic, see A. DENNY ELLERMAN ET AL., MARKETS FOR CLEAN AIR: THE U.S. ACID RAIN PROGRAM 90 (2000) (discussing the possibility that reduced rail freight charges led utilities to switch to using low sulfur coal from Wyoming's Powder River Basin as a way to reduce their sulfur dioxide emissions).

opment and retain their twenty-dollar value. The economic externality created by open-access management—the undeveloped resource's unpriced value to non-local users—gives the local jurisdiction too great an incentive to develop under decentralization. But centralization itself creates an externality: the budgetary externality[43] that arises when Jurisdiction One residents use centralization to preserve an undeveloped resource and impose all the costs of preservation on Jurisdiction Two residents. In this model, centralized development controls do not provide a benefit uniformly spread across jurisdictions but rather provide very large net benefits to some jurisdictions and small or no net benefits to others.[44] A well-known result in the public finance literature is that the ability to spread taxes over an entire nation of taxpayers results in biasing federal fiscal policy toward spending too much on programs that deliver locally concentrated benefits.[45] In the same way, the ability to

43. It is more traditional to use the term "budgetary externality" to refer to the divergence between the beneficiaries and revenue generators of government programs. In my model, preservation does not require expenditures, but the foregone development value is the true economic shadow price of the preservation project, and local residents bear this just as much as they would bear taxes.

44. In this regard, the model developed here resembles recent work by TIMOTHY BEASLEY & STEPHEN COATE, CENTRALIZED VERSUS DECENTRALIZED PROVISION OF LOCAL PUBLIC GOODS: A POLITICAL ECONOMY ANALYSIS (Nat'l Bureau of Econ. Research, Working Paper No. 7084, 1999) and Ben Lockwood, *Distributive Politics and the Costs of Centralization*, 69 REV. ECON. STUD. 313 (2002). They extend the traditional normative economic theory of decentralization to consider the case in which centralization confers non-uniform benefits across heterogeneous jurisdictions, and find, among other things, that when there are spillover effects, the fact that there is budgetary externality—where benefits and (tax) costs to jurisdictions are not necessarily equal—may actually strengthen the case for centralization by increasing the preferred level of the spillover-generating public good. The fact that federalization provides an opportunity for rent-seeking and redistribution—in addition to bringing about various potential efficiencies—is also central to the following works: Avinash Dixit & John Londregan, *Fiscal Federalism and Redistributive Politics*, 68 J. PUB. ECON. 153 (1998) (showing how federalization weakens the regulatory resources available to lower governmental levels); Torsten Persson & Guido Tabellini, *Does Centralization Increase the Size of Government?*, 38 EUR. ECON. REV. 765 (1994) (showing that free-riding increases, the larger the number of jurisdictions in the federation); Karl Warneryd, *Distributional Conflict and Jurisdictional Organization*, 69 J. PUB. ECON. 435 (1998) (analyzing the likely distributional cost of centralization to small jurisdictions).

45. Spending bias is one reason why inefficient pork barrel (distributive public goods) spending becomes more likely, as a more centralized level of provision results in a larger tax base over which to spread project costs. *See* V.V. CHARI & H. COLE, A CONTRIBUTION TO THE THEORY OF PORK BARREL SPENDING (Fed. Reserve Bank of Minneapolis, Staff Report 156, 1993); Barry R. Weingast et al., *The Political Economy of Benefits and Costs: A Neoclassical Approach to Distributive Politics*, 89 J. POL. ECON. 642 (1981). For evidence that increasing the

concentrate the costs of preservation in particular jurisdictions introduces a preservation bias into federal development control regulations.

C. *Determinants of the Likelihood and Type of Centralized Regulation*

The previous two Sections explained that pressure for the centralization of natural resource regulation almost inevitably results from the increasing scarcity of undeveloped, open-access natural resources. This Section further explores two important determinants of whether the forces favoring centralization succeed. One determinant is the extent of political bargaining costs. Were political bargaining costless and perfect, then inefficient centralized controls—those whose local costs exceeded their global benefits—would not be observed. Resource-rich jurisdictions would transfer enough of the gains from development to preservationist jurisdictions so that the latter would consent to allow development. The other determinant is the global distribution of development costs and benefits. When local and non-local interests equally bear both costs and benefits, local and global incentives converge. When development benefits are largely local, while development costs are largely non-local, the global incentive is to control locally desirable development (and when development benefits are primarily global, while costs are primarily local, the global incentive is to compel or subsidize locally unwanted development).

1. Political Bargaining Costs

The previous Section showed that market integration creates an incentive for residents of relatively developed jurisdictions to use whatever central political power they may have to impose centralized development controls on undeveloped natural resources. Whether such centralization occurs at all and the extent to which it actually stifles natural resource development in relatively new, undeveloped jurisdictions depends

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local cost of federal projects does indeed reduce a legislator's demand for such projects, see Alison F. DelRossi & Robert P. Inman, *Changing the Price of Pork: The Impact of Local Cost Sharing on Legislators' Demands for Distributive Public Goods*, 71 J. PUB. ECON. 247 (1999).

upon the cost and outcome of bargaining between opponents and proponents of such centralized controls. In this Section, I argue that while bargaining over regulatory centralization is an inherent feature of central legislation, the obstacles to efficient legislative bargaining are serious. Even if legislatures are organized to reduce the transaction costs of interjurisdictional deal-making, efficient deals regarding natural resource development versus preservation require an ability to make long-term, credible commitments that is inconsistent with the principle of popular election underlying democratic central legislatures.

a. The Commitment Problem in Political Bargaining: An Example

To explain these points, consider a concrete example. Suppose that a numerically large coalition of eastern and midwestern congressional representatives sought to preserve the entire northern third of Idaho as an undeveloped national wilderness area. The representatives wanted this wilderness area even though it would cost Idahoans far more than it would benefit easterners and midwesterners. To prevent the majority from going ahead with this inefficient wilderness legislation, the Idaho congressional delegation would need to find something that they could exchange to get the consent of the eastern and midwestern legislators to alter the wilderness area plan. The most direct such exchange would be to agree to a federal tax on the profits (economic rents) from development in what would otherwise be undeveloped Idaho wilderness. This might work, but only if some way was found to ensure delivery of the tax revenues only to the opponents of Idaho development rather than to all national taxpayers. Such concentrated targeting of the tax revenues would in turn require another piece of congressional legislation that brought direct, identifiable benefits to the national losers from development in Idaho. Federal legislation can produce such targeted benefits—consider, for example, the long list of Army Corps of Engineers projects that Congress continues to authorize annually. The Idaho congressional delegation, however, can only control and trade its own votes. If those votes turn out to be pivotal to the chamber's support for payback legislation, then the Idahoans will have effectively paid back the eastern and midwestern representatives who supported natural resource development in Idaho.

But the chance that the Idaho votes will actually be pivotal may be quite small. When the Idaho votes are not pivotal and the payback fails to pass, eastern and midwestern representatives who supported development in the northern third of Idaho against the wishes of their constituents will have got nothing for their support, and their constituents will have clearly lost by virtue of their representatives' decision.

The inability of any minority subset of legislators in a majority-rule legislature to credibly promise to enact future legislation as a payback for present-day support is, of course, a quite general phenomenon.[46] It is perhaps the primary reason why although minimum-size, winning coalitions provide the cheapest way for legislators to log-roll votes across legislation,[47] universalism—the crafting of legislation to garner as broad support as possible—is the congressional norm.[48] True pork-barrel legislation works because it contains something for virtually everybody by providing concentrated benefits to key constituents in virtually every state and district while spreading the costs across all taxpayers.[49] Federal natural resource development legislation cannot generally be packaged as part of such a universalistic deal, under which the losers from the legislation are ensured of an immediate transfer in exchange for their support. Thus efficient legislative bargaining over long-term natural resource development regulation cannot occur without long-term legislative commitments.

Whether or not federal legislators can make effective long-term commitments depends upon historically contingent politi-

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46. Indeed, as one commentator has recently argued, commitment problems are inherent in political bargaining problems, and are a very general reason why inefficient political programs (those that cost the losers more than they benefit the winners) are not bargained away. *See* DARON ACEMOGLU, WHY NOT A POLITICAL COASE THEOREM? SOCIAL CONFLICT, COMMITMENT, AND POLITICS (Nat'l Bureau of Econ. Research, Working Paper No. w9377, 2002).

47. *See* David P. Baron & John Ferejohn, *Bargaining in Legislatures*, 83 AM. POL. SCI. REV. 1181 (1989); Kenneth J. Koford, *Centralized Vote-Trading*, 39 PUB. CHOICE 245 (1982).

48. *See* Kenneth A. Shepsle & Barry R. Weingast, *Political Preferences for the Pork Barrel: A Generalization*, 25 AM. J. POL. SCI. 96 (1981); Barry R. Weingast, *Reflections on Distributive Politics and Universalism*, 47 POL. SCI. RES. Q. 318 (1994). *But see* Clifford J. Carrubba & Craig Volden, *Coalitional Politics and Logrolling in Legislative Institutions*, 44 AM. J. POL. SCI. 261 (2000).

49. *See* Carrubba & Volden, *supra* note 48. For the presentation of evidence contrary to the universalism thesis, see ROBERT M. STEIN & KENNETH N. BICKERS, PERPETUATING THE PORK BARREL: POLICY SUBSYSTEMS AND AMERICAN DEMOCRACY 30–44 (1995).

cal circumstances. During periods when congressional membership has been stable, with strict seniority-based committee leadership, credible commitments have been possible. During the period from 1945 to 1970, for example, key committees in the United States House of Representatives were controlled by a very small number of western Republicans and southern Democrats.[50] The gate-keeping authority of long-serving Interior Committee chair Wes Aspinall of Colorado gave him the ability to credibly promise his committee members' future votes in exchange for present-day votes favoring western natural resource development.

There is nothing, of course, to guarantee that such long-term congressional deals were efficient. Indeed, it has generally been supposed that such post-World War II congressional bargaining actually encouraged too much development of ostensibly federal natural resources in the western United States[51] by bringing concentrated benefits to a few local developers at the expense of national preservationists. The important thing for purposes of the present argument is to see the enormous number of factors that influence such legislative deal-making. Like private bargaining, simple transaction costs may be so high that potentially efficient deals are never struck. But unlike private bargaining, even a clear allocation of legal rights—whether there is, for instance, a constitutional right for a local jurisdiction to make a resource development decision free of centralized regulation—may do little to encourage bargaining. In inter-jurisdictional conflicts over the control of natural resources, political power tends to trump legal rights.

b. Political Bargaining: A More General Analysis

To say that political power shapes bargaining over regulatory centralization is not to concede that such bargaining is beyond analysis. Most important in determining political bargaining outcomes, perhaps, is the relative amount at stake. Within my simple two-jurisdiction model, centralized regula-

50. *See generally* THE RALPH NADER CONGRESS PROJECT, THE ENVIRONMENT COMMITTEES: A STUDY OF THE HOUSE AND SENATE INTERIOR, AGRICULTURE AND SCIENCE COMMITTEES (1972).

51. For popular statements of this view, see DANIEL R. BARNEY, THE LAST STAND: RALPH NADER'S STUDY GROUP REPORT ON THE NATIONAL FORESTS (1974); MARC REISNER, CADILLAC DESERT (rev. ed. 1993).

tion that completely prohibits development generates a gain of V for Jurisdiction One residents at a cost of D to Jurisdiction Two residents. If the cost of persuading the national government to pass the centralized regulation exceeds V, then centralization will not generate a net benefit for Jurisdiction One residents. Inasmuch as centralization involves a political contest between winners and losers, the cost of centralization, D, is a primary determinant of the amount that the losers will spend to prevent it from occurring.[52] The bigger the cost of centralized development controls, the greater the amount that the cost-bearers will be willing to spend in an attempt to defeat such controls from being imposed. If the costs of development controls are greater than the benefits, then opponents of centralization must be willing to spend more to defeat centralized preservation mandates than the proponents will be willing to spend to get the legislature to enact such mandates. If the proponents of preservation rationally foresee that by spending more, preservation opponents will succeed in convincing the legislature not to enact preservation laws, then they will be better off not proposing centralization the first place than fighting a costly losing battle.

If the political bargaining costs incurred by preservation winners and losers actually equaled the respective global benefits and costs of centralized preservation requirements, and the central legislature surely would decide in favor of whichever side spent the most on lobbying, then the legislature would only impose centralized controls if their benefits exceeded their costs.[53] This situation, however, would be a very special case, one in which politicians succeed in extracting all the economic rents from resource development versus preservation.[54] More

52. This is a general feature of conflicts in which the probability of winning the conflict is a function of the effort levels of the opposing sides. *See, e.g.*, Stergios Skaperdas, *Cooperation, Conflict, and Power in the Absence of Property Rights*, 82 AMER. ECON. REV. 720 (1992).

53. To be more precise, if the winners and losers spent up to the full amount of their respective stakes in the preservation fight, so that non-local preservationists spent V and local development beneficiaries spent D minus V (their net gain, taking account of their lost undeveloped value), and the central legislature approved the preservation measure *if and only if* preservationists spent more, then it would approve preservation if and only if $V > D - V$, or $2V > D$, which is the socially optimal result.

54. To see the large number of conditions that must hold for complete rent dissipation in a political contest, one should consult Gary S. Becker, *A Theory of*

generally, as long as political bargaining costs tend to increase with the actual stakes in the dispute, high costs of implementing centralized resource regulations lower the likelihood that the legislature will impose such regulations.[55]

An equally important implication of political bargaining costs is that by agreeing to allow some development, preservation winners cut the local incentive to fight centralized preservation laws and thereby significantly increase their chances of getting such laws enacted. Preservation winners often benefit from compromising and implementing some centralized development controls rather than holding out for a total development ban that will trigger intense political opposition. The strategic calculus at work here is the same that drives pre-trial settlement in civil litigation.[56] A bit more formally, if we let p denote the probability that preservationists win the battle and $c()$ the equilibrium political influence cost for preservation winners given their potential winnings V, then the expected payoff to preservation winners from fighting a political battle for a complete development ban is equal to $W = pV - c(V)$. The expected cost of such a battle to preservation losers (development winners) is given by $L = pD + c(D)$.[57] Provided that L exceeds W ($W < L$), some partial development ban must exist that will benefit both parties more than fighting over a ban on all development.

Because the stakes in the political contest over centralized development controls are so likely to be asymmetric (viz., $D \neq V$), the likelihood of a compromise allowing some resource development depends on both the nature of the political process

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Competition Among Pressure Groups for Political Influence, 98 Q.J. ECON. 371 (1983).

55. That is, if the political cost of getting centralized preservation legislation is P, then the net value of preservation to preservationists is $V - P$. Put differently, the higher the value of P, the larger V must be in order for preservation to result in a net benefit for preservationists. The assumption that lobbying—or political conflict more generally—is actually costly to each side is crucial to this argument. If, for instance, one side or the other actually got positive utility from political action, the analysis would be quite different.

56. This mirrors the well-known result that if the parties in civil litigation agree on the probability that the plaintiff will win and also on the expected damages that the plaintiff will recover, then unless they actually prefer risk, there is no reason for them to incur the cost of conflict (trial) and hence should settle without a conflict. On this basic calculus, see RICHARD A. POSNER, ECONOMIC ANALYSIS OF LAW 554–57 (4th ed. 1992).

57. Note that the equilibrium probability that the centralized development prohibition is imposed is given by $p(c(V),c(D))$, with $Mp / Mc(V) > 0$ and $Mp / Mc(D) < 0$.

and the relative stakes. It is unambiguously true that the more expensive the political contest, the greater the parties' mutual incentive to reach a compromise and avoid the contest. This should not, however, be construed as an argument in favor of institutional structures that produce costly bargaining over centralization. For if the process is not only costly but highly imperfect—in the sense that imposition of the development ban depends little on whether $V > D$—then the incentive to avoid cost may lead to a compromise development ban regardless of whether such a ban is globally efficient or not.

2. Market Integration and the Creation and Distribution of Development Rents

As explained above, political bargaining costs may create obstacles to centralization, but they do not determine the basic incentive for centralization. Whether there is any incentive for centralization in the first place depends upon the local versus national distribution of the costs and benefits of centralization. The magnitude and distribution of both these costs and benefits is in turn determined in large part by the process of market integration.

While I have assumed thus far that the extension of transportation networks to create a unified national (or global) market works primarily to dramatically increase the global or non-local value from preservation and the local value of development, this is actually something of a special case. More generally, market integration brings development opportunities not only to undeveloped, resource rich jurisdictions but to potential developers located in older, more developed jurisdictions. Development value is shared between local resource owners and non-local developers who have the human and physical capital necessary to realize development opportunities. As exemplified by the experience of many developing countries, when developed jurisdiction residents supply the capital and expertise necessary to harvest resources, they also often receive a large proportion of the harvest's total value. Even though market integration may create resource extraction industries in undeveloped jurisdictions, the largest share of the economic rents generated by such industries often falls outside the resource rich jurisdiction. When non-local capitalists expect to get a big share of development value, they have an obvious incentive not only to oppose centralized development controls but to actually

push for centralized development subsidies. These may take the form of centralized provision of development infrastructure, such as roads and dams, or direct centralized financial subsidies. As a historical matter, it has often been the case that non-local development value increases well before non-local preservation value.[58] During the Progressive Era, for instance, most federal laws were not passed to preserve natural resources but to develop them.

Market integration may thus generate incentives for centralized development promotion as well as centralized development control. The effect of market integration on development value is also more complex than I have thus far portrayed it. For jurisdictions on the periphery—those on the edge of an extending transportation network and market—market expansion generates new development opportunities. But for jurisdictions on the interior of such a market network, market integration often operates to constrain the local gains from development while lessening the external costs of development. The same reason accounts for both effects: transportation cost reductions, a hallmark of market integration, tend to destroy local resource monopolies. When resource owners participate in national or global markets, they face more competition, and increased competition lowers the economic rents accruing to such resource owners. Though obviously true of agricultural resources, this also applies to land itself. The thicker the land market—the larger the number of sites and the lower the transaction costs of moving a residence or business from one site to another—the greater the residential and business mobility.[59] On the other hand, because a decrease in transportation costs lowers the cost of accessing undeveloped resources on the periphery of an expanding market, it creates more alternatives to undeveloped resources within the interior of the market region. Other things equal, this lowers the global value from preserving undeveloped natural resources within interior regions. By driving up local development value and non-local preservation value, market integration raises the prospect of

58. See the discussion, *infra* note 144, of how large midwestern timber companies created the lumber industry in the Pacific Northwest.

59. That is, the more competitive the land market—in the sense that more alternative sites are available for commercial or residential development—the weaker the bargaining power of particular site owners. In the limit, with mobile businesses and residents having all the bargaining power, site owners will get only the location value of their particular site and none of the development value.

globally inefficient decentralized development in places on the market periphery. But by lowering both local development rents and non-local preservation value in interior areas, market integration may narrow the gap between local and global incentives for development in such interior jurisdictions.

D. Implications for the Positive Theory of Regulatory Centralization

An important aspect of my simple two-jurisdiction model is that it is explicitly intertemporal, positing that different jurisdictions develop at different rates. This Section develops some of the model's predictions regarding both the dynamic causes and consequences of regulatory centralization.

1. Decentralization Discourages Early Stage Development: The Race to Preserve

For over a century, perhaps the primary public rationale for federal conservation programs has been to prevent the overuse and over-harvest of publicly held, free-access resources.[60] An implicit assumption that decentralized state regulation will develop such resources too quickly underlies federal programs. The analysis from the previous Section demonstrates the truth of the conservationist assumption for what I have termed "late-stage development." In this Section, I analyze the dynamics of development and demonstrate that when actors have rational expectations about future incentives, the assumption is false for early-stage development.

What I mean by the "dynamics of development" is how a jurisdiction's rational expectations about what will occur later in the development process affect that jurisdiction's present development decisions. Within our simple two-jurisdiction, two time-period world, the static analysis above focused on incentives at the point in time when the newer, undeveloped Jurisdiction Two finally receives a development opportunity. Dy-

60. As put by CHAR MILLER, GIFFORD PINCHOT AND THE MAKING OF MODERN ENVIRONMENTALISM 153 (2001), by the late nineteenth century, the "combined devastation of the landscape" brought about by "unrestrained resource exploitation in the Rockies"—i.e., lumbering, mining and grazing—"impelled a growing demand for some federal controls, and those local and national figures who demanded such regulation came to call themselves conservationists."

namic analysis instead focuses on how Jurisdiction One's rational expectations about the future development decision in Jurisdiction Two affect Jurisdiction One's decision to develop.[61]

This form of dynamic analysis presumes that jurisdictions behave strategically. Strategic behavior implies that the first jurisdiction to get a development opportunity recognizes that its present decision will impact both the political level at which future development decisions are made—local versus federal—and the outcome of any such future decision.[62] Such behavior is possible only if actors not only anticipate that development is sequential, but also understand how present development decisions affect future incentives.[63]

Let us then modify the simple model of the previous Part by assuming that the Jurisdiction One does foresee that Jurisdiction Two will eventually receive a development opportunity and has full information regarding Jurisdiction Two's future development calculus. When we allow for such strategic foresight, the model predicts that decentralized development creates local incentives for too much preservation. Because the jurisdictions foresee development opportunities, when Jurisdiction One first receives a development opportunity, it will realize that decentralized development and free-access management of undeveloped resources will give Jurisdiction Two too great an incentive to develop. Foreseeing this and also that their own demand for undeveloped resources will increase as they become wealthier, Jurisdiction One residents will have *too little* incentive to develop. Because under decentralization they cannot guarantee later resource conservation, they will over-

61. The traditional public finance literature on interjurisdictional competition is static, in the sense that it looks at competition across jurisdictions at a single point in time. Very little, if any, work in public finance explores the dynamic evolution of decentralized policy and private choices. For a recent exception and a brief discussion of the literature, see DAVID E. WILDASIN, FISCAL COMPETITION IN SPACE AND TIME (Center for Econ. Studies & Ifo Inst. for Econ. Research (CESifo), Working Paper No. 370, 2000), *available at* http://www.cesifo.de/CES (last visited Jan. 4, 2003).

62. To say that decision making behavior is strategic is to say that that the decision maker understands and takes account of the interactions between her decision and those made by other people or actors. *See* JOHN MCMILLAN, GAMES, STRATEGIES, & MANAGERS 3 (1992).

63. That is, the development game, as I have modeled it, is sequential, and in a sequential game, an actor must understand both what moves have been made, and make a prediction of how future moves will be made. For an introduction to such games and notions of what rationality requires in such situations, see DAVID M. KREPS. A COURSE IN MICROECONOMIC THEORY 387–462 (1990).

conserve today to provide for their future demand for undeveloped resources.[64]

To put this dynamic in perspective, it is useful to contrast it with the well-known "race-to-the-bottom" rationale for federal environmental regulation.[65] The race-to-the-bottom story posits that jurisdictions compete for development, and the jobs and tax revenues it brings, by allowing too much development and degradation of the undeveloped value of their natural resources. Thus, under this theory, decentralization generates strategic incentives for jurisdictions to compete for a given development opportunity and capital by sacrificing the purity of their local environments.[66] My model generates precisely the opposite prediction: decentralization induces strategic over-preservation by early-developing jurisdictions. To the extent that local development incentives in my model are too strong, the incentive to over-preserve arises because both local and non-local users have free access to publicly held natural resources, not because of strategic competition for capital. If a "race" exists under my model, then it is precisely the opposite to that supposed by the race-to-the-bottom approach: under decentralization, the later-developing jurisdictions overdevelop, causing rational early-developing communities to underdevelop. Rather than racing for capital and development, in my model, jurisdictions turn away too many development opportunities so as to provide for their own future demand for undeveloped resources.

It must be stressed that this over-preservation problem arises only when early-developing jurisdictions rationally foresee future decentralized development decisions. This is a

64. This is shown in the appendix in more formal detail. This effect is qualitatively similar to the well-known result in Kenneth J. Arrow & Anthony C. Fisher, *Environmental Preservation, Uncertainty, and Irreversibility*, 88 Q.J. ECON. 312 (1974), that when development is irreversible, the uncertain future cost of present development lowers the optimal level of present development. The important difference is that while their model describes only a single resource owner's optimal decision, my model explores the consequences of future non-optimal behavior by one owner for another owner's present optimal choice.

65. *See supra* notes 15–16.

66. Strictly speaking, the traditional public finance work on interjurisdictional competition presumes perfect competition, in the sense that no jurisdiction thinks that its decision will have any effect on the decisions of other jurisdictions. It thus assumes away interdependent, strategic decision making under decentralization. My formal model presumes by contrast that jurisdictions do take account of the effect of their decisions on future decisions by other jurisdictions.

strong assumption. Voters and politicians may be myopic. They may not foresee that they will come to value distant undeveloped resources. They may also fail to recognize that the jurisdictions possessing those resources will someday have too great an incentive to develop them. Or they may simply view resources as limitless, so that the value of undeveloped resources will never increase due to scarcity.

As I discuss in some detail below, rational foresight did not actually drive regulatory centralization of wildlife and forests in the United States.[67] Given the vast size of the United States, Americans generally began development under the assumption that their undeveloped natural resources were infinitely abundant.[68] Surprised when locally available resources—such as timber or wildlife[69]—began to disappear, Americans then imposed centralized development controls on remaining undeveloped resources. American expectations have adapted, with early-developing jurisdictions proceeding as if resources were limitless and then pushing hard for centralized controls so that later-developing jurisdictions could not repeat their mistakes.

2. Anticipated Centralization Creates, Rather than Solves, the Race-to-Develop

If individuals correctly anticipate future development incentives under decentralized control, then they will also foresee the likelihood that they will enact centralized development controls in the future. Under adaptive expectations, individuals tend to project forward their most recent salient experience.[70] Expectations about political control are just as likely to adapt as are expectations about market development. Success in implementing centralized development controls will lead the supporters of those controls to expect further success. Indeed, under my assumptions about the local versus non-local distribu-

67. *See* discussion accompanying notes 117–152 and 169–203, *infra*.

68. *See, e.g.*, Sparhawk, *supra* note 27, at 702 (observing that given the tremendous abundance of American forests, American pioneers "came to feel that the thing to do with the forest was to get rid of it").

69. *See* discussion accompanying notes 117–152 and 169–203, *infra*.

70. For a definition of adaptive expectations and a discussion of the distinction between adaptive and rational expectations, see H. HASHEM PESARAN, THE LIMITS OF RATIONAL EXPECTATIONS 12–31 (1987). For more on rational expectations, see STEVEN M. SHEFFRIN, RATIONAL EXPECTATIONS 1–24 (2d ed. 1996).

tion of the costs and benefits of development, the further along the development path is a federation, the larger the number of relatively developed jurisdictions whose residents stand to benefit from controlling growth in an increasingly small minority of undeveloped jurisdictions. To the extent that the environmental services provided by non-local, undeveloped natural resources are—as I have assumed thus far—a perfect substitute for services from local natural resources, the expectation that centralized controls can be imposed to preserve non-local, undeveloped resources will generally encourage local development.

Intuitively, without market integration, residents of an early developing jurisdiction can only receive value from undeveloped natural resources by preserving their own local resources. When both market integration and centralized development controls are anticipated, residents of the early developing jurisdiction perceive a fall in the cost of development. Rather than an irreversible, permanent loss, local development now imposes only a short-term loss of undeveloped value on local residents, a loss that ceases after market integration makes distant natural resources accessible.

It must be emphasized that this result—that anticipated centralized development controls increase the local incentive for development—hinges upon the assumption that distant preservation provides a perfect substitute for local preservation. If the services provided by undeveloped natural resources located outside a jurisdiction do not perfectly substitute for the services lost when local natural resources are developed, then residents will have an incentive to preserve some local resources from development even if they rationally foresee that they can impose centralized controls elsewhere. Thus my model is fully consistent with, for instance, the fact that Progressive Era eastern conservationists supported both the protection of distant western forests and the creation of local urban public parks.[71]

71. See the discussion of the Progressive Era creation of the national forests accompanying notes 117–152, *infra*.

3. Regulatory Centralization and Market Integration

There is no single explanation for the integration of economic markets. In the United States, technological progress since the late nineteenth century has steadily lowered transportation, marketing, and production costs. Technological progress is not, however, a sufficient condition for market integration. Legal and regulatory barriers to trade across jurisdictions may greatly impede market integration.[72] Furthermore, together with technological change and the elimination of legal barriers to trade, population growth drives growth in the aggregate economic demand for resources.[73]

The model developed thus far has presumed that by increasing the total number of users of an open-access natural resource, market integration increases the preservation value of such resource. This is not, however, the only effect of market integration and economic growth. More generally, market integration and aggregate economic growth have two fundamentally opposing effects on the valuation of natural resources. On the one hand, market integration will often create a market or developed value for resources where none previously existed. For example, the construction of the Northern Pacific Railroad greatly lowered the cost of transporting lumber from the American Pacific Northwest back East and quite literally created entire new markets for such lumber.[74] On the other hand, as a consequence of both improved transportation and greater aggregate wealth, market integration also often leads to the discovery of new uses and values in undeveloped resources. The transcontinental railroad not only made Rocky Mountain

72. For example, as observed by PAUL KRUGMAN, GEOGRAPHY AND TRADE 79–80 (1991), although transportation costs fell and economies of scale grew in both Europe and America during the nineteenth century, tariffs and other trade barriers actually increased in Europe, making Europe a much less integrated market than America.

73. The proposition that aggregate demand increases directly as the population increases is not necessarily true. In particular, there is the Malthusian concern that with fixed natural resources, the marginal productivity of labor and per capita labor income must eventually fall. With adequate technological progress, however, per capita income can continuously increase as population increases even with finite natural resources. *See* PHILLIPE AGHION & PETER HOWITT, ENDOGENOUS GROWTH THEORY 105–09, 151–71 (1998).

74. *See* COX, *supra* note 42, at 199–226.

forests valuable as sources of lumber but also as places of recreation for affluent eastern and midwestern tourists.[75]

Paradoxically, the very forces that lead to market integration and an increase in the market or developed value of natural resources—technological change and economic growth—also increase the non-market or undeveloped value of natural resources. This dynamic plays itself out in different ways for different resources. Sometimes market integration increases development value before it increases preservation value, and sometimes the reverse occurs. For example, market integration increased the value of filling and developing American wetlands for agricultural use long before the integrated national market increased the value of wetlands as recreational resources.[76] By contrast, the interstate railroad network gave remote mountain areas a substantial undeveloped value for recreationists before these areas had any real development value.[77]

The fact that the development and preservation value may follow different time paths as market integration progresses affects the level at which regulatory centralization occurs and the nature of political conflict over centralization. Because markets integrate outward geographically—typically beginning within a metropolitan area, expanding then to a larger statewide or regional market, and finally encompassing an entire nation—the impetus for centralization may well be felt long

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75. On the role that wealthy recreationist-sportsmen played in creataing the first federal forest reserves, see JOHN F. RIEGER, AMERICAN SPORTSMEN AND THE ORIGINS OF CONSERVATION 165–74 (3d rev. ed. 2001).

76. During the nineteenth century, American wetlands were regarded as environmental "bads"—sources of malaria and obstacles to development. Even John Muir, the father of American Preservationism, wrote with enthusiasm about the movement to reclaim the Tulare Basin wetlands. *See* David Igler, *When is a River Not a River: Reclaiming Nature's Disorder in* Lux v. Haggin, 1 ENVTL. HIST. 52, 55 (1996); *see also* Kenneth Thompson, *Insalubrious California: Perception and Reality*, 59 ANNALS OF THE ASSOC. OF AMER. GEOGRAPHERS 50 (1969); Roger A. Winsor, *Environmental Imagery of the Wet Prairie of East Central Illinois, 1820–1920*, 13 J. HIST. GEOG. 375 (1987). With the introduction of tile drainage in the mid-nineteenth century, it became possible to drain wetlands and put the drained land into productive agricultural use. *See* HUGH PRINCE, WETLANDS OF THE AMERICAN MIDWEST 203–36 (1997). It was only where most wetlands had been drained so that economic development could proceed that wetlands became perceived in the late twentieth century as valuable in their undeveloped state. *See, e.g.*, DAVE DEMPSEY, RUIN & RECOVERY: MICHIGAN'S RISE AS A CONSERVATION LEADER 188–91 (2001).

77. *See* ALFRED RUNTE, NATIONAL PARKS: THE AMERICAN EXPERIENCE 48–64 (3d ed. 1997).

before national or interstate markets have developed. This is just to say that centralization does not necessarily mean "federalization." In my theory, the creation of an integrated intrastate market—due, for instance, to construction of a dense intrastate railway network—ought to lead to increased pressure both to develop previously remote intrastate natural resources and to preserve them. Thus economic integration at the state level, for instance, should generate support for state-level natural resource regulation. As market integration progresses to the national or regional level, demands for the resource may increase and non-local, out-of-state user groups may pressure for further controls at the national or regional level.

hether developed and undeveloped values increase in lockstep as a community becomes part of a larger and larger market region, the local and non-local distribution of development, as well as the resource's preservation value, will change. Because an individual can only derive value from a free-access natural resource by using it himself,[78] as the total number of users increases with market integration, the local share of the total national or global preservation value must fall (provided that local population is either constant or at least not increasing faster than the state or national population). In the case of a non-congestible public good, for instance, total value increases linearly with the total number of users N, where N increases due to market integration. Assuming that the population of the local jurisdiction within which the resource is located remains constant at L, the local share of global value, L/N, falls linearly with N.

How the local share of developed value changes with market integration is not so easy to identify. Collective local ownership of the resource ensures that local owners can veto development and therefore can guarantee that they benefit as much from development as without it. Whether they can garner an even larger share than their proportion of the undeveloped value depends upon economic, political, and legal factors. The key economic question involves the ownership of the non-

78. Here, "use" is interpreted broadly, to encompass value from passive appreciation or what economists call "existence value." The notion of existence value was first explicated by John Krutilla, *Conservation Reconsidered*, 56 AM. ECON. REV. 777 (1967). For a discussion of the ongoing controversy over how such value can be reliably measured, see Paul Portney, *The Contingent Valuation Debate: Why Economists Should Care*, 89 J. ECON. PERSP. 3, 4–6 (1994).

resource factors of production—that is, factors of development, whether human or non-human capital—necessary, in combination with the resource, to realize its development value. Other things equal, the greater the local ownership of other key factors of development, the greater the local share of development, and vice versa.

Regardless of the distribution of the ownership of the required economic factors of development, however, politics and the law determine the security and extent of the locally owned right. If either the state or national government weakens or removes the local community's right to say no to development, then the share of the gains from development that accrue locally will fall. Considering politics and economics together, clearly the greater the extent of non-local ownership of key development factors, the greater will be the pressure such owners impose on either the state or national government to weaken the local regulatory authority to resist development and thereby shift the distribution of gains from development to non-local developers.

It is important to stress that in my model, this basic dynamic—the tendency for market integration to redistribute preservation value away from resource rich jurisdictions and create new local development opportunities—has existed at all stages of market integration. The model predicts that as localities in the United States integrated into statewide markets, the regulation of resource development should become increasingly centralized at the state level. Similarly, as localities integrated into national markets, further regulatory centralization should have followed from the state to the national level. And as localities become integrated into a truly global market, pressure will increase to centralize regulatory control over natural resource development in some global authority.

4. Regulatory Centralization and Resource Overuse

One of the most obviously false assumptions in my analysis thus far is the assumption that congestion effects and overuse do not apply to the natural resource. It seems plausible to view most natural resources as subject to congestion, such that per user value from a particular use falls once the overall level of use rises above some threshold level. For wilderness lovers, for instance, it is almost tautologically true that the value of a mountain hike depends strongly on that hike being in a wil-

derness area, an area subject only to very low levels of non-motorized use. Similarly, too many hunters yield very little game. Sometimes—as with the irreversible loss of a species—the value severely decreases when the threshold is exceeded. Sometimes the decrease in value is less severe, such as the degradation of a hiking trail by mountain bikes that can be cured simply by cutting the level of mountain bike use.

The need to prevent overuse and congestion effects is one of the oldest and most common justifications for public regulation of an open-access natural resource.[79] The need to prevent overuse and the "tragedy of the commons," however, does not explain when and why pressure to *centralize* regulation of the commons might arise.[80] My model, by contrast, has focused on explaining regulatory centralization and has pointed to local regulators' systematic tendency to discount the importance of global preservation value when explaining centralization. By expanding my model of regulatory centralization to take account of resource congestion and overuse, we find that overuse may actually be an intended consequence of centralized regulation rather than something regulation seeks to prevent.

To see this, assume that the natural resource is congestible and that as markets integrate and the number of users of the undeveloped resource increases, per user value decreases. With a fixed local population, the total local value from preservation must decrease when per user value decreases due to congestion effects. Thus for any given development value, resource congestion increases the likelihood that the local decision will choose to develop rather than preserve. Assuming that local and global uses of the undeveloped resource are identical, the ratio of local to global preservation value remains constant, but resource congestion narrows the absolute gap between local and global preservation value.

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79. That is, regulation is typically justified by the need to prevent the "tragedy of the commons," the tendency for open access natural resources to be overused because users do not internalize the marginal cost to other users of their own use. *See* ROBERT V. PERCIVAL ET AL., ENVIRONMENTAL REGULATION: LAW, SCIENCE AND POLICY 58 (3d ed. 2000) (arguing that the overuse model captures the "essence" of the externalization problem characterizing many environmental issues); Hardin, *supra* note 1.

80. Except in the sense, discussed *infra* notes 81–89 and accompanying text, that any assertion of public regulatory authority is a kind of centralization vis-à-vis a pure private ownership model.

The basic effect of congestion on decentralized development is strongly intuitive: the more degradation by overuse of an undeveloped natural resource, the less people lose when it is developed. My model correctly predicts that the specter of resource overuse may generate a demand for centralized development controls. Whether regulatory centralization can solve the problem of overuse is a different question, for whether any particular legal regime "solves" a problem depends upon the proposed alternative to that regime. As analyzed in more detail below, if residents of the resource community had the political and legal authority to limit the overall level of resource use, they might succeed in reducing congestion effects to the point where the local decision would choose to preserve rather than develop the resource. Centralization that "preserves" free-access management of an undeveloped natural resource does not curb the problem of overuse but rather creates a problem that makes decentralized regulation infeasible.

5. Residential Mobility and Centralized Development "Controls" as Development Promotion

When residents are voters, changes in residential composition likely alter the median voter's preferences regarding development versus preservation. When such changes are anticipated, centralized development controls may be adopted not to ensure that future development does not occur but to ensure that it does. To see why, consider the following simple numerical example. Suppose that each of two communities begin with one hundred resident voters. The old community has a pro-development majority in that only thirty of the residents in the older community suffer net losses from development of that community's natural resource. The new community begins with a clear majority of sixty net winners from development. Now assume that all of the net losers from development will migrate to the new, undeveloped community if the old community develops. After migration, seventy of the new community's 130 residents will oppose development. Hence after migration, that community will not develop.

From the point of view of rational developers, it will pay to gain control over the new community's natural resources *before* migration creates an anti-development majority there. It might seem that the exertion of such centralized regulatory authority could garner majority support only if many voters lack

rational expectations and do not realize the long-term consequences of centralization. But such an assumption—tantamount to assuming that rational developers manipulate and mislead poorly informed voters—is not, in fact, required because anti-development individuals may comprise a global minority. Preservationists may act just as rationally as developers and may realize that centralization actually aims to blunt the political power they would have to stop development after migrating to new, undeveloped communities. But, as in my example, where preservation results in only seventy net winners out of the global two hundred, preservationists may represent a present-day minority at the federal level and hence lack power to stop centralization.

Thus *when* inter-community mobility is *anticipated*, it may create an incentive for early centralization of ownership and control, precisely to preempt the effects of mobility in altering median voter preferences in undeveloped areas. The motive is to ensure that development occurs when opportunities arise in those communities, even if development will then lack local majority support.

6. The Generality of the Model: Local Zoning as Regulatory Centralization

Although I have assumed for analytical clarity that development is an "on-off" decision, it is actually a continuous process. Within any particular jurisdiction, the balance of local costs and benefits from development likely will change as local development advances. Whereas economies of scale initially prevail—more people in a community results in more money for better schools and public services—diseconomies later dominate as the congestion costs of development degrade the per capita value of local public goods. The value of both existing homes and undeveloped land will eventually decrease as development renders the location less desirable. As communities reach this late stage of development, the local net benefits of development become negative (that is, development generates local losses).

Under this view, the evolution of any given jurisdiction and *its* jurisdictional subdivisions replicates in microcosm the development and distribution story analyzed in Part I for the

interjurisdictional case.[81] As development proceeds, the public value of remaining undeveloped resources increases, leading to pressure to regulate to prevent further development. Crucially, however, the smaller the size and closer the proximity of the jurisdictions, the more likely it is that development in one jurisdiction will affect people living in the other. As extrajurisdictional effects become greater, the pressure for centralization increases. As we descend in a federal system, such as the United States, from the national to the state and finally the local level, the sort of economic spillover effects that drive centralization in my model become increasingly pronounced. In addition, other things equal, the closer in proximity are any two jurisdictions, the more likely it is that preservation in one is a perfect substitute for preservation in the other. Thus it would seem that the assumptions underlying my general model of centralization are most likely to hold at the local level, where "centralized" regulation means local zoning.

The problem with applying the model to analyze zoning is that my analysis assumes that the natural resource is a publicly owned, free-access resource. Zoning, however, controls and limits private land development. Furthermore, private land is not generally managed on a free-access basis but on the basis of willingness to pay for use. It is not directly clear, therefore, that the model even applies to zoning.

These simple statements overstate the differences between the private land development decisions controlled by local zoning and the resource development decisions encompassed by my model. To see how my model may apply to zoning, observe that landowners' legal rights to exclude others and charge fees for the use of their land do not guarantee that they will find implementing such restrictions either practical or economical. When few trespassers exist and their use hardly impacts the owner's value of the land, and the cost of exclusion is high, an economically rational landowner will not exclude.[82] Land once ostensibly private becomes a *de facto* local public resource. Until the twentieth century, local free access even to private lands reigned in much of rural America. Then, American laws actively encouraged such local free access by requiring landowners to fence out and/or post their lands against trespassing,

81. *See* text accompanying notes 34–39, *supra*.

82. *See* David de Meza & J.R. Gould, *The Social Efficiency of Private Decisions to Enforce Property Rights*, 100 J. POL. ECON. 561 (1992).

thus greatly increasing the cost of exclusion.[83] Thus the local public ownership model closely approximates the effective, if not the formal, legal regime during much of American history.

Of course, as American economic development generated densely populated metropolitan areas, the cost of exclusion fell and the viability of exclusionary market pricing—requiring private land and resource users to pay whatever price the landowner may require for her consent to the use—rose.[84] In theory, such pricing allows private owners of land and other natural resources (timber and, in some states, streams) to internalize the resources' undeveloped value resources to both local and non-local users. That is, if everyone must pay to receive the benefits of an undeveloped resource, then the owner of the resource can internalize the economic rents generated by the undeveloped resource. When the owner bears both the global cost of preservation (because as assumed throughout Part I, the owner receives all the value of development) and can price to extract the full global benefit of preservation, then the owner's incentive to choose between preservation and development is globally optimal.

This story, however, relies upon a subtle but extremely significant sleight of hand. In the process of varying my earlier assumption that natural resources are locally owned and controlled public resources, I assumed not only that the resources are privately owned, but that they are excludable. Private owners can fully internalize the value of preservation only when they can charge a fully rent-extracting price from everyone who receives value from the preserved, undeveloped natural resource. It is straightforward to see how this might occur if only those people who actively use an undeveloped resource receive value from it. If, for instance, only trout fishermen benefit when the full flow of a coldwater stream is retained within the banks, as opposed to being diverted outside the banks for agricultural or industrial use, then the owner of the stream can capture all the value of preserving the natural flow of the river by charging the fishermen a suitably high use fee.[85]

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83. For more on this in the context of American wildlife law, see discussion accompanying notes 173–174, *infra*.

84. This is indeed one of the primary arguments underlying the approach set forth by TERRY L. ANDERSON & DONALD R. LEAL, FREE MARKET ENVIRONMENTALISM 9–26 (2d ed. 2001).

85. For real world examples of just such transactions, see ANDERSON & LEAL, *supra* note 84, at 95–101; TERRY L. ANDERSON & DONALD R. LEAL, ENVIRO-

More often than not, however, a large fraction of the total global value of preserving a natural resource is not realized by excludable resource users but by neighboring private resource owners and by other people who live in the vicinity and derive value simply from the continued existence of the undeveloped resource (consider, for instance, the existence value of species and other unique natural assets). Whether one owner develops her own resource affects the value another resource owner receives from using her resource. A downstream river owner or fisherman may benefit more when the upstream river owner decides not to divert water than when she does. But unlike my hypothetical trout fishermen—who can only receive the benefit from fishing the upstream owner's reach by paying her—the downstream owner must pay the upstream owner or else be harmed in the use of her own resource.

Thus even when resource preservation benefits only local residents, there will likely be numerous beneficiaries. Efficient, value-internalizing bargaining between a landowner and these beneficiaries can only occur if the beneficiaries take effective collective action. The bargaining outcome—how the gains from trade are shared between the landowner and others—depends upon both underlying legal entitlements—the scope of the landowner's legally protected property rights—and relative political power.[86] But these are precisely the same determinants of the likelihood of regulatory centralization revealed by my stylized model. That is, relative to decentralized, purely private decisionmaking about land use development decisions, local zoning stands as a virtually paradigmatic instance of precisely the sort of centralized development control regulation predicted earlier in my analysis. With a privately owned natural resource, the private owner will ordinarily capture the lion's share of local gains from development while others will bear many of the local costs of development. If we interpret "local" resident to mean only the property owner, then the model from Part I applies directly to zoning: the "local" resident garners virtually all the gains from development while externalizing

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CAPITALISTS: DOING GOOD WHILE DOING WELL 89–107 (1997) [hereinafter ANDERSON & LEAL, ENVIRO-CAPITALISTS].

86. The pathbreaking analysis of zoning versus bargaining as alternative solutions to local land use conflicts is Robert C. Ellickson, *Alternatives to Zoning: Covenants, Nuisance Rules, and Fines as Land Use Controls*, 40 U. CHI. L. REV. 681 (1973).

the costs to "non-local" residents. Zoning represents the exertion of centralized community development control over the "local" resource owner. This establishes that the validity of the model's predictions regarding the circumstances of centralized development control is not whether or not the resource is publicly owned but whether the development of the resource would impose sufficiently large costs on enough people that they could take effective political action at some level—local, state, or federal—to control development. In my model, the level of centralized development regulation depends primarily on the geographic scope of interests in development and, particularly, on the distribution of losers from development.

Recent work in the area of environmental history confirms this prediction. Until relatively late in the nineteenth century, most harm from industrial development was locally concentrated and, as my model predicts, stringently regulated by local ordinance and common law nuisance.[87] By the late nineteenth century, the railroad had sufficiently lowered access costs that the developed jurisdiction majority within states—residents of more heavily developed urban areas—had incentives to control development and exploit natural resources in relatively rural areas both within their own state borders and in other states.[88] Zoning arose during this period as a response to increasingly dense local development and increasing demands for local environmental preservation.[89] By the late twentieth century, when the United States was a fully integrated national market, virtually every development decision—however local it might

87. *See* WILLIAM J. NOVAK, THE PEOPLE'S WELFARE 191–234 (1998).

88. There was "minimal" state economic regulation before 1870. STEPHEN SKOWRONEK, BUILDING A NEW AMERICAN STATE: THE EXPANSION OF NATIONAL ADMINISTRATIVE CAPACITIES, 1877–1920 (1982); Richard Sylla, *Experimental Federalism: The Economics of American Government, 1789–1914*, *in* II THE CAMBRIDGE ECONOMIC HISTORY OF THE UNITED STATES: THE LONG NINETEENTH CENTURY 483, 537 (Stanley L. Engerman & Robert E. Gallman eds., 2000). Likewise, conservation of state natural resources by state agencies did not begin until 1868, in New York, with the creation of a Commissioner of Fisheries. PAUL STUDENSKI & HERMAN E. KROOSS, FINANCIAL HISTORY OF THE UNITED STATES 193 (2d ed. 1963).

89. On the origins of zoning, see S.J. MAKIELSKI, THE POLITICS OF ZONING (1966); SEYMOUR TOLL, ZONED AMERICAN 145–55, 162–66 (1969) (increasing density of urban skyscraper development generated pressure to prevent continued loss of light and space to adjacent owners); Newman F. Baker, *Zoning Legislation*, 11 CORNELL L.Q. 164, 165–69 (1926) (discussing spillovers as a consequence of increasingly dense development).

seem—posed a potential concern to some set of non-local residents.

II. SOME EVIDENCE FROM THE HISTORY OF THE CENTRALIZATION OF AMERICAN NATURAL RESOURCE REGULATION

The analysis in the preceding Part generated a number of positive predictions regarding when and how the centralization of natural resource regulation occurs. In this Part, I present both historical and contemporary evidence supporting many of the model's most important predictions.[90] This evidence pertains primarily to the federalization of natural resource regulation in the United States, although I also discuss state wildlife regulation.

A. The Broad Trend: The Relationship between Market Integration and the Federalization of American Resource Regulation

In testing any theory, the crucial first step is to choose the empirical data against which to test the theory. A political-economic theory of regulatory centralization, such as that developed in Part I, cannot hope to explain every instance of centralization. Theories are built to capture the crucial or dominant forces behind regulatory change, but history rarely provides a controlled experiment in which those forces can be clearly isolated. Actual regulatory change is messy, affected by broad economic and political forces and the coincidence of particular random events and personalities. Because political and economic theories inevitably simplify a very complex reality, it is always possible to disconfirm such a theory by choosing a sufficiently large universe of data to explain. On the other hand, even if the theory, as here, only attempts to explain broad trends, one must still select a sample to explain. Any

90. The evidence presented here is merely illustrative. Environmentalist era federalization illustrates precisely the same sectional and demographic redistributive forces that I recount in some detail for the Progressive era. For an Environmentalist era example, see MARK T. HARVEY, A SYMBOL OF WILDERNESS: ECHO PARK AND THE AMERICAN CONSERVATION MOVEMENT 23–49 (Weyerhaeuser Environmental Classic ed., Univ. of Wash. Press 2000) (recounting how the epic struggle over the Echo Park dam pitted local winners from development against non-local, national preservationist groups).

theory can be confirmed by selecting an appropriately small and special sample. For a meaningful test, care must be taken to choose the sample on some basis other than its "fit" with the theory. In testing my theory of market integration and resource centralization, my approach to the dilemma of sample selection is to use a criterion of selection that is completely unrelated to the theory I am testing (thus avoiding too careful sample selection) and yet nonetheless somewhat restrictive (so that we are not trying to explain everything): legal significance. To be more precise, I consider all of the federal statutes included in the leading law school casebook on federal public land and resources law[91] that are even arguably concerned with controlling natural resource development. These statutes are given in Table 1 below.

Table 1 reveals two great episodes of regulatory federalization: the Progressive Era of roughly 1891 to 1920 and the Environmentalist Era of 1960 to 1980. Of the thirty-three statutes in Table 1, seven were passed during the Progressive Era and twenty during the Environmentalist Era. More importantly, virtually every major federal resource conservation or preservation statute listed in Table 1 was passed during either the Progressive or Environmentalist periods. To see this, observe that of the six remaining statutes, three[92] simply extended earlier federal natural resource protection laws[93], while two[94] actually were development promotion statutes intended to validate preexisting first-in-time use rights to federal mineral and

91. Which I take to be GEORGE CAMERON COGGINS ET AL., FEDERAL PUBLIC LAND AND RESOURCES LAW (5th ed. 2002).

92. The Migratory Bird Conservation Act of 1929, ch. 257, 45 Stat. 1222; The Migratory Bird Hunting Stamp Act of 1934, ch. 71, 48 Stat. 452; and The National Wildlife Refuge System Improvement Act of 1997, Pub. L. No. 105-57, 111 Stat. 1252.

93. The statutes elaborated and extended were, respectively, the Migratory Bird Treaty Act of 1918, ch. 128, 40 Stat. 755, and the National Wildlife Refuge System Administration Act of 1966, Pub. L. No. 89-669, 80 Stat. 927. The 1997 Wildlife Refuge Improvement Act balances a mandate to maintain biological diversity within refuges against a category of priority public uses including hunting, *see* Robert L. Fischman, *The National Wildlife Refuge System and the Hallmarks of Modern Organic Legislation*, 29 ECOLOGY L.Q. 457, 515 (2002), and was arguably intended as much to ensure that the Refuges would continue to be open to hunters as to direct refuge management toward a greater emphasis on pure preservation.

94. The General Mining Law of 1872 and the Unlawful Inclosures of Public Lands Act.

TABLE 1: MAJOR FEDERAL NATURAL RESOURCE STATUTES

Title and Location of Statute	Year
General Mining Act, ch. 152, 17 Stat. 91 (30 U.S.C. §§ 22–43, 47)	1872
Unlawful Inclosures of Public Lands Act, ch. 149, 23 Stat. 321 (43 U.S.C. §§ 1061–1066)	1885
General Revision Act of 1891, Acts Mar. 3, 1891, ch. 561, §24, 26 Stat. 1103 (16 U.S.C. § 471) (repealed 1976)	1891
Lieu Lands Act (Forest Reservations), ch. 2, 30 Stat. 36 (codified at 16 U.S.C. §§ 473–482)	1897
Reclamation Acts, ch. 1093, 32 Stat. 388 (codified at scattered sections of 43 U.S.C. § 391 et seq.)	1902
Antiquities Act, ch. 3060, 34 Stat. 225	1906
Pickett Act, ch. 421, 36 Stat. 847 (repealed 1976)	1910
Nat'l Park Service Organic Act, ch. 408, 39 Stat. 535 (16 U.S.C. §§ 1–4)	1916
Migratory Bird Treaty Act, ch. 128, 40 Stat. 755 (15 U.S.C. §§ 703–711)	1918
Migratory Bird Conservation Act, ch. 257, 45 Stat. 1222 (15 U.S.C. § 715)	1929
Migratory Bird Hunting Stamp Act, ch. 71, 48 Stat. 452 (15 U.S.C. § 718)	1934
Taylor Grazing Act, ch. 865, 48 Stat. 1269 (43 U.S.C. § 315)	1934
Multiple-Use, Sustained Yield Act, Pub. L. No. 86-517, 74 Stat. 215 (16 U.S.C. §§ 528–531)	1960
Refuge Recreation Act, Pub. L. No. 87-714, 76 Stat. 653 (16 U.S.C. § 460k)	1962
Wilderness Act, Pub. L. No. 88-577, 78 Stat. 890 (16 U.S.C. §§ 1131–1136)	1964
Land and Water Conservation Fund Act, Pub. L. No. 88-578, 78 Stat. 897 (16 U.S.C. §§ 460l-4 to -11)	1965
Nat'l Wildlife Refuge System Administration Act, Pub. L. No. 89-669, §§ 4, 5, 80 Stat. 927 (16 U.S.C. §§ 668dd–668ee)	1966
Nat'l Historic Preservation Act, Pub. L. No. 89-665, 80 Stat. 915 (16 U.S.C. §§ 470–470w-6)	1966
Wild & Scenic Rivers Act, Pub. L. No. 90-542, 82 Stat. 906 (16 U.S.C §§ 1271–1287)	1968
Nat'l Trails System Act, Pub. L. No. 90-543, 82 Stat. 919 (16 U.S.C. §§ 1241–1251)	1968
Nat'l Environmental Policy Act, Pub. L. No. 91-190, 83 Stat. 852 (scattered sections between 42 U.S.C. §§ 4321 and 4347)	1969
Wild and Free-Roaming Horses and Burros Act, Pub. L. No. 92-195, 85 Stat. 649 (16 U.S.C. §§ 1331–1340)	1971
Alaska Native Claims Settlement Act, Pub. L. No. 92-203, 85 Stat. 688 (43 U.S.C. §§ 1601–1629)	1971
Coastal Zone Management Act of 1972, Pub. L. No. 92-583, 86 Stat. 1280 (16 U.S.C. §§ 1451–1464)	1972
Marine Mammal Protection Act, Pub.L. 92-522, 86 Stat. 1027 (scattered sections between 16 U.S.C. §§ 1361 and 1421)	1972
Endangered Species Act, Pub. L. No. 93-205, 87 Stat. 884 (16 U.S.C. §§ 1531–1544)	1973
Federal Land Policy and Management Act, Pub. L. No. 94-579, 90 Stat. 2743 (scattered sections between 43 U.S.C. §§ 1701–1782)	1976
Nat'l Forest Management Act, Pub. L. No. 94-588, 90 Stat. 2949 (16 U.S.C. §§ 1600, 1611–1614)	1976
Surface Mining Control and Reclamation Act, Pub. L. No. 95-87, 91 Stat. 445 (scattered sections between 30 U.S.C. §§ 1201 and 1238)	1977
Archaeological Resources Protection Act, Pub. L. No. 96-95, 93 Stat. 721 (16 U.S.C. §§ 470aa–470mm)	1979
Alaska Nat'l Interest Lands Conservation Act, Pub. L. No. 96-487, 94 Stat. 2371 (scattered sections between 16 U.S.C. §§ 410 and 3233)	1980
Nat'l Wildlife Refuge System Improvement Act, Pub. L. No. 105-57, 111 Stat. 1252	1997
Nat'l Wildlife Refuge System Improvement Act, Pub. L. No. 105-312, Title II, 112 Stat. 2957	1998

land resources.[95] The only new conservationist statute enacted in a period other than the Progressive or Environmentalist eras was the 1934 Taylor Grazing Act. This Act, however, was a New Deal–era statute enacted against the background of the catastrophic 1930s Dust Bowl. It was intended not to preserve federal rangelands from development but to restore their value for livestock forage.[96]

From the perspective of the general theory set forth in Part I, the Progressive and Environmentalist eras share an important characteristic: they each came at the end of a relatively long period of economic expansion and interstate market integration marked by a transportation revolution. Progressive Era natural resource regulation followed the completion of the interstate railway system. By 1890, the 30,000-mile rail network that existed in 1860 had grown to 170,000 miles, with the vast majority of new construction taking place in the northern Midwest and the West (including the Pacific region).[97] Together with tremendous technological change, the extension of a dense railway line over virtually the entire nation enormously decreased transportation costs and transit times,[98] which led to a profound restructuring and regional integration of the American economy.[99]

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95. The General Mining Law represented the triumph of Senator William Stewart of Nevada, who wanted a law that would mirror the status quo, under which miners who were actually trespassing on public lands had nevertheless acquired rights under an extralegal "miner's code" that recognized priority-in-time as the primary basis of ownership. *See* JOHN D. LESHY, THE MINING LAW: A STUDY IN PERPETUAL MOTION 11–15 (1987). The Unlawful Inclosures of Public Lands Act was intended to preserve the use of the federal lands as a grazing commons despite the transfer of large checkerboard land grants from the intercontinental railroads to ranchers. *See* LOUISE PEFFER, THE CLOSING OF THE PUBLIC DOMAIN 79–81 (1951).

96. *See* PEFFER, *supra* note 95, at 214–24.

97. *See* Albert Fishlow, *Internal Transportation in the Nineteenth and Early Twentieth Centuries*, *in* II THE CAMBRIDGE ECONOMIC HISTORY OF THE UNITED STATES: THE LONG NINETEENTH CENTURY, *supra* note 88, at 543, 583. As Fishlow notes, in some areas, such as the "central north" states of Ohio, Michigan, Indiana, Illinois and Wisconsin, this expansion was demand-driven. That is, in these areas of high agricultural production, the railroad expanded to serve the demand for freight transport. *Id.* at 576.

98. Innovations such as more powerful and efficient trains, steel rails, and automatic couplers reduced railroad operating costs by over fifty percent between 1870 and 1910. *Id.* at 595.

99. For a general discussion of the impact of the railroads in integrating the American market, see JEREMY ATACK AND PETER PASSELL, A NEW ECONOMIC VIEW OF AMERICAN HISTORY FROM COLONIAL TIMES TO 1940, at 427–56 (2d ed. 1994); *see also* Moses Abramovitz & Paul A. David, *Growth in the Era of Knowl-*

The 1960 to 1980 Environmentalist Era likewise directly followed a transportation-induced market revolution brought about by the automobile and jet aircraft. While the automobile and airplane had begun to transform American life between 1910 and 1930, the Great Depression and World War II interrupted that transformation.[100] With the post-World War II housing and baby boom, automobile ownership exploded.[101] Automobile owners and a vast and growing congeries of automobile-related industries demanded more and better roads, and in 1956 Congress authorized the interstate highway system.[102] By the time it neared completion in the early 1970s, the interstate system had completely altered the transportation cost structure within the United States in a way that dramatically equalized regional economic development opportunities. Unlike the industrial system of the railroad era—which had strongly favored the concentration of manufacturing in large urban areas near sources of raw materials and other industrial inputs located at key junctions in the railroad shipping network[103]—the era of the interstate incorporated small towns near freeway interchanges into the interstate and international market. Emigration from rural areas began to diminish during the 1960s, and by the early 1970s, population growth in rural counties actually exceeded the growth in urban and suburban

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edge-Based Progress: The Long-Run Perspective, *in* III THE CAMBRIDGE ECONOMIC HISTORY OF THE UNITED STATES: THE TWENTIETH CENTURY, *supra* note 39, at 1, 46.

100. Motor vehicle registrations rose from only eight thousand in 1900 to more than twenty-three million in 1930, and the auto industry, which was "virtually nonexistent" in 1900, had become, in less than three decades, the largest single industry in the United States. David Mowery & Nathan Rosenberg, *Twentieth Century Technological Change*, *in* III THE CAMBRIDGE ECONOMIC HISTORY OF THE UNITED STATES: THE TWENTIETH CENTURY, *supra* note 39, at 803, 831. By 1913, all but six states had highway construction programs, and by 1916 federal highway construction grants had begun. Fishlow, *supra* note 97, at 626. During this same period, a combination of technological advances led to the commercial introduction of the DC-3. This airplane, with an operating cost that was roughly half as large as its competitors', was as dominant in air travel as was the Model T in auto travel. American airline passenger traffic increased dramatically; so much so that by 1930, it was larger than that of the rest of the world combined. Mowery & Rosenberg, *supra* at 839, 840.

101. Between 1946 and 1950, consumer purchases of automobiles grew from only two percent of consumption to seven percent. Fishlow, *supra* note 97, at 633.

102. On the battle for the interstate system, see, e.g., MARK H. ROSE, INTERSTATE: EXPRESS HIGHWAY POLITICS, 1939–1989, at 69–100 (rev. ed. 1990).

103. Richard A. Easterlin, *Twentieth Century American Population Growth*, *in* III THE CAMBRIDGE ECONOMIC HISTORY OF THE UNITED STATES: THE TWENTIETH CENTURY, *supra* note 39, at 528–29.

counties, with the greatest increases in rural counties not adjacent to metropolitan areas.[104] By 1970, over fifty percent of truck traffic traveled on the interstates. The trucking industry exploded, as the number of goods shipped by truck increased 257 percent between 1955 and 1990.[105]

Thus during both the Progressive and Environmentalist eras, a revolution in the transportation sector dramatically lowered transportation costs and thereby integrated markets. The general model developed in Part I predicts and Table 1 predicts that the national market integration produced by such transportation revolutions should have generated strong political pressure for centralized controls over natural resource development.

While they both unified markets, however, the railroad and interstate highway system had dramatically different effects on the regional pattern of economic growth and development in America. The railroad eliminated distance as a natural trade barrier that had long sheltered inefficiently small local manufacturers. As market access expanded, increasingly capital-intensive industrial establishments began to dominate.[106] Thus the acceleration in aggregate economic growth over the period between 1869 and 1909 (when real per capita gross national product grew at an annual rate of 2.5 percent, more than twice the rate for the previous seventy years)[107] corresponded to increasing geographic concentration of economic activity.[108] The northeastern and north-central states' share of

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104. CALVIN L. BEALE, THE REVIVAL OF POPULATION GROWTH IN NONMETROPOLITAN AMERICA 6–7 (Economic Research Service, U.S. Department of Agriculture, ERS-605, 1975). Evidence that this shift was directly related to the construction of the Interstate highway system is provided by Ke-Shin Want, A Longitudinal Study of the Effect of the Interstate Highway System on the Economic and Demographic Growth Within Nonmetropolitan Counties in the State of Georgia, 1960–1980 (1987) (unpublished Ph.D. dissertation, University of Georgia), who finds that nonmetropolitan population growth was significantly higher in counties on or near interstates than in those that were farther from an interstate interchange.

105. TOM LEWIS, DIVIDED HIGHWAYS: BUILDING THE INTERSTATE HIGHWAYS, TRANSFORMING AMERICAN LIFE 286 (1997).

106. Abramovitz & David, *supra* note 99, at 46. *See generally* SARAH H. GORDON, PASSAGE TO UNION: HOW THE RAILROADS TRANSFORMED AMERICAN LIFE, 1829–1929 (1996).

107. Robert E. Gallman, *Economic Growth and Structural Change in the Long Nineteenth Century*, *in* II THE CAMBRIDGE ECONOMIC HISTORY OF THE UNITED STATES: THE LONG NINETEENTH CENTURY, *supra* note 88, at 1, 22.

108. *See* ATACK AND PASSELL, *supra* note 99, at 457–81.

national personal income rose from seventy percent in 1860 to seventy-seven percent by 1900,[109] while their population share increased from 62.6 percent to 63.3 percent between 1860 and 1890.[110] As late as 1900, as measured by population density, land development was virtually non-existent west of the one hundredth meridian.[111]

The pattern of economic growth dramatically shifted during the age of the interstate. The rise of the automobile contributed to this, for as the automotive services sector expanded over the period between 1929 and 1966 period (eventually generating ten percent of gross domestic product), exploitation of American petroleum resources accelerated, and petrochemical-based manufacturing industries located in the western and southwestern United States became increasingly significant.[112] More general trends included a dramatic shift of employment out of agriculture, particularly in poor southern states, and of population from the Northeast to the West and South. Rapid urban growth over the period between 1945 and 1970 in previously low-income states such as Arizona, Florida, Texas, and Georgia[113] reflected the creation of new metropolitan areas in previously undeveloped parts of the country.[114] The automobile also effected a change in the spatial arrangement of economic growth within regions. The creation of vast new, polycentric metropolitan areas promoted regional development in the

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109. Gallman, *supra* note107, at 52.

110. Michael R. Haines, *The Population of the United States, 1790–1920, in* II THE CAMBRIDGE ECONOMIC HISTORY OF THE UNITED STATES: THE LONG NINETEENTH CENTURY, *supra* note 88, at 143, 189.

111. *See* Jeremy Atack, Fred Bateman & William N. Parker, *Northern Agriculture and the Westward Movement, in* II THE CAMBRIDGE ECONOMIC HISTORY OF THE UNITED STATES: THE LONG NINETEENTH CENTURY, *supra* note 88, at 285, 327 fig. 7.18.

112. Abramovitz & David, *supra* note 99, at 52–53.

113. Carol E. Heim, *Structural Changes: Regional and Urban, in* III THE CAMBRIDGE ECONOMIC HISTORY OF THE UNITED STATES: THE TWENTIETH CENTURY, *supra* note 39, at 93, 104.

114. At the beginning of World War II, only sixteen of the nation's fifty largest metropolitan areas were in the South and West; by 1980, that number had increased to twenty-six. *Id.* at 95. Over the period from 1940 to 1950, metropolitan rings grew almost two and half times as fast as central cities. While the share of U.S. population residing in central cities fell slightly between 1950 and 1970, the share living in metropolitan rings increased from 24 to 37 percent. *Id.* at 143–44. By 1980, the share of population living in metropolitan areas was higher than the national average throughout the West and Southwest. U.S. CENSUS BUREAU, STATISTICAL ABSTRACT OF THE UNITED STATES 30 (2001).

southern and western parts of the United States that began in the 1940s.[115]

Thus although both the Progressive and Environmental eras were periods of rapid economic growth driven by transportation revolutions, where and how that growth occurred differed considerably between the two eras. The differences in the distribution and type of economic growth during the Progressive versus the Environmentalist eras provide sufficient variation to informally test some of the major positive implications of my theory of centralization.

B. The Progressive Conservation Movement and the Fundamental Distributional Dynamic of Regulatory Centralization

Progressive Era legislation creating national parks, monuments, and forests vividly demonstrate many of the central predictions of my model of regulatory centralization. Perhaps most fundamentally, Progressive Era centralization directly resulted from the national market integration brought about by the completion of the interstate railway network. National market integration vastly increased both the value of developing western natural resources[116] and their undeveloped value as playgrounds for wealthy eastern sportsmen and outdoor recreationists. The Progressive Era creation of national forests, monuments, and parks represented precisely the triumph of a developed state majority interested in asserting control over the development of natural resources located in relatively new, undeveloped states. Crucially, federal control of resource "conservation" in the Progressive Era sense did not prohibit resource development but rather subjected development to national control. Thus Progressive Era federalization illustrates not only the triumph of non-local preservationists but the use of regulatory centralization to transfer resource development profits from local to non-local interests. The western states together had sufficient political bargaining power within Congress to ensure that economically significant and geographically widespread local development activities—primarily grazing—could continue despite federal control, but

115. Heim, *supra* note 113, at 95, 143–44.

116. Largely for use as raw materials in eastern manufacturing and construction.

they did not have sufficient political power to stop federalization.

1. The Progressive Era Forest Reserves: Preserving for Future Development

The creation of the forest reserves not only illustrates the basic dynamic of regulatory centralization revealed by my model but also demonstrates how existing political interests shape when and how centralization occurs. Just as the "old" Jurisdiction One residents in my simplified, two-jurisdiction world have an incentive to develop their own resource and then prevent resource development in the "new" Jurisdiction Two, the interests of residents of older, more heavily developed eastern states similarly drove the Progressive Era forest reserves. In the 1870s and 1880s, there was both popular and expert concern over a looming "timber famine."[117] In about a decade's time, the once vast old-growth white pine forests of the upper Great Lakes had been leveled.[118] With the completion of the interstate railway, settlement of the "last timber frontier" of the Rocky Mountain and Pacific Northwest states began. Furthermore, during this time, the southern pine forests were being heavily lumbered and the eastern forests were nothing but cutover remnants.[119] The lands subject to "cut and run" timber harvest had been mostly privately owned and subject to decentralized state regulation.

With expectations adapted to this pattern, conservationists and preservationists from the developed eastern states feared that under decentralized control, the vast western forests would suffer precisely the same fate.[120] Progressive Era conservationists were essentially the same affluent easterners who visited the newly created national parks. Conservationists in-

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117. Patricia Nelson Limerick, *The Forest Reserves and the Argument for a Closing Frontier*, *in* THE ORIGINS OF THE NATIONAL FORESTS: A CENTENNIAL SYMPOSIUM 10, 14–15 (Harold K. Steen ed., 1992).

118. For evidence, see Ronald N. Johnson & Gary D. Libecap, *Efficient Markets and Great Lakes Timber: A Conservation Issue Reexamined*, 17 EXPLORATIONS IN ECON. HIST. 372, 376 fig.1 (1980).

119. MICHAEL WILLIAMS, AMERICANS AND THEIR FORESTS 394 (1989).

120. By 1890, for instance, the American Association for the Advancement of Science called for immediate action to preserve in perpetuity western mountain forests. *See* Dennis L. Lynch & Stephen Larrabee, *Private Lands Within National Forests: Origins, Problems and Opportunities*, *in* THE ORIGINS OF THE NATIONAL FORESTS, *supra* note 117, at 198, 203.

cluded not only members of the newly emerged scientific professions but also a new group of wealthy sportsmen conservationists.[121] Conservationists advocated the withdrawal of public lands from settlement to conserve the resources they contained for long-term "wise use."[122] In the short run, however, withdrawal from settlement and active federal management stopped locals from hunting game for market, thus maintaining what was essentially, given the cost of access, a vast private game preserve for wealthy eastern sportsmen.[123]

Lands placed into forest reserves during that period were *all* located in the western, undeveloped half of the country.[124] The western states, vast in size and then largely unsettled, represent the paradigmatic instance of the new jurisdiction I

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121. *See generally* RIEGER, *supra* note 75.

122. The progressive conservationist understanding of "conservation" meant "wise use for the benefit of present and future generations," or in Forest Service founder Gifford Pinchot's oft-quoted words, "the greatest good for the greatest number for the longest time." DANA & FAIRFAX, *supra* note 19, at 72.

123. *See generally* RIEGER, *supra* note 75, at 67–174 (discussing role of Boone and Crockett Club and other sportsmen organizations in promoting Progressive era wildlife and forest conservation). Created by Theodore Roosevelt and Audubon Society founder George Grinnell, one of the missions of the Boone and Crockett Club (whose membership included many of the most powerful men in America at that time, such as Henry L. Stimson, Henry Cabot Lodge, Elihu Root, and Gifford Pinchot) was to preserve large mammal trophy hunting grounds for its members. While the club began with a focus on what its members viewed as the uncontrolled slaughter of big game animals by market hunters in the newly created Yellowstone National Park, its efforts to protect Yellowstone led directly to a concern with forest protection more generally. John F. Rieger, *Wildlife, Conservation, and the First Forest Reserve*, *in* THE ORIGINS OF THE NATIONAL FORESTS, *supra* note 117, at 106, 113–14 (quoting GEORGE B. GRINNELL, A BRIEF HISTORY OF THE BOONE AND CROCKETT CLUB (1910)) [hereinafter Rieger, *Wildlife*]. During the late 1880s, Boone and Crockett members actively lobbied members of the Harrison administration for forest protection legislation. After the passage of the 1891 Reserve Act, Club members lobbied Congress to establish large game preserves within the forests that would be protected from any development and to transfer all of the forest reserves in Wyoming to Yellowstone National Park. It was only in the face of immediate and fierce opposition from western congressmen that the proposals were scaled down to protect only game breeding areas; even this scaled down proposal was thwarted. *See* HAYS, *supra* note 13, at 40. "The Boone and Crockett Club—and *not* the Sierra Club—was the first private organization to deal effectively with conservation issues of national scope." Rieger, *Wildlife*, *supra*, at 113.

124. *See* DANA & FAIRFAX, *supra* note 19, at 111–14. National forests in the eastern half of the United States were created not by reservation—because there was not enough public domain left to reserve—but under an acquisition program initiated by the Weeks Act of 1911; *see also* William E. Shands, *The Lands Nobody Wanted: The Legacy of the Eastern National Forests*, *in* THE ORIGINS OF THE NATIONAL FORESTS, *supra* note 117, at 19.

have modeled above. But Progressive Era forest reserves were equally vast. By the end of the Roosevelt-Pinchot era in 1910, the federal government had reserved 150 million acres as national forests and nearly another 100 million acres for water and mineral development. Their withdrawal from settlement had the potential to inflict real local costs on two distinct groups. The first, most obvious, group was western settlers who had been encouraged by dozens of nineteenth-century federal preemption and homestead laws to believe that if they used and improved public domain lands, then the lands would become their private property.[125] Settlers in the mountainous, relatively remote areas that were included in the first forest reserves, however, were relatively few in number, and relatively poor.[126] Politically, they were outweighed by local winners from the creation of the reserves: the residents of new western cities. Indeed, the first lands reserved under the 1891 Act were mountainous watersheds withdrawn and put into reserves at the request of residents of new western cities such as Portland, Oregon, who wanted to tap those watersheds for city water supplies.[127] Reservation boosters raced to reserve forest

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125. *See generally* Act of Sept. 4, 1841, ch. 16, 5 Stat. 453; Homestead Act, ch. 75, 12 Stat. 392 (1862); Mining Resources Act, ch. 52, 17 Stat. 91 (1872); Timber of Western Prairies Act, ch. 277, 17 Stat. 605 (1873); Desert Lands Act, ch. 107, 19 Stat. 377 (1877); Forest Act of 1891, ch. 561, § 24, 26 Stat. 1095, 1103. The Forest Act of 1891 was § 24 of a bill to reform the general land laws, and read in its entirety as follows:

> That the President of the United States may, from time to time, set apart and reserve, in any State or Territory having public land bearing forest, in any part of the public lands wholly or in part covered with timber or undergrowth, whether of commercial value or not, as public reservations, and the President shall, by public proclamation, declare the establishment of such reservations and the limits thereof.

Id. This law marked a turning point in the history of federal land law legislation; to that point, nineteenth century federal land policy had been to use land grants as a way to reward and spur settlement of the frontier. For example, the Act of Sept. 4, 1841 and the 1862 Homestead Act granted individual settlers the privilege of obtaining fee ownership of up to 160 acres of land for a maximum price of $1.25 an acre provided that they lived on and improved the land; the intercontinental railroads received massive land grants in the 1860s. This policy was furthered through the Mining, Timber and Desert Lands Acts of the 1870s (Mining Resources Act, ch. 52, 17 Stat. 91 (1872), Timber of Western Prairies Act, ch. 277, 17 Stat. 605 (1873), and Desert Land Act, ch. 107, 19 Stat. 377 (1877)).

126. *See* KARL JACOBY, CRIMES AGAINST NATURE: SQUATTERS, POACHERS, THIEVES, AND THE HIDDEN HISTORY OF AMERICAN CONSERVATION 173–74 (2001).

127. *See* DANA & FAIRFAX, *supra* note 19, at 58 (most of the reserves established between 1891 and 1897 were created as a result of petitions from citizens residing near the proposed reserve); *see also* Donald Pisani, *Forests and Reclama-*

lands ahead of settlers[128] who opposed the creation of reserves because the reservations would eliminate even temporary use rights of "their" lands.[129] The inter-regional struggle over the forest reserves thus mirrored an intra-regional struggle, which in pitting the interests of local development winners (settlers) against non-local reserve proponents (new western urbanites) equally reflected the basic distributional dynamic that my model illustrates.

As my model predicts, the kinds of development limitations actually imposed within the forest reserves directly reflected political bargaining and hence the relative political power of various groups. In particular, it explains the initial lack of any real centralized control over grazing within the reserves. Ranchers, whom the first head of the Forest Service, Gifford Pinchot, perceptively dubbed the "best organized interest of the West,"[130] had used the mountains for summer pasture for decades prior to the creation of the reserves. Although the first forest reserves included large rangeland areas ostensibly to protect watersheds and somehow eventually stabilize mountain range use,[131] grazing was a hugely important industry in states such as Colorado, New Mexico, Washington, and Oregon. For decades after their creation, grazing was the most economically significant use of the national forests,[132] and in states that depended on grazing, hostility to the reserves never abated.[133]

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tion, 1891–1911, *in* THE ORIGINS OF THE NATIONAL FORESTS, *supra* note 117, at 237, 242 (noting early enthusiasm of real estate promoters and irrigators for reserves). Thus the contemporary historical understanding contradicts the long held view that westerners "declared war" on the Act as soon as reserves began to be set aside. *See, e.g.*, JOHN ISE, THE UNITED STATES FOREST POLICY 130 (1920). Note that, in terms of my model, this was non-local demand for preservation from multiple kinds of development—e.g. local settlement, lumbering, and mining—so that one particular kind of development could take place.

128. LAWRENCE RAKESTRAW, A HISTORY OF FOREST CONSERVATION IN THE PACIFIC NORTHWEST 1891–1913, at 45–46 (1979).

129. For example, reserves advocated by residents of Portland, Ashland, and other cities in Oregon, and the political establishment of that state were strongly opposed by almost 200 homesteaders living in the proposed reserve areas. *See id.* at 49–50.

130. WILLIAM D. ROWLEY, U.S. FOREST SERVICE GRAZING AND RANGELANDS: A HISTORY 26 (1985).

131. ROWLEY, *supra* note 130, at 21.

132. This is evidenced by the fact that though grazing fees were very low, grazing fee revenues to the Forest Service were equal to or greater than timber receipts from 1905 until 1921. DANA & FAIRFAX, *supra* note 19, at 87.

133. Pisani, *supra* note 127, at 242. Throughout the early 1900s, small cattlemen in Colorado attending hundreds of local and regional meetings opposed the

Congress had never considered regulating grazing in the national forests.[134] When the Forest Service eventually began to regulate grazing, it did so under a highly decentralized sustained yield system that recognized the customary uses of large stockowners.[135]

Thus the federal regulatory scheme implemented to manage the forest reserves clearly reflected federal political bargaining. Development by those who had little political power in the federal legislature—primarily new settlers—was halted completely. Politically dominant development—grazing—continued with relatively little centralized control. Perhaps most interestingly of all, timber harvest—the activity that the forest reserves were ostensibly created to control—was not even an issue. Admittedly, the 1897 Organic Act, passed in response to the withdrawal of over twenty million acres by President Cleveland, granted Forest Service Chief Pinchot and eastern conservationists what they wanted: the legal authority to scientifically manage use of the national forests and manage timber for sustained production and sale.[136] But for over a half-century after passage of the Organic Act, this authority remained unexercised. Timber production from national forests did not become economically significant until after World War II. Instead, in 1910, when national timber harvests reached an all-time high, timber harvests from national forests contributed just slightly more than one percent of the national total.[137] The

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inclusion of rangelands in the forest reserves as well as federal leasing and permit fees. Michael McCarthy, *The First Sagebrush Rebellion: Forest Reserves and States Rights in Colorado and the West, 1891–1907*, *in* THE ORIGINS OF THE NATIONAL FORESTS, *supra* note 117. When the Supreme Court finally clarified in a 1911 decision that there was no implied right to graze animals within forest reserves and that the federal government had the right to regulate, the *Denver Republican* proclaimed, "COLORADO BEATEN WHEN FEDERAL SUPREME COURT DECIDES UNITED STATES ALONE HAS POWER OVER PUBLIC LANDS." Lynch & Larrabee, *supra* note 120, at 198, 211.

134. Indeed, in 1900, the Secretary of the Interior prohibited grazing in the Arizona national forest reserves. However, when Pinchot personally visited the reserve areas soon thereafter he declared that limited grazing would not damage water supplies and convinced the Secretary to lift the grazing ban. *Id.* at 38–41.

135. ROWLEY, *supra* note 130, at 81–84 (discussing conflict between large and small grazers, and observing that one of the first things done by the Forest Service in regulating grazing was to "seek cooperation of ranchers and local stock organizations").

136. *Id.*

137. PAUL W. HIRT, A CONSPIRACY OF OPTIMISM: MANAGEMENT OF THE NATIONAL FORESTS SINCE WORLD WAR TWO 35 (1994). Indeed, at about the same time as the reserves were created, the demand for wood began a long and precipi-

assumptions underlying scientific management—"scarcity, stability, and certainty"—completely mischaracterized the rapidly developing West.[138] Privately owned timber was available at rock bottom prices, and there was no demand for "stability" and "certainty" in a region where economic development was just beginning.[139]

Although these facts about the timber market might seem surprising and counterintuitive, they actually influenced both the short-term and long-term political success of the national forests. In the short term, the lack of demand for forest reserve timber resulted in eastern conservationists and preservationists standing together to support the creation of the reserves. Progressive Era conservationists favored "wise use," long-term sustainable harvest of both timber and minerals from the forests,[140] while preservationists such as Sierra Club founder John Muir opposed the general idea of multiple use of the reserves and resource extraction in particular.[141] During the Progressive Era, conservationists and preservationists fought heated battles over grazing, but there was nothing for them to argue about when it came to timber harvest; there was no demand for national forest timber during this period. Conflict between the goals of *preserving* national forests from development and *conserving* them for the "wise use" and development by future generations of Americans did not seriously conflict until decades after the forests had been withdrawn from decentralized development.

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tous decline, as coal and petroleum substituted for wood as fuel for heating, and brick, stone, cement, and steel replaced wood as a construction material. *See* Donald J. Pisani, *Forests and Conservation, 1865–1890*, *in* AMERICAN FORESTS: NATURE, CULTURE AND POLITICS 15, 25 (Char Miller ed., 1997).

138. DANA & FAIRFAX, *supra* note 19, at 104–05.

139. *See id.* at 104.

140. To Progressivists, "[f]orests were seen as a vital crop. . . . [Initial Chief Forester Gifford] Pinchot's brand of Progressivism was strongly moralistic, business-like, and idealistic in the belief that technocrats could harness nature for rational, efficient use in the service of the public good." Pamela A. Conners, *Influence of the Forest Service on Water Development Patterns in the West*, *in* THE ORIGINS OF THE NATIONAL FORESTS, *supra* note 117, at 154, 158. For an important recent discussion of these differences between Conservationists and Preservationists, and an argument that Gifford Pinchot may have been more of a preservationist than is generally thought, see MILLER, *supra* note 60, at 119–44 (chronicling the dispute between Pinchot and Muir over such issues as the damming of the Hetch Hetchy Valley in Yosemite National Park).

141. *See generally* STEPHEN FOX, JOHN MUIR AND HIS LEGACY: THE AMERICAN CONSERVATION MOVEMENT 103–47 (1981).

This lack of demand created another important extra-regional winner from the forest reserves: the large eastern and midwestern-based timber companies such as Weyerhauser. Federalization yielded these companies a virtually free reduction in present timber supply and a future option to harvest federal timber at greatly subsidized prices.[142] In this way, the creation of the forest reserves illustrates yet another positive prediction from Part I: federalization may promote future non-local resource development as much as it curbs present local resource development.

The crucial supporting evidence for the proposition that the big timber companies were big winners from the creation of the Forest Reserves may be briefly marshaled. During most of the Progressive Era, the large lumber companies were not worried about a timber "famine," but rather faced recurring cycles of boom and bust characterized by oversupply and price wars. Confronted with the imminent exhaustion of the upper Great Lakes old-growth white pine forests, and partly spurred by the creation of the federal forest reserves,[143] midwestern lumbermen and northern capitalists acquired vast holdings of timber lands in the South and Pacific Northwest.[144] In both regions, ownership of private timberland had very quickly become highly concentrated.[145] Given prevailing transportation costs,

142. As recounted by WILLIAMS, *supra* note 119, at 418, 421, timber barons such as Frederick Weyerhauser and James Hill strongly supported the creation of the Forest Service; and by requiring the government to sell federal timber to the highest bidder, the Forest Reserve Act disadvantaged the small loggers—who either had no land abutting the reserves and/or inadequate means of transporting logs out of the forest—who did not even bid for much prime timber, thus greatly advantaging the large operators who were estimated to have acquired control over four million acres of prime timber included in the 1907 forest reserves.

143. WILLIAMS, *supra* note 119, at 310.

144. *Id.* at 242. Between 1877 and 1888, the federal government sold 5.7 million acres of timberland in the five southern states, with 3.7 million acres of that being sales of lots over 5,000 acres in size. *Id.* Of the lots over 5,000 acres which were sold, 69 percent were purchased by midwestern lumbermen. *Id.* The amount sold by Gulf Coast states was even greater, with these sales going mostly to northern capitalists and European investors. An example was the spectacular 1881 sale of four million acres in Florida to Philadelphia industrialist Henry Disston. *Id.* at 242–43. By 1885, Texas had sold or given away 32 million acres of state land, much of it heavily forested. *Id.* at 243. In the Pacific Northwest, Weyerhauser and a syndicate of midwestern investors had acquired over 1.1 million acres from the Northern Pacific Railway by 1903. JAMES LEMONDS, DEADFALL: GENERATIONS OF LOGGING IN THE PACIFIC NORTHWEST 9 (2001).

145. WILLIAMS, *supra* note 119, at 263–64, 313. By 1913, 925 landholders held more than 80 percent of the 58 million acres of privately owned pine forest in the South, *id.* at 263–64, while three owners—Weyerhauser, the Northern Pacific

southern lumber had a distinct advantage in eastern markets.[146] Significantly, the South contained no federal forest reserves during this period, and logging depleted the southern old-growth pine forests almost as quickly as it cleared the forests of the upper lakes states. By the mid-1920s, most of the old growth was gone, and southern lumber towns became a thing of the past.[147]

In the Pacific Northwest, however, uncertain and often falling prices and high transportation costs marked the period between 1900 and 1920.[148] Under these conditions, even as the small operators cut as quickly as possible merely to stay afloat, the largest operators held their lands back from harvest.[149] Whereas the big Pacific Northwest private timber owners held lands located on the accessible, lower slopes of the Cascades, the forest reserves in that region withdrew mostly remote upland forest.[150] These were precisely the kind of lands that were subject to uncontrolled harvest by small operators. The federal forest reserves were located in a region of the country where the problem was not too little timber but too much. Under these conditions, the large timberland owners sought to decrease harvest and restore price stability.[151] Scientific man-

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Railway, and the Southern Pacific Railroad—held over 23 percent of all the timber in the Pacific Northwest. *Id.* at 313.

146. In 1899, the South replaced the Great Lakes as the nation's leading lumber producing region, and from 1904 to 1913 lumber production continuously increased. *See* KENNETH L. SMITH, SAWMILL: THE STORY OF CUTTING OF THE LAST GREAT VIRGIN FOREST EAST OF THE ROCKIES 32 (1986).

147. WILLIAMS, *supra* note 119, at 280–81. By the 1880s, over 200 square miles of forest were wiped out annually in Mississippi, Alabama, and Florida alone. *Id.* at 279. Not only were entire communities created and then destroyed as the industry moved on, but replanting was never even considered on the cut-over lands. Indeed, the practice of intentional reforestation did not begin until the 1930's. *Id.* at 286–87. Obviously, given that these forests were previously unharvested, they would be "old growth" in today's terms.

148. *See* Marion Clawson, *Forests in the Long Sweep of American History*, 204 SCI. 1168, 1173 (1979).

149. WILLIAMS, *supra* note 119, at 314–15; *see also* COX, *supra* note 42, at 213 (noting that, although Weyerhauser bought nearly 900,000 acres from the Northern Pacific Railway in 1900, it was several years before the company began logging that land). For evidence on the generally shorter time horizon of small and medium sized northwestern timber operators, leading to more rapid harvest and little incentive to replant, see WALTER J. MEAD, COMPETITION AND OLIGOPSONY IN THE DOUGLAS FIR LUMBER INDUSTRY 246–50 (1966).

150. WILLIAMS, *supra* note 119, at 313.

151. CHARLES E. TWINING, PHIL WEYERHAUSER: LUMBERMAN 100 (1985). Indeed, the evidence is clear that, except for boom times such as the mid-1920s, the major problem confronting large lumber companies up until World War II was

agement by the Forest Service conferred a very substantial benefit on the largest timberland owners such as Weyerhauser. It gave them a free supply reduction that they could otherwise have achieved only by buying and holding lands that they did not want. Because they well understood that the reservation of forest areas in the West would limit and possibly eliminate competition, the large lumber companies supported the reservations.[152]

In summary, the creation of the national forests had profound distributional effects along precisely the lines of disparate regional economic development predicted by my theory. The creation of the forest reserves represented a clear victory for the Progressive Era developed state majority with only one concession: the system of localized range management. This majority coalition curtailed present-day timber harvests by local users, thus helping to stabilize prices and safeguard established timber companies' profits while preserving the forests for recreational use by elite eastern users.

2. The National Parks and the Transfer of Development Rents

While the battle among western grazers, eastern conservationists, and preservationists over the first forest reserves illustrates the basic interjurisdictional dynamic set forth by my model, the creation of the national parks even more clearly demonstrates how regulatory centralization can affect the interjurisdictional redistribution of development profits. Today, when one thinks of national parks such as Yellowstone, Glacier, and Yosemite, one naturally supposes that national parks primarily aim to preserve ecosystems—wilderness in a relatively pure and undefiled state. Despite the importance of this goal, wilderness preservation was not a central objective of the original national parks' creation.[153] Beginning with the crea-

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overproduction. This overproduction was due in part to low entry costs that admitted any number of small operators to begin producing whenever prices rose. *Id.* In 1933, Fred K. Weyerhauser observed that, "for as long as he could remember, Weyerhauser interests had attempted 'to fix prices and to control unruly competition in some way, but have been prevented by fear of the Sherman Anti-trust Laws.'" *Id.* at 104.

152. WILLIAMS, *supra* note 119, at 409.

153. *See* RUNTE, *supra* note 77, at 1–83, upon which I rely extensively in the following discussion.

tion of Yosemite and the Mariposa Grove National Parks in the California Sierras in 1864, the original objective in setting aside lands for national parks was purely to protect scenic areas.[154] Though officially federal from its inception and vastly bigger than Yosemite,[155] this same goal drove the creation of Yellowstone National Park in 1872.

Neither Yosemite nor Yellowstone were set aside to preserve wilderness[156] but rather because they contained remarkable natural "wonders" that had immediately obvious market potential as tourist attractions. Indeed, the immediate impetus for the creation of both parks was the fact that private entrepreneurs had already begun to stake claims to various natural attractions.[157] Yellowstone and Yosemite set the pattern for the Progressive Era creation of additional national parks and designation of an agency to manage them. Throughout this period, the railroads were the primary economic beneficiaries from national park creation. As late as 1915, of the roughly fifty-two thousand visitors to Yellowstone, forty-four thousand entered by rail, versus seven thousand by car.[158] The Northern Pacific Railroad, which for years enjoyed a monopoly on bringing visitors to Yellowstone, proposed and supported legislation creating both Yellowstone and Mount Ranier National Parks. Subsequently, Northern Pacific profited enormously from land exchanges conducted to assemble Mount Ranier National Park in 1899.[159] Glacier National Park, created in 1910, was the brainchild of the Great Northern Railroad, which enjoyed a

154. *Id.* at 28–29. It is true that the federal legislation creating Yosemite and Mariposa Grove parks specified that the parks were to be turned over to the State of California for administration. Yosemite Park Act, ch. 184, 13 Stat. 325 (1864). But that legislation specified that state management was to be strictly for the "public use, resort, and recreation," and that the park lands were "inalienable for all time." *Id.*; *see also* RUNTE, *supra* note 77, at 29–30. Moreover, two years elapsed before California agreed to take over the park, so that "[i]n fact, if not in name, Yosemite was the first national park." RUNTE, *supra* note 77, at 30.

155. RUNTE, *supra* note 77, at 33–34. Yellowstone's size was, and is, anomalous: indeed, "[h]ad more been known about the region, namely, that the best of all its natural phenomena had in fact been located, in all probability Yellowstone, like Yosemite, would have been established as a fragmented series of parcels encompassing little more than its major attractions." *Id.* at 47.

156. *Id.* at 42–43.

157. *Id.* at 28, 44.

158. ALFRED RUNTE, TRAINS OF DISCOVERY: WESTERN RAILROADS AND THE NATIONAL PARKS 28 (4th ed., rev. 1998).

159. *Id.* at 16–25.

similar monopoly on park-related transportation.[160] The Southern Pacific Railroad/way lobbied intensively in 1890 for the creation of Yosemite and Sequoia as national parks. Furthermore, during the early 1900s, the Atchison, Topeka & Santa Fe Railroad/way brought rail service and luxury accommodations to the Grand Canyon, which received designation as a national monument in 1908.[161]

The national parks were not created for mass consumption. During a time when "only the wealthy could begin to afford the luxury of traveling in transcontinental Pullman or lounging in luxury hotels,"[162] the national parks only provided "first class" services, from the railroad depots to the circuits of luxury hotels. Until the advent of mass automobile ownership in the 1920s, only a small and privileged subset of American society actually visited the national parks. Cast in terms of the model developed in Part I, the national parks were created in the new, undeveloped western states or territories[163] to benefit a handful of national railroads and their wealthy patrons from the older, developed eastern third of the country. At the time of their creation, Progressive Era national parks yielded economic and non-economic benefits both small in amount and highly concentrated along both geographic and socioeconomic dimensions. Given this, my model predicts that the creation of parks occurred only where the cost of creation was low or where local communities with very little national political power bore most of those costs.

The history of national park expansion that led to the 1915 creation of the Park Service fully confirms this prediction. Congress only located parks on land that was otherwise worthless for economic development. As Runte summarizes:

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160. *Id.* at 31–38.

161. *Id.* at 32–33.

162. *Id.* at 27. In this connection, it is important to remember that as late as 1870, seventy-four percent of consumer expenditures went for food, clothing and shelter; in 1890, this percentage was still sixty-five percent. Abramovitz & David, *supra* note 99, at 31. It was not until the twentieth century that the average American's income rose sufficiently above the cost of providing basic living necessities that there was enough income to allow expenditures on things like outdoor recreation and other leisure activities. *Id.*

163. Although ninety percent of the American population resided in the eastern half of the country, every major national park was in the West up until 1919. RUNTE, *supra* note 77, at 69.

> [a] surplus of rugged, marginal land enabled the country to 'afford' scenic protection; national parks, however spectacular from the standpoint of their topography, actually encompassed only those features considered valueless for lumbering, mining, grazing, or agriculture . . . throughout the history of the national park idea, the concept of useless scenery has virtually determined which landmarks the nation would protect as well as how it would protect them.[164]

The boundaries of early twentieth-century parks, such as Ranier in Washington, Crater Lake in Oregon, and Glacier in Montana, were drawn as narrowly as possible to include only the scenic wonders and no more.[165] Park advocates continually stressed the worthlessness of lands included in national parks aside from their value as scenery.[166]

The same dynamic operated in the 1906 Antiquities Act. In his 1908 decision to set aside eight hundred thousand acres and six hundred thousand acres, respectively, for the Grand Canyon and Mount Olympus national monuments, President Theodore Roosevelt clearly liberally construed the Antiquities Act's statutory goal of preserving "objects of historic or scientific interest that are situated upon the lands owned or controlled by the Government of the United States." Congress, however, did not oppose either declaration because neither the Grand Canyon nor Mount Olympus had immediate economic value.[167] Tellingly, in 1915, when the lumber industry finally reached beyond the peaks of the Olympic Peninsula to the Mount Olympus region, President Wilson eliminated the most valuable half of the Mount Olympus national monument.[168]

C. The Transition from State to Federal Level Centralization: Wildlife Regulation

Over the course of American history, American wildlife regulation has moved from a free-access system with sporadic local regulation, to state regulation of fish and game, and fi-

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164. *Id.* at 49.

165. *Id.* at 65–70.

166. *See, e.g., id.* at 76–78 (pointing out that proponents of parks, including even the Congressmen and Senators of the affected districts, inherently knew they needed to stress the "uselessness" of the areas to be preserved in order to secure passage of the necessary legislation).

167. *See id.* at 71–73.

168. *Id.* at 73.

nally to federal regulation of a wide variety of species. This movement did not progress continuously but rather reflects the fundamental political and economic forces emphasized by my model of regulatory centralization. Wildlife regulation provides a concrete illustration of how market integration and increasing affluence can increase the value of undeveloped, open-access natural resources by vastly increasing the size and geographic range of resource beneficiaries. Even more significantly, and especially as illustrated by late twentieth-century federal endangered species regulation, regulatory centralization feeds upon itself. As my model predicts, the displacement of lower-level, local regulation by higher-level regulation exacerbates resource overuse, thus increasing both the demand for increased centralized controls and their necessity to prevent resource extinction.

1. Progressive Era, State-Level Centralization of Fish and Game Regulation

With only occasional, scarcity-induced exceptions, a free-access regime governed American wildlife management up until the late nineteenth century.[169] This regime emerged in early colonial times to encourage the exploitation of game as a natural asset.[170] State legislatures and constitutions overrode private rights that impeded free access in the pursuit of game. Undeveloped private lands were presumed open to wildlife takers unless explicitly posted, which, given the cost of posting

169. Where forest density and Indian threats made it costly and dangerous to hunt, as along the Atlantic seaboard, there was little regulation. Where relative scarcity was much greater—such as deer and fowl close to towns and nearby fishing streams—colonies imposed a variety of restrictions on taking (most typically, given enforcement costs, closed seasons). *See* THOMAS A. LUND, AMERICAN WILDLIFE LAW 28 (1980). The evolution of colonial game regulation is aptly illustrated by Virginia's regulation of deer. In 1640, colonial law affirmatively established the right to hunt deer. By the 1690s, scarcity of deer in relatively heavily settled eastern Virginia motivated general restrictions on deer hunting. By 1738, a general law "for the better preservation of the breed of Deer" established a restricted hunting season and banned various practices deemed inimical to deer population stability, such as fire hunting and killing deer solely for their hides. *See* David S. Hardin, *Laws of Nature: Wildlife Management Legislation in Colonial Virginia*, *in* THE AMERICAN ENVIRONMENT: INTERPRETATIONS OF PAST GEOGRAPHIES 137, 144–45 (Lary M. Dilsaver & Craig E. Colten eds., 1992).

170. *See* LUND, *supra* note 169, at 20.

large wild areas, resulted in a virtually conclusive presumption of open access.[171]

By the eighteenth century, state laws ostensibly regulated the taking of valuable game species, such as deer, by establishing closed seasons.[172] Until the late nineteenth century, however, in actual practice, American game management was local and largely extralegal.[173] As late as 1871, only five states had enacted legislation that protected landowners from unauthorized trespass for the purpose of hunting. Customary norms allowed landowners in rural areas to take whatever game they pleased for their own use.[174] The early state game laws were not publicly enforced. Instead, enforcement depended upon private systems that offered rewards to those who reported violators. Because wildlife was viewed as a locally owned natural asset, little private enforcement occurred.[175] District attorneys and justices of the peace simply refused to enforce state-level game laws and even when prosecutions occurred, juries would not convict local violators.[176]

This relatively loose and localized system of game regulation fell apart as a consequence of late nineteenth-century economic development.[177] It is no exaggeration to say that until the late nineteenth century, few Americans had either the time or resources for what are now considered common recreational

171. *Id.* at 25.

172. PETER MATTHIESSEN, WILDLIFE IN AMERICA 65 (rev. ed. 1987).

173. JAMES A. TOBER, WHO OWNS THE WILDLIFE?: THE POLITICAL ECONOMY OF CONSERVATION IN NINETEENTH-CENTURY AMERICA 27, 28 (1981); *see also* DIAN OLSON BELANGER, MANAGING AMERICAN WILDLIFE: A HISTORY OF THE INTERNATIONAL ASSOCIATION OF FISH AND WILDLIFE AGENCIES 12, 16 (1988) (noting that even in the 1890s "game laws were few and weak, [and] enforcement was weaker," and "'as late as 1895 Michigan's five-deer season limit was considered revolutionary'") (quoting JAMES B. TREFETHEN, CRUSADE FOR WILDLIFE: HIGHLIGHTS IN CONSERVATION PROGRESS (1961)).

174. TOBER, *supra* note 173, at 58.

175. As Lund trenchantly observes, when virtually all of the potential private enforcers are themselves violators of the law, there is little hope for effective private enforcement. LUND, *supra* note 169, at 59.

176. TOBER, *supra* note 173, at 132. When, by contrast, "the offense was committed by a stranger in the land, or one coming from the city or town, the same jurors [were] only too glad to convict him for coming down and killing 'their' game." *Id.* (quoting COLORADO REPORT OF THE STATE GAME AND FISH COMMISSIONER 11 (1904/06)).

177. Another way to put this is to say that development exposed the inherent tendency for overharvest in a system which awarded property rights in wildlife to whomever killed or captured an animal, rather than in animals as stock, that is, as an asset. *See* Dean Lueck, *The Economic Nature of Wildlife Law*, 18 J. LEGAL STUD. 291 (1989).

pastimes.[178] The increasing income and leisure of newly concentrated urban populations created a demand for sport hunting that had not existed prior to 1850.[179] For the first time, non-local hunters began to place demands on local wildlife resources. In relatively affluent, developed states such as Pennsylvania, completion of intrastate railroad networks during the 1880s drastically changed recreational use patterns[180] as city and out-of-state sport hunters and immigrant market hunters began to harvest local wildlife.[181] In cities across the Midwest and Northeast, hundreds of sportsmen's associations formed[182] to supply their members with distant hunting opportunities—opportunities that the railroads actively promoted by advertising the available game, accommodations, prices, and guide listings.[183]

The American phenomena of outdoor recreation as a pastime, the movement to create urban parks and open spaces,[184] and sport hunting directly resulted from the tremendous industrial expansion of the late nineteenth century. This industrial expansion had not only created tremendous wealth but also a new kind of consumer: the affluent American urbanite for whom "nature" was a distant luxury consumption item, rather than an obstacle to local development.[185] Bird-watching, for example, originated as an organized pastime during this period. In 1886, the American Ornithologist's Union generated a

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178. As noted by DORA COSTA, LESS OF A LUXURY: THE RISE OF RECREATION SINCE 1888, at 3 (Nat'l Bureau of Econ. Research, Working Paper No. 6054, 1997), as late as the 1880s, seventy-five percent of median household income went to food, shelter and clothing, with less than two percent spent on recreation.

179. TOBER, *supra* note 173, at 43.

180. LOUIS S. WARREN, THE HUNTER'S GAME: POACHERS AND CONSERVATIONISTS IN TWENTIETH CENTURY AMERICA 23–25 (1997).

181. *Id.* Farmers complained that their lands were being "run over by irresponsible hunters from adjoining states who tore down fences, shot poultry, crippled stock, started fires and . . . then quietly disappeared into their own territory safe from pursuit." *Id.* at 24.

182. Nearly one hundred sportsmen's associations were founded during the winter of 1874–75 and by 1878, nearly 308 had declared a commitment to proper sporting practices and to game conservation. ANN VILEISIS, DISCOVERING THE UNKNOWN LANDSCAPE: A HISTORY OF AMERICA'S WETLANDS 152 (1997).

183. TOBER, *supra* note 173, at 71.

184. *Id.* at 48.

185. *See* HAYS, *supra* note 13, at 142 (early twentieth century interest in conservation came from "middle- and upper-income urban dwellers"); HAL K. ROTHMAN, SAVING THE PLANET: THE AMERICAN RESPONSE TO THE ENVIRONMENT IN THE TWENTIETH CENTURY 29–31 (2000) (saying wildlife protection was an interest of the wealthy elite).

model state law that prohibited the taking of any bird (aside from a narrow category of game birds, including only ducks and geese, rails and coots shorebirds, turkey, grouse, pheasant, and quail) and the destruction of nests.[186] Birds were widely appreciated as exceptionally valuable and scarce natural resources. Conservationists throughout the country prophesied that the disappearance of insectivorous songbirds would foreshadow not only the destruction of agriculture but also the loss of forests, in "an age when forest conservation was a byword for watershed protection and the maintenance of urban civilization."[187]

As argued earlier, market integration does not affect all natural resources in the same way. Sometimes, as in the case of the national forests, a long time may pass before market integration reaches the stage where developed value (in the forest case, timber) catches up to undeveloped value. In the case of the wildlife resource, the Progressive Era market revolution increased both developed and undeveloped value.[188] Even while late nineteenth-century economic growth vastly increased the national value of preserving the wildlife resource, the growing affluence of America's industrial urban centers generated a huge increase in the market or developed value of wildlife. As one contemporary commentator observed, a twentieth century urban American can hardly imagine the "omnipresence of wildlife in nineteenth-century American diet and fashion."[189] By the 1860s, wild game such as goose, duck, wild turkey, deer, and elk had become abundantly available for consumers in large eastern cities such as New York, Boston, and Philadelphia.[190] Market demand for game grew, while improvements in refrigerated transport and storage and gunning technology allowed supply to grow as well.[191] As for fashion,

186. FRANK GRAHAM, JR., THE AUDUBON ARK 7 (1990).

187. WARREN, *supra* note 180, at 26.

188. The Progressive era conflict between market hunters and sport hunters might not seem to fit the general model presented in Part I, in that both were uses of the undeveloped game resource. However, from a functional sense, market hunting was a developed use, in that if continued, it would destroy the undeveloped value of the resource—its value to sport hunters, bird watchers and other users. My application of the model to Progressive era wildlife conservation is useful in showing the generality of the model from Part I, for it shows that what matters in the model is not "developed" versus "undeveloped" use, but a conflict between incompatible resource uses.

189. TOBER, *supra* note 173, at 76.

190. *Id.*

191. *Id.* at 79.

the widespread use of plumage in late Victorian clothing created national market demand for birds.[192] In 1886, the newly created American Ornithological Union estimated that five million North American birds of about fifty species were killed annually to satisfy the fashion demand.[193] Spurred by increases in market demand, wildlife was harvested at an unbelievable and ultimately unsustainable rate. With the extinction of the passenger pigeon[194] and other once superabundant species, Americans saw for the first time how overdevelopment in response to market demands could destroy wildlife resources.

The late nineteenth-century transportation revolution and consequent industrial expansion thus not only vastly increased the undeveloped or recreational value of wildlife to sportsmen, birders, and the like but also expanded its commercial or developed value. These are precisely the effects of development captured by the stylized analytical model of Part I. Local *de facto* open-access wildlife management became subject to just the sort of pressures captured in my general model of decentralized development of a free-access resource. Increased hunting meant increased scarcity, and as game became increasingly scarce, urban sportsmen's associations increasingly insisted that their members were actually the true owners of all game and that they had a right both to regulate the taking of game and to mandate that no hunter had the right take and then sell game.[195]

Rightly or wrongly, the contemporary perception was that market hunting lead to the decline of America's wildlife. Sportsmen's groups and the increasingly numerous recreational bird watchers pushed for centralized—that is, state-

192. In 1896, Frank Chapman of the American Museum of Natural History famously remarked that in two walks through Manhattan shopping districts he had counted 542 hats adorned with the feathers of forty different species of birds. GRAHAM, *supra* note 186, at 25.

193. *Id.*

194. In 1869, roughly twelve million pigeons were shipped to market from Hartford, Michigan in forty days. Reports from Shelby, Michigan in 1870 suggest that between 350,000 and 400,000 birds were shipped per week. *Id.* Together with the massive destruction of the old growth deciduous forests which provided pigeon habitat, market harvest destroyed the species. LUND, *supra* note 169, at 59–60. The last major nesting and harvest occurred in Pestoskey, Michigan, in 1878, and the final member of the species died in the Cincinnati zoo in 1814. TOBER, *supra* note 173, at 94–96.

195. TOBER, *supra* note 173, at 53.

level—attacks on market hunting.[196] To reduce the number of hunters, states banned commercial hunting of many species and limited sport hunting by charging license fees and imposing take limits.[197] The funding generated by these license fees allowed for the creation of the first centralized wildlife management agencies with state-wide enforcement authority to ensure that demand restrictions had teeth. This funding also allowed the acquisition and improvement of habitats to increase the supply of harvestable game and increase consumer access to formerly unavailable private lands.[198] Urban sportsmen's clubs aggressively enforced laws forbidding the commercial sale of game out-of-season.[199]

Progressive Era wildlife legislation was openly redistributive and consumerist. Far from evincing any concern with wildlife "species" for their own sake, state game laws aimed to increase the supply of game animals within the state. This typically entailed active subsidies for the destruction of wildlife perceived as harmful either to humans or valuable game species. During the late nineteenth and early twentieth centuries,

> [p]redator control, whether of wolves and grizzlies or of golden eagles and red-tailed hawks, became national policy. State legislators assumed it was their responsibility to sift the "bad" animals from the "good" ones and decree summary justice for the former. Maryland, in the six years between 1925 and 1930, paid bounties on 89,858 hawks. In 1917 the Territory of Alaska's legislature established a two-dollar bounty on the bald eagle, which was felt to be preying excessively on salmon; between that year and 1952, when the bounty was finally lifted, Alaskan bounty hunters collected 128,273 bald eagles.[200]

The general analytical framework developed in Part I provides a direct and clear explanation for the various strands of Progressive Era state wildlife law. Progressive Era wildlife

196. For a summary of this conflict as it played out in Pennsylvania, see WARREN, *supra* note 180, at 55–59.

197. *See* LUND, *supra* note 169, at 61–64.

198. LUND, *supra* note 169, at 60–73; TOBER, *supra* note 173, at 191–210.

199. The New York Association for the Protection of Game, for instance, used its membership fees and dues to employ a staff of detectives who roamed city markets looking for violations of the game law. On March 1, 1877, the first day of the closed season, the Association filed twenty-one complaints. TOBER, *supra* note 173, at 216.

200. GRAHAM, *supra* note 186, at 166–67.

regulation arose out of a classic conflict between two incompatible uses of the game resource. A vast increase in the wealth and size of America's eastern and midwestern urban populations had generated two conflicting demands for wildlife: a very intense or developed demand by the fashion and food industries and a demand for preservation on the part of sport hunters, birders, and other recreational users. Although the millinery and food industries fought an intensive political battle,[201] the sport hunters and birders eventually prevailed and state legislatures effectively banned the commercial market in wildlife. Progressive Era wildlife regulation was enacted because America's new class of affluent urban consumers preferred to see their wildlife alive in the woods and fields rather than dead on their hats and tables.

Perhaps the local market and subsistence hunters in rural areas suffered the greatest losses from wildlife regulations.[202] With most rural households owning firearms and game dealers and their agents widespread, few barriers impeded entry in market hunting prior to regulation, and this occupation had become a substantial source of income in many rural areas.[203] Politically, however, this user group lacked the money and geographic concentration influence to the outcome of regulatory centralization.

2. The Origins of Federal Wildlife Regulation

By 1909, legislatures in the United States and Canada had passed a total of 220 game laws.[204] As I have argued, these state laws themselves represented precisely the kind of centralized resource regulation predicted by my model: they benefited non-local urban sportsmen and bird-watchers while imposing costs primarily on locals who benefited from resource development. These state efforts occurred before any systematic federal attempt to regulate wildlife. Indeed, prior to 1900, little

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201. On the extent of their efforts, see, e.g., TOBER, *supra* note 173, at 181–215, 225–29.

202. On the conflict between local market and subsistence hunters and gentlemen sportsmen, see DANIEL JUSTIN HERMAN, HUNTING AND THE AMERICAN IMAGINATION 237–53 (2001); JACOBY, *supra* note 126, at 59–66.

203. TOBER, *supra* note 173, at 54.

204. WILLIAM F. SCHULZ, JR., CONSERVATION LAW AND ADMINISTRATION: A CASE STUDY OF LAW AND RESOURCE USE IN PENNSYLVANIA 70 (1953). It is worth noting that of these, sixty-nine were North Carolina local county measures.

wildlife regulation existed at the federal level. An 1834 statute banning hunting by non-Indians on Indian territory[205] and statutes prohibiting the killing or injuring of wildlife in Yellowstone National Park and their "wanton destruction" in Mt. Ranier National Park constituted the only major federal legislation in the nineteenth century.[206] At the turn of the century, presidential proclamations created the first federal wildlife refuges, and in both 1905 and 1906, Congress authorized presidential declaration of wildlife ranges.[207] Congress then established the National Bison Range in Montana in 1908.[208]

The same affluent eastern sportsmen who supported creation of the forest reserves provided the impetus for Progressive Era federalization of wildlife protection.[209] Just as the railroads brought affluent tourists to western national parks, they brought urban sportsmen to the great Mississippi flyway in search of prime waterfowl hunting opportunities.[210] Federal waterfowl refuges arose to protect what had become a national recreational resource. As a direct result of pressure from Progressive Era sportsmen, systematic federal acquisition of wildlife refuge lands finally began with the passage of the Migratory Bird Treaty Act in 1918 and the Migratory Bird Conservation Act of 1929.[211] Notably, the initial federal regulatory objective was not broad regulation of local land development but simply the elimination of the interstate market in waterfowl.

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205. Act of June 30, 1834, ch. 161, 4 Stat. 729 (regulating trade and intercourse with the Indian tribes, a piece of legislation notable primarily for its complete ineffectiveness and non-enforcement).

206. Yellowstone Act, ch. 72, 28 Stat. 73 (1894); Mt. Ranier Act, ch. 377, 30 Stat. 993 (1899).

207. MICHAEL J. BEAN & MELANIE J. ROWLAND, THE EVOLUTION OF NATIONAL WILDLIFE LAW 283–84 (3d ed. 1997).

208. *Id.* at 284.

209. Indeed, during the 1880s and 1890s, Theodore Roosevelt's Boone and Crockett Club lobbied Congress to establish large game preserves within the forests that would be protected from any development and to transfer all of the forest reserves in Wyoming to Yellowstone National Park. HAYS, *supra* note 14, at 40. Although they did not succeed with this ambitious proposal, by the time Roosevelt vacated the White House in 1909, he had created fifty-three bird and wildlife sanctuaries by executive order. GRAHAM, *supra* note 186, at 44.

210. *See generally* RIEGER, *supra* note 75, at 67–104, 146–74.

211. *See supra* note 151 and accompanying text. While the former implemented treaties limiting the taking of migratory birds, it was only with the 1929 Conservation Act that Congress provided explicit authority for federal habitat acquisition. On the evolution of the federal wildlife refuge system, see generally Richard J. Fink, *The National Wildlife Refuges: Theory, Practice and Prospect*, 18 HARV. ENVTL. L. REV. 1 (1994).

The federal role in wildlife regulation arose not because the states failed to regulate but because the interstate market inherently exceeded any state's regulatory powers. In the area of wildlife regulation, federal regulators generally acted as agents for states, carrying out the terms of an interstate agreement.

To demonstrate that the desire to supplement rather than supplant state regulation motivated the federal role in wildlife protection, one must first recall the origins of the Migratory Bird Treaty Act (MBTA). That law[212] was the culmination of a decades-long push for federal legislation designed to crush the commercial market for wild birds,[213] to save birds from the "indiscriminate slaughter" of market hunters, and to insure the "preservation of such migratory birds as are either useful to man or are harmless."[214] As such, the MBTA completed a legislative program initiated by the Lacey Act, which became law in 1901.[215] The Lacey Act's passage was in turn the result of a long four-year legislative process driven by the goal of halting the continuing decimation of bird populations.[216] As originally

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212. Which made it unlawful to "pursue, hunt, take, capture, kill, . . . possess, offer for sale, sell, . . . purchase, . . . ship, export, import, . . . transport or cause to be transported . . . any migratory bird" covered by an international convention between the United States, Britain, Mexico, and Japan. 16 U.S.C. § 703 (2000).

213. The fact that this objective was ultimately accomplished through an international treaty is of no functional importance. Congress had tried to exert direct federal control over birds in the 1913 Migratory Bird Protection Act of 1913, ch. 145, 37 Stat. 847, *repealed by* Migratory Bird Treaty Act of 1918, ch. 128, 40 Stat. 755 (current version at 16 U.S.C. §§ 703–712 (2000)). This law put migratory birds within the "custody and protection" of the United States and made it illegal to shoot them except as allowed by regulations to be promulgated by the Department of Agriculture. That law was declared unconstitutional by two district courts (on the grounds that it exceeded the constitutional powers of the federal government). George Cameron Coggins & Sebastian T. Patti, *The Resurrection and Expansion of the Migratory Bird Treaty Act*, 50 U. COLO. L. REV. 165, 169 (1979). Those decisions were evaded by invoking the Treaty Power to negotiate a treaty with Great Britain for the protection of birds migrating between Canada and the United States. The MBTA was signed into law by President Wilson in 1918, and upheld as within the Treaty Power in *Missouri v. Holland*, 252 U.S. 416 (1920). For a more detailed discussion of the Treaty Clause and other constitutional bases for federal power to regulate wildlife, see DALE D. GOBLE & ERIC T. FREYFOGLE, WILDLIFE LAW 516–81 (2002).

214. Migratory Bird Agreement with Great Britain, 39 Stat. 1702 (1916).

215. The Lacey Act made transportation across state lines of carcasses of animals killed in violation of state law a federal crime. *See* BEAN & ROWLAND, *supra* note 207, at 7–38.

216. TOBER, *supra* note 173, at 228. The House Report on the Lacey bill declared that "[in] many of the States the native birds have been well-nigh exterminated. H.R. REP. NO. 56-474, at 1 (1900).

introduced, the bill that eventually became the Lacey Act would have expanded the U.S. Fish Commission's duties of stocking popular game fish to include "the propagation, distribution, transportation, introduction, and restoration of game birds and other wild birds useful to man."[217] It said nothing about interstate game marketing but simply promised an additional centralized benefit—federally provided game stock supplements—without restricting local regulatory autonomy.[218] Unsurprisingly, this version of the bill sailed through the House. Its absorption into a more general bill designed to halt the interstate trade in birds, however, delayed the bill's passage for years. In their original, overbroad form, these provisions would have stopped all domestic poultry and wild game trade. For this reason, they triggered intense opposition from game dealers and millinery workers in major northeastern cities, as well as game providers in more rural states.[219] The Lacey Act passed only when various textual compromises overcame this opposition.

Thus the need to curb the interstate market for the feathers, meat, and other products of wild bird harvest both motivated and legally justified the original federal legislative intervention into wildlife regulation. The movement from centralized state wildlife regulation to centralized federal wildlife regulation was driven by the logical perception that because the federal government had subsidized the "channels" of interstate commerce—the railroads—primarily responsible for the huge increase in the demand for birds and other wildlife, the federal government should regulate those channels to stop such trade. Federal wildlife regulation resulted even though states had regulated with sufficient stringency; indeed, only months before Congressman Lacey introduced his bill, the Supreme Court in *Geer v. Connecticut*[220] upheld a state's constitutional power to prohibit the export of game across its borders. Despite, rather than because of, such state efforts, populations of game birds continued to decline virtually nationwide. The declines were of course most noticeable in those places that were

217. *Id.*

218. Theodore Whaley Cart, *The Lacey Act: America's First Nationwide Wildlife Statute*, FOREST HIST., Oct. 1973, at 4, 7–8.

219. *Id.* at 9.

220. 161 U.S. 519 (1896). For a discussion of the demise of Geer and the state ownership doctrine, see *infra* Part IV.B.

reasonably close to large urban population centers and that therefore were widely used by hunters who lived in those urban centers. In the inevitable paradox of development, the interstate transportation network Congress had subsidized both made birds accessible and hence subject to elimination even as it increased their value.

D. Federal Private Land Development Controls under the Endangered Species Act: How Sectionalism and Interstate Redistribution Continues to Drive Regulatory Federalization

In this Section, I present newly gathered data showing radical variation across states regarding the extent to which the federal Endangered Species Act (ESA) actually limits private land development. Data on congressional voting patterns on ESA reform, moreover, show that support for the ESA varies directly with the costs it imposes by restricting private land development. In most states, the ESA's restrictions on private land development have little or no impact, simply because most states have very few endangered species with habitats that land development will harm.[221] Congressmen representing those states face a relatively simple political calculation: so long as at least some constituents support the ESA and its private land restrictions, those restrictions please some constituents while costing their state or district very little. In a very few states, the ESA's private land restrictions profoundly impact land development and impose exceptional costs. But because the ESA does not impose substantial costs in the majority of states, federal representatives from states where the ESA does have a big impact are a minority in Congress, with only limited ability to bargain to prevent the imposition of the ESA's federal land development controls. The ESA has survived as a federal land development control regime precisely because of the kind of interjurisdictional redistribution portrayed by my model. The ESA could not have become a federal land use control statute, however, without widespread and, for many individuals, very intense concern over species survival. I therefore begin by briefly recalling how post-World War II economic

221. *See* discussion accompanying notes 257–268, *infra*, and Tables 1 through 4.

growth and technological change—and in particular the diffusion of the television—created a national movement for species preservation.

1. Wildlife Protection Origins of the Federal ESA

Like wildlife regulation more generally, the first sustained programs for species protection and restoration began at the state, rather than the federal, level. As discussed above,[222] state wildlife regulation arose because of concerns over declining numbers of various valuable game and bird species. During the early twentieth century, state fish and game departments conducted a number of programs to repopulate whitetail deer and other species with high value to sportsmen. By the 1960s—well before the passage of the first federal ESA—state fish and wildlife departments had succeeded in restoring species perceived to be at or beyond the point of national extinction, such as the tern, egret, brown pelican, beaver, wild turkey, and alligator.[223] By and large, state wildlife departments targeted for recovery those species that had important intrastate value, either to hunters and other sportsmen or as state symbols.[224]

Many species, however, had begun to have national and global preservation value far in excess of the value that states actually internalized through non-resident hunting licenses, tourism, and other routes. The automobile and interstate highways had created a new mass demand for America's national parks and forests,[225] and by the mid-1960s, television

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222. Part III.C.1.

223. Indeed, so successful were these programs that sport hunting for many species was resumed. ALBERT E. COWDREY, THIS LAND, THIS SOUTH: AN ENVIRONMENTAL HISTORY 179 (rev. ed. 1996).

224. *See, e.g.*, BELANGER, *supra* note 173, at 30–44 (discussing early wildlife restoration efforts of state fish and game departments).

225. Visits to all kinds of outdoor recreation sites—national parks and monuments, state parks, and national forests—exploded between 1945 and 1970. *See* CHARLES W. HOWE, NATURAL RESOURCE ECONOMICS: ISSUES, ANALYSIS AND POLICY 31 (1979). For instance, the estimated number of Americans visiting National Forests rose from ten million in 1945, to twenty-seven million in 1950, and by 1960 had risen to 92.5 million, a nine hundred percent increase during a period when national population rose only thirty-five percent. HIRT, *supra* note 137, at 52. The increase was due to the coincidence of more people, higher per capita income, more leisure, and greater mobility. *See* MARION CLAWSON, STATISTICS ON OUTDOOR RECREATION 12 (1958). On the general surge in travel as a mass leisure time activity during the affluent 1950s and 1960s, see GEORGE KATONA, THE

had brought even the rarest and wildest animals and places into American living rooms.[226] Whereas the Progressive Era centralization of wildlife regulation protected the values of a relatively small number of elite urban sportsmen and birders, post-World War II American affluence and the television had spawned a new, mass demand for wildlife preservation.[227] Wildlife and species preservation became an adjunct of the exponentially growing national outdoor recreation and tourism market. The initial federal role in species protection complemented the state-level effort to protect and restore species by ensuring the survival of species with high value to the national recreational tourism industry.

A diverse body of evidence supports this perhaps surprising claim. One must recall first how the federal role in species protection began. The federal ESA evolved as a direct outgrowth of federal migratory bird protection efforts and the plight of one particular bird, the whooping crane.[228] The whooping crane was always scarce in America, and its population was probably declining toward extinction even before European settlement.[229] The whooping crane stands five feet tall and, like humans, migrates in family groups. Although its numbers continued to fall after World War II, the bird's summer nesting grounds remained a mystery,[230] and its struggle for survival became a national news story in both the United States and Canada.[231] Although cranes were no longer taken,[232] by 1956 only twenty-four whooping cranes lived in the

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MASS CONSUMPTION SOCIETY 277–80 (1964).

226. *See* GREGG MITMAN, REEL NATURE: AMERICA'S ROMANCE WITH WILDLIFE ON FILM 132–202 (1999); *see also* HERMAN, *supra* note 202, at 273 (discussing how wildlife films encouraged the "domestication" of wildlife).

227. *See* HARVEY, *supra* note 90, at 58 (pointing out that the American postwar travel boom, with visits to national parks increasing nearly forty percent between 1940 and 1946, "signified the growing popularity of outdoor recreation").

228. The federal role in protecting endangered species began with the Endangered Species Act of 1966, Pub. L. No. 89-669, §§ 1–3, 80 Stat. 926 (repealed 1973). For a concise history of the various versions of the federal ESA that culminated in the 1973 law, see BEAN & ROWLAND, *supra* note 207, at 194–98; *see also* CHARLES C. MANN & MARK L. PLUMMER, NOAH'S CHOICE: THE FUTURE OF ENDANGERED SPECIES 149–60 (1995).

229. MATTHIESSEN, *supra* note 172, at 254.

230. This mystery was not solved until 1954, when a pilot for the Canadian Wildlife Service spotted a nesting pair of cranes with young in the spruce bog and tamarack wilds of the Wood Buffalo State Park near Great Slave Lake. *Id.* at 256–57.

231. *Id.* at 255–56.

232. In 1953, the Audubon Society "saturated" the cranes' entire migration

wild.[233] Working with ornithologists, conservationists, zoo and museum directors, and officials from the Canadian Wildlife Service, the United States Fish and Wildlife Service (USFWS) began experimental breeding programs during the early 1960s. In 1965, arguing that the crane would soon disappear from the wild, the USFWS persuaded Congress to create an endangered wildlife research program at the Patuxent Wildlife Research Center in Maryland.[234] When the agency next asked for legislation authorizing the purchase of land for endangered species habitat, it persuaded Congress that spending public money to buy species habitat would only make sense if "other Federal agencies are . . . taking similar steps in regard to the species and habitat found on their lands."[235]

The Endangered Species Act of 1966[236] thus authorized the USFWS to construct a list of imperiled domestic fish and wildlife species and to spend fifteen million dollars acquiring species habitat. It also required federal project agencies located in the Interior, Defense, and Agriculture departments to preserve habitats of endangered species on lands they administered "insofar as is practicable and consistent with their primary purpose."[237] Federal project agency consultation with wildlife protection agencies to prevent "loss and damage to wildlife resources" had been required since the 1946 amendments to the Federal Fish and Wildlife Coordination Act of 1934.[238] Experience under that law, however, had shown that federal project agencies typically found the pursuit of their missions inconsistent with species protection.[239] After a controversial 1970 decision by the USFWS not to list several species of whales—widely perceived as the result of Pentagon pressure to preserve

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route with "conservation propaganda," and cranes were no longer shot while the Air Force stopped bombing practice at its reserve on Matagorda Island in Texas adjacent to the cranes' wintering grounds. *Id.* at 256.

233. MANN & PLUMMER, *supra* note 228, at 149.

234. *Id.* at 149–51.

235. *Id.* at 153. The original proposal by the Fish and Wildlife Service was for 3.1 million dollars for the acquisition of habitat for the whooping crane, as well as the Mexican duck, the Florida sandhill crane, and several rare Hawaiian birds. *Id.* at 152.

236. *See* note 228, *supra*.

237. *Id.* at 154 (quoting Endangered Species Act of 1966, Pub. L. No. 89-669, 80 Stat. 926 (repealed 1973)).

238. Act of August 14, 1946, ch. 965, § 2, 60 Stat. 1080. On the Fish and Wildlife Coordination Act, see BEAN & ROWLAND, *supra* note 207, at 404–08.

239. *See* Michael Veiluva, *The Fish and Wildlife Coordination Act in Environmental Litigation*, 9 ECOLOGY L.Q. 489, 491 (1981).

the market in sperm-whale oil for submarines[240]—Congress in 1973 considered and overwhelmingly approved a completely revised version of the Endangered Species Act.[241]

The supporters of the 1973 ESA sought to strengthen the obligation of federal project and land management agencies to protect endangered species.[242] Thus the first major Supreme Court opinion interpreting the ESA—the famous snail-darter case—involved the taking of an endangered species caused by the construction of a federal dam.[243] Indeed, as late as the mid 1990s, the USFWS only applied and enforced Section 7 of the Act, which prohibits federal agencies from taking any action that would "jeopardize" the survival of an endangered species.[244] The USFWS had never enforced the ESA's prohibition of species takings that were incidental to private land development.[245] Moreover, the empirical evidence clearly shows that even as late as the early 1990s, actual federal spending on species protection concentrated on a small number of species, the so-called "charismatic megafauna."[246] Even though in 1983, Congress specifically directed the USFWS to ignore any distinction between "higher" and "lower" life forms in allocating its limited species protection funds, just ten out of 554 species officially listed as endangered or threatened in 1990 accounted for over half of all expenditures.[247] Exemplified by the bald eagle, manatee, and Florida panther, the top ten species only includes telegenic birds or mammals with very high mass market appeal.

While it may not have been following the letter of the law in allocating scarce resources to concentrate on the protection of charismatic megafauna, the USFWS species protection ac-

240. MANN & PLUMMER, *supra* note 228, at 155.

241. *Id.* at 155–56.

242. Section 7 of the ESA was revised to state that federal agencies "*shall* utilize, where practicable, their authorities" to protect endangered species. MANN & PLUMMER, *supra* note 228, at 158–59.

243. Tenn. Valley Auth. v. Hill, 437 U.S. 153 (1978).

244. Section 7(a)(2) of the Endangered Species Act, 16 U.S.C. § 1536(a)(2) (2000), requires federal agencies to "insure that any action authorized, funded or carried out by such agency . . . is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction of adverse modification of [critical] habitat of such species."

245. PERCIVAL ET AL., *supra* note 79, at 955.

246. *See* Andew Metrick & Martin L. Weitzman, *Patterns of Behavior in Endangered Species Protection*, 72 LAND ECON. 1, 11 (1996).

247. *Id.* at 2.

tivities simply reflected the preferences of the new late twentieth-century national wildlife "consumer." Surveys have consistently shown that only a small minority of people rank all species as equally deserving of rescue and that they attach much more value to the survival of mammals and large birds than to the survival of more obscure species such as snakes, insects, or mollusks.[248] The USFWS accurately responded to the relative national value from preserving alternative species, thus demonstrating precisely the kind of centralized preservation that my model predicts.

2. Explaining the Surprising Success of the ESA's Private Land Development Controls

As interpreted by Department of Interior regulations, Section 9 of the ESA prohibits private takings of endangered species by "significant habitat modifications."[249] Along with Section 10—which authorizes the Department of the Interior to grant an "incidental take permit" that allows private development to proceed provided that the developer agrees to preserve and restore species habitat[250]—these sections effectively render the federal ESA a federal land use development control statute. During the 1990s, the USFWS began for the first time to systematically apply these sections to protect endangered species by limiting private land development. By 2002, the USFWS had negotiated over four hundred habitat conservation plans

248. Don L. Coursey, *The Revealed Demand for a Public Good: Evidence from Endangered and Threatened Species*, 6 N.Y.U. ENVTL. L.J. 411, 428–29 (1998).

249. At 50 C.F.R. § 17.3 (2001), Fish and Wildlife has interpreted Section 9's prohibition on the "taking" of any endangered species to include "significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering."

250. Section 10(a) of the ESA, Pub. L. No. 97-304, 96 Stat. 1411 (1982), authorizes the USFWS to issue permits for what would otherwise be a prohibited taking of a species provided that the taking is 'incidental' to otherwise lawful private development, "will not appreciably reduce the likelihood of the surival and recovery of the species in the wild," Section 10(a)(2)(B)(iv), and provided also that the developer prepares a habitat conservation plan (HCP) to minimize the impact of the taking which meets the requirements of Section 10(a)(2)(A)(i)–(iv). On HCPs, see generally Jason Scott Johnston, *The Law and Economics of Environmental Contracts*, *in* ENVIRONMENTAL CONTRACTS: COMPARATIVE APPROACHES TO REGULATORY INNOVATION IN THE UNITED STATES AND EUROPE 271 (Eric W. Orts & Kurt Deketelaere eds., 2001).

under which the USFWS issued private landowners incidental take permits on the condition that they "mitigate" the takings by agreeing to preserve and restore species habitat.[251] Thus the federal government used its authority granted under Sections 9 and 10 of the federal ESA to regulate private land use. Against the background of a centuries-old American tradition of local land use regulation, this new federal program stands as a remarkable instance of regulatory centralization.

Although regulatory implementation of the ESA as a private land development control program occurred for many complex reasons, the ESA's basic distributional dynamic as a federal land use control statute very clearly confirms the positive utility of my theoretical framework. On the benefits side, the federal species protection program brings very concrete benefits to the sort of non-local and global resource users posited by my general model. Indeed, Congress clearly intended that statute benefit non-local user groups. Although the ESA states that the USFWS must base its listing decisions solely upon the "best scientific and commercial data available,"[252] "any person"[253] may bring petitions to list species, thus allowing a congeries of non-local interests to trigger the ESA's land development restrictions. Biologists, birdwatchers, and others interested in studying or observing a particular species often bring listing petitions. Environmental groups primarily concerned with slowing and controlling economic growth and land development, rather than the survival of a particular species, bring many other petitions.[254] These two groups differ in that the first primarily aims to preserve a species, an open-access, publicly owned resource. The latter, however, seeks to use species protection as an instrument by which to limit the development of private land on the ground that such development generates an externality, the loss of the species. As I explain in more detail below,[255] the distinction between species protection

251. According to the USFWS's most recent disclosure, as of December 12, 2002, "414 Habitat Conservation Plans have been approved, covering approximately 30 million acres and protecting more than 200 endangered or threatened species." U.S. FISH AND WILDLIFE SERVICE, ENDANGERED SPECIES HABITAT CONSERVATION PLANNING, *at* http://endangered.fws.gov/hcp/#contents (last visited Feb. 14, 2003).

252. ESA § 4(b)(1)(A), 16 U.S.C. § 1533(b)(1)(A) (2000).

253. ESA § 4(b)(3)(A), 16 U.S.C. § 1533(b)(3)(A).

254. *See* Stuart L. Somach, *What Outrages Me About the Endangered Species Act*, 24 ENVTL. L. 801, 803–06 (1994).

255. *See* text accompanying notes 285–289, *infra*.

for its own sake versus as an instrument for development control has normative significance.[256] In terms of positive analysis, by opening the listing process to any affected individual or group, the ESA brings very large and varied non-local benefits.

Beyond those fairly obvious non-local beneficiaries lies another much less obvious group of people who may benefit just as much, and in fact much more concretely, from the federal species protection program: residents of relatively older, more developed jurisdictions in which limits on the development of endangered species habitat have enhanced property values. Such non-local beneficiaries reside both intrastate and interstate. Even within a particular locality, existing residents often benefit by limiting further development when, as is typically the case, the property tax revenues generated by new residential development are not enough to cover the costs of educating the additional students that new development brings to the local public schools. Residents of nearby towns or counties also benefit when development is diverted, either because they want it diverted to their own towns or because they want it diverted entirely outside the region in order to reduce traffic congestion and other regional costs of development. In a much more general and less easily measurable way, residents of older, slow-growing states benefit when the ESA limits development in newer, faster-growing states. The marginal effect of the ESA's land development restriction is to reduce the supply and increase the cost of development. On the margin, in areas of the country where the ESA does not apply, lands become more attractive for development or redevelopment.

Thus on my theory, enormous variation exists in the net cost or benefit of the ESA's land development restriction. This variation yields the following concrete hypotheses:

H1) Within states, residents of relatively older, more developed, and more urban areas likely will perceive the ESA as bringing large net benefits, while residents of rural, less developed, but often developing, areas likely will perceive the ESA as bringing significant net costs. In urban areas, likely no species will remain for the ESA to protect, so that as a practical matter the Act does not apply to limit growth in such areas. By

256. The main problem is that when a group has no real interest in the species but rather is simply interested in preserving the land from development merely as an ideological matter, there is a severe risk of inefficient centralization. *See* the discussion in Section III.A.1, *infra*.

slowing development in more rural areas, the ESA effectively provides recreational and nature preserves for urbanites, while marginally shifting economic development back toward more developed urban areas. Residents of rural or relatively less developed but developing areas lose development opportunities as a result of the ESA.

H2) Across states, the ESA's cost depends on whether the state has many endangered or threatened species and the habitat needs of those species. If a state has few endangered or threatened species or species that have very small habitat needs, then the ESA's land development restriction will not impose many costs on landowners in that state. In states where there are a large number of endangered or threatened species or species with very expansive habitat needs, the ESA potentially can impose statewide development limitations. A related factor is the extent of species endemism: the greater the extent to which endangered species found in a particular state are found only there, the greater the pressure for actual habitat preservation in that state.

a. Characteristics of States that Are Potentially Most Affected by the ESA

Empirical evidence abundantly supports these hypotheses. I begin with measures that depict enormous interstate variation in the potential applicability, and hence economic impact, of the ESA.[257] Table 2 presents data on the number of "at risk"

257. The presence of endangered species within a state is a necessary but not sufficient condition for the ESA's private land development controls to actually be triggered and enforced. Below, in the text following note 268, I briefly discuss the factors leading to the actual application of the ESA's Section 9 taking prohibition to private land development.

TABLE 2: "AT RISK" AND ENDEMIC SPECIES BY STATE[258]

State and Rank	Number of Species"At Risk" / Endemic	State and Rank	Number of Species"At Risk" / Endemic
1. California	1815/1480	36. New Jersey	88/0
2. Hawaii	811/1105	37. Massachusetts	77/2
3. Arizona	634/166	38. Maine	70/1
4. Florida	570/203	39. Delaware	68/0
5. Texas	552/301	40. Wisconsin	64/2
6. Utah	544/161	41. Connecticut	63/1
7. Georgia	533/58	42. Kansas	61/0
8. Nevada	510/109	43. Iowa	55/0
9. Alabama	497/43	44. Minnesota	52/2
10. New Mexico	448/84	47. Rhode Island	45/0
11. Oregon	415/122	47. Vermont	45/1
12. North Carolina	375/22	47. New Hampshire	45/0
13. Tennessee	347/40	48. Nebraska	43/1
14. South Carolina	293/8	49. South Dakota	27/0
15. Virginia	272/11	50. North Dakota	26/0

258. Table 2 is taken from PRECIOUS HERITAGE: THE STATUS OF BIODIVERSITY IN THE UNITED STATES 340 (Bruce A. Stein et al. eds., 2000). For purposes of Table 2, "at risk" means that a species falls in one of five categories: 1) presumed extinct; 2) possibly extinct; 3) critically imperiled (5 or fewer sightings); 4) imperiled (very rare); or 5) vulnerable (rare). *Id.* at 97. Endemic is defined for these purposes as "species that are essentially restricted to the bounds of the 50 states, disregarding minor border incursions and records of accidental wanderings beyond these bounds." *Id.* at 103.

and endemic species for selected states. The table lists data for the top and bottom ten states ranked according to the number of "at risk" species.

In Table 2, "endemic" species are those with habitats confined to the fifty United States and whose global preservation thus hinges on successful preservation within the United States. In this sense, endemism proxies for the global value of local (that is, U.S.) species preservation.[259] The number of "at risk" species proxies for the potential growth-limiting impact of the ESA's takings prohibition on a particular state.[260] For any given level of state population density, the more species at risk, the greater the potential for the ESA's takings prohibition to limit land use development. Although the number of endemic species generally correlates only very loosely with the number of at risk species in a state, Table 1 demonstrates that the states with the most at risk species have far more endemic species than those states with very few at risk species. Indeed, states with the fewest at risk species tend to have few, if any, endemic species. Global scientific pressure for preserving habitat for species that are endemic is predictably much greater than pressure to preserve non-endemic species habitat. The scientific case for habitat preservation in the states in the left hand column of Table 2 is likely to be stronger than even the vastly disproportionate number of at risk species located there would suggest.

In explaining the application of the ESA as a federal development control program, the first and most striking thing to see from Table 2 is that the states with the largest number of at risk and endemic species are concentrated entirely in the southern and western parts of the country. In these regions, land development and economic growth have been rapidly ac-

259. *See* H. Ronald Pulliam & Bruce Babbitt, *Science and the Protection of Endangered Species*, 275 SCI. 499 (1997) (arguing that "endemics are prone to extinction, especially in the face of rapid habitat loss or degradation," and that Hawaii, Florida, and California, which have the most endemic species of any American states, also are experiencing "exceptionally rapid population growth and economic development").

260. It is obviously an imperfect proxy, in that states such as North Dakota that have very few at risk species may have some—such as various species of prairie dogs and the black-footed ferret which depends upon the prairie dogs—whose preservation might require that a vast amount of land be preserved from growth. But inasmuch as such states are very large and sparsely populated to begin with, even with vast areas preserved from development, they are relatively less affected by the ESA's takings prohibition.

celerating during the 1990s. This is indicated by Table 3, which presents data on population growth and land development for the same states listed in Table 2.

Table 3 clearly shows that the potential effect of the ESA's control on private development activity is greatest in those states that have been growing rapidly. While the United States population grew by thirteen percent between 1990 and 2000, the (unweighted) average population growth rate between 1980 and 1998 for states with a large number of species "at risk" was twenty-five percent, versus only seven percent for states with a very small number of species "at risk" of extinctt-tion. The states that top the Noss and Peters Overall Risk Index—which attempts to measure the number of endangered ecosystems and species in a state as well as state development pressure—are precisely the same that appear on the left hand columns of Table 1: Florida, California, Hawaii, Georgia, North Carolina, Texas, South Carolina, Virginia, Alabama, and Tennessee.[261] Equally significantly on my theory, during the 1990s, the southern and western regions represented by the rapidly growing states on the left hand side of Table 1 led the nation in domestic immigration; by contrast, the majority of the slower-growing states in the right-hand columns are in the midwestern and northeastern regions, which lost domestic population and managed to gain population only through international immigration.[262] Clearly, the slower-growing states least at risk under the ESA's private development restriction have lost population and tax base to the states that the ESA most affects. Thus the slower-growing states stand to be net beneficiaries of the ESA as a federal land development control. The states with the largest number of at risk and endemic species share rapid recent rates of economic growth. Their differences, however, are just as important for explaining the ESA's takings prohibition as a federal development control. Table 3 reports data on state population density and also on the rate at which undeveloped land is being lost. Population density is a

261. REED F. NOSS & ROBERT L. PETERS, DEFENDERS OF WILDLIFE, ENDANGERED ECOSYSTEMS: A STATUS REPORT ON AMERICA'S VANISHING HABITAT AND WILDLIFE 118 (1995), *available at* http://www.defenders.org/pubs/ endangeredeco.pdf.

262. *See* STATISTICAL ABSTRACT OF THE UNITED STATES, *supra* note 114, at 28 (Table 25).

TABLE 3: STATE GROWTH PATTERNS[263]

States with Most Species "At Risk"	2000 Population. Density (per mile^2)[264]	1990–2000 Change in Population (%)[265]	1982–1992 Change in Amount of Developed Land (%)[266]
California	217	34	19
Hawaii	189	9	16
Arizona	45	40	35
Florida	296	24	35
Texas	80	23	21
Utah	27	30	24
Georgia	141	26	33
Nevada	18	66	26
Alabama	88	10	19
New Mexico	15	20	23
Oregon	36	20	17
North Carolina	165	21	36
Tennessee	138	17	25
South Carolina	133	15	28
Virginia	179	14	26

States with Fewest Species "At Risk"	2000 Population Density (per mile^2)	1990–2000 Change in Population (%)	1982–1992 Change in Amount of Developed Land (%)
New Jersey	1134	9	23
Massachusetts	810	6	22
Maine	41	4	16
Delaware	401	4	21
Wisconsin	99	10	12
Connecticut	703	4	12
Kansas	33	9	7
Iowa	52	5	3
Minnesota	62	12	11
Rhode Island	1003	5	16
Vermont	66	8	25
New Hampshire	138	11	37
Nebraska	22	8	3
South Dakota	10	9	6
North Dakota	9	1	9

263. NOSS & PETERS, *supra* note 261, at 118–19.

264. *See* STATISTICAL ABSTRACT OF THE UNITED STATES, *supra* note 114, at 21.

265. *Id.*

266. Defenders of Wildlife, *Saving Biodiversity: A Status Report on State Laws, Policies and Programs*, *at* http://www.defenders.org/bio-st00.html (2000).

reliable[267] measure of a state's current level of economic development. Other things equal,[268] the higher its population density, the scarcer and hence more valuable its remaining undeveloped land and the greater will be in-state sentiment in favor of limiting land development. An index that allows one to test this prediction can be obtained by multiplying the increase in developed land by a state's population density. This index, which I refer to as the Land Loss Value Index, is presented in Table 4. States on each side of the table break into two very distinct groups: those where continuing losses of open space from development are very costly to residents and those where the loss of open space has very little cost. Notably, however, only one state that is at risk under the ESA—Florida—would rank among the high-cost states overall. Insofar as the land loss index values reported by Table 4 reflect pressure for state-level controls on development, Table 4 shows that many of the states where the ESA likely will control land development are both rapidly growing and still—at least on a statewise basis—have room to grow (Arizona, Texas, Utah, Nevada, Alabama, New Mexico, and Oregon). The ESA constrains the otherwise substantial ability of these states to compete for economic development. In both this group and the group of states next most at risk under the ESA—including California, Florida, Hawaii, and the southeastern states (except Alabama)—the ESA is also likely to generate effects on intrastate competition for economic development. In these states, with metropolitan areas expanding into what are still relatively abundant rural lands, there are likely to be significant winners and losers from development control. Here, the ESA has become a tool for relatively developed localities to ensure that they will continue to benefit from the presence of undeveloped land located in

267. Reliable but not perfect. Growth in the most rapidly developing states has corresponded to suburbanization, a less dense form of land use. Hence density will tend to make late-developing states look even less developed than they really are relative to older states.

268. One of the things that is not equal is the extent of federal land ownership. While federal land can sometimes be developed—under various land exchange programs with private developers—it is for the most part not subject to development. Thus the Land Loss Index tends to overestimate the amount of developable land in western states such as Arizona and Utah where there is a great deal of federal land. A rigorous cross state comparison would always need to hold constant things like the mix between single family and multi-family dwellings, average lot size and similar determinants of the actual spatial per capita impact of additional development.

TABLE 4: LAND LOSS INDEX VALUE FOR HIGH AND LOW ESA—RISK STATES

States with most Species "At Risk"	Land Loss Index Value	States with Fewest Species "At Risk"	Land Loss Index Value
California	41	New Jersey	261
Hawaii	30	Massachusetts	178
Arizona	16	Maine	7
Florida	104	Delaware	84
Texas	17	Wisconsin	12
Utah	6	Connecticut	84
Georgia	42	Kansas	1
Nevada	5	Iowa	2
Alabama	17	Minnesota	7
New Mexico	3	Rhode Island	50
Oregon	6	Vermont	17
North Carolina	59	New Hampshire	51
Tennessee	34	Nebraska	1
South Carolina	37	South Dakota	1
Virginia	47	North Dakota	1

nearby localities without incurring the expense of actually acquiring the lands to be preserved.

b. *Where Are the ESA's Land Development Limitations Actually Being Felt?: Evidence from HCPs*

Of course, Tables 2, 3, and 4 just show where application of the ESA *potentially* may significantly limit land development. Whether the ESA's Section 9 taking prohibition is actually triggered and enforced depends upon a number of factors. Section 9 is not triggered unless land development actually encroaches upon endangered species habitat.[269] Furthermore, actual enforcement of Section 9 then depends upon a number of other factors, such as the extent of general public and scientific knowledge regarding the condition of the species and its habitat and national and local support for protecting the species and conserving the habitat. How all of these factors fit together is another story. Still, since, as noted above, virtually all of the actual applications of the Section 9 taking prohibition by the USFWS have been in the context of crafting habitat conservation plans (HCPs), data on the state-by-state distribution of HCPs indicate where application of the ESA has limited private land development. Such data, which have not heretofore been publicly available, are presented in Table 5. That Table presents state-level data as of November, 2001, regarding the number of incidental take permits and finalized HCPs for states with at least two incidental take permits. The table also includes data on HCPs under development.

As shown by Table 5, through the Section 10 Habitat Conservation Plan process, the USFWS has concentrated its application of Section 9 of the ESA in very few states. Of the 425 incidental take permits issued under Section 10, fully two-thirds (314) were issued in two states, California and Texas, while just six states accounted for ninety-five percent of all incidental take permits. Since any given HCP will sometimes involve the issuance of more than one incidental take permit,

269. Under 50 C.F.R. § 17.3, the USFWS has defined "harm" for purposes of a "take" under Section 9 of the ESA as meaning "an act which actually kills or injures wildlife. Such act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering."

the total number of HCPs is somewhat lower—at 288—than the total number of incidental take permits.[270] However, HCPs are just as concentrated geographically. Roughly two-thirds of all finalized HCPs are in California or Texas, while just six states (California and Texas, plus Florida, Alabama, Washington, and Utah—which I shall refer to as the six most affected states) accounted for ninety percent of all HCPs. In practical application, the effects of the ESA's private land development restriction are highly concentrated in just a few states.[271]

c. *Congressional Voting Patterns and the Costs and Benefits of Section 9 of the ESA*

While one cannot directly observe the net costs or benefits of the ESA, recent congressional voting patterns on a variety of measures affecting the ESA strongly confirm the hypothesis that the ESA's land development restriction is perceived to have very high net costs by residents of the states and areas where it applies. Both the intrastate and interstate hypotheses are supported by the only systematic (that is, econometric) study of congressional voting on the federal ESA. Mehmood and Zhang attempted to explain congressional roll call voting on a number of proposed amendments to the ESA,[272] including 1987 proposals to remove the leopard darter from the endangered species list and delay the requirement that Gulf shrimp fishermen install costly turtle excluder devices. Mehmood and

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270. Section 10(a)(1)(B) of the ESA authorizes the USFWS to permit the private taking of an endangered animal species upon a finding that the take is "incidental to, and not the purpose of, carrying out of an otherwise lawful activity," and provided that the project developer submits, under Section 10(a)(2)(A), a habitat conservation plan specifying the project's impact on the species, alternatives to the project, and steps taken to mitigate the project's impact. *See* 33 U.S.C. §§ 1539(a)(1)(B), 1539(a)(2)(A) (2000).

271. Our data have recently been updated to include all incidental take permits issued by USFWS between October, 2001 and August, 2002. USFWS, Plan and Agreements Database (data query performed September 30, 2002) (results on file with author). Of the forty-four incidental take permits issued during this period, nine were in California, twenty-three in Texas, two each in Alabama, Colorado, and Florida, and one in Arkansas, Hawaii, Indiana, North Carolina, and Tennessee. Thus the ESA's Section 9 private takings prohibition remains concentrated in a few states. The agency appears to have adopted the practice of issuing a number of incidental take permits under a single habitat conservation plan. Thus there are significantly fewer new habitat conservation plans than incidental take permits.

272. Sayeed R. Mehmood & Daowei Zhang, *A Roll Call Analysis of the Endangered Species Act Amendments*, 83 AM. J. AGRIC. ECON. 501 (2001).

TABLE 5: GEOGRAPHIC DISTRIBUTION OF HCPS AND INCIDENTAL TAKE PERMITS (OCT. 2001)[273]

Incidental Take Permits	State	HCPs	HCPs Under Development
223	Texas	111	22
91	California	82	109
27	Florida	24	10
24	Alabama	22	1
13	Washington	9	0
11	Utah	11	1
5	Nevada	5	5
4	Colorado	4	4
4	Oregon	4	3
4	South Carolina	4	0
3	Arkansas	3	1
3	Georgia	3	0
3	Mississippi	3	2
2	Arizona	2	3
2	Idaho	1	1
2	Montana	1	1
2	North Carolina	2	2
2	Wisconsin	2	0

273. Memorandum from Michael Horton, USFWS, Division of Endangered Species, to Todd Hettenbach (Oct. 19, 2001) (on file with author).

Zhang found that House members from the most highly developed urban districts were significantly likely to oppose amendments weakening the ESA, while those from districts with a large number of listed species and high levels of construction activity (a surrogate for ongoing land development) were significantly likely to favor weakening the ESA. They also found that House members from the South were especially likely to favor weakening the ESA.

The Mehmood and Zhang findings are strongly supported by data that I have collected on more recent congressional activity relating to the ESA. My data pertain to four significant measures affecting the ESA that were presented for roll call votes in the House and/or Senate during the 1990s: 1) the 1994 House vote on whether to eliminate funding for the National Biological Survey; 2) the 1995 Senate vote to impose a moratorium on the listing of new endangered species; 3) the 1996 Senate vote to continue that moratorium; and 4) the 1996 House vote on a proposal to delete critical habitat protection for the marbled murrelet, a threatened bird, on forty thousand acres of private land in California.[274] Table 6 presents voting pattern data on these four measures.

Table 6 shows a higher rate of support for measures restricting the ESA among legislators representing the six most affected states than in the national legislature as a whole. As the bottom two rows of the Table show, this very sharp difference is not an artifact of political party affiliation and the generally pro-ESA stance of the national Democratic party and anti-ESA stance of the national Republican party. The bottom two rows show that Democrats from the six most affected states went against party position (in two cases voting against an official White House position) much more often than did Democrats generally. This was true over the entire period in

274. Given that none of the ESA's prohibitions are triggered unless a species is listed, the congressional moratorium on adding new species to the endangered species list is a fairly obvious attempt to slow down or stop the ESA. Once one understands that the National Biological Survey would have almost surely had the effect of uncovering a large number of new endangered species, one can see how opposition to funding this otherwise seemingly innocuous attempt at scientific information gathering was also an anti-ESA move. Finally, because the marbled murrelet is an endangered species, a law prohibiting enforcement of the ESA with respect to that species was an effort to stop a particular development-limiting application of the ESA.

TABLE 6: CONGRESSIONAL VOTING PATTERNS ON THE ESA[275]

	1994 Elimination of Biological Survey Funding	1995 New Listing Moratorium	1996 Retention of New Listing Moratorium	1996 Marbled Murrelet Habitat Enforcement Prohibition
Result of Vote	Failed, 169-259 39% in favor	Adopted, 60-38 39% in favor	Adopted, 51-49 51% in favor	Failed, 164-257 39% in favor
Result in Six Most Affected States	Failed, 61-63 49% in favor	Adopted, 8-4 67% in favor	Adopted, 7-5 58% in favor	Failed, 59-65 48% in favor
Percent Of Democrats Voting in Favor in Six Most Affected States	20%	25%	0%	20%
Percent of All Democrats in Favor	19%	14%	12%	10%

275. Table 6 Sources on House and Senate Votes: 1) 1995 Senate New Listing Moratorium, 1995 CONG. Q. ALMANAC S-20; 2) 1996 Senate Retention of New Listing Moratorium, 1996 CONG. Q. ALMANAC S-7; 3) 1996 Marbled Murrelet Critical Habitat Enforcement Prohibition, 1996 CONG. Q. ALMANAC H-84; 4) 1995 House Vote on Eliminating Funding for National Biological Survey, 1994 CONG. Q. ALMANAC H-76.

the House (where Democratic representatives actually slightly outnumbered their Republican colleagues in the six most affected states over this period). In the Senate, by contrast, by 1996, Democrats and Republicans had sharply polarized over environmental issues, with Democrats unanimously supporting the ESA even in the six most affected states.

While these results might be due to increased solidarity with national party positions, my general approach suggests that it is much more likely to reflect the dramatic acceleration in economic and population growth that took place in western states such as Washington during the 1990s.[276] Most of the growth in such states occurred in large metropolitan areas.[277] This suggests that the major effect of the ESA's private land development restriction[278] has been to limit the continued expansion of western metropolitan areas into the currently rural periphery. Inasmuch as the median existing resident of the

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276. My results are subject to the obvious objection that they are informal—that I have not, for example, attempted to run a multiple regression analysis that would identify the independent effects of party affiliation versus district-specific variables. Such analysis is suggested by recent empirical work showing that congressional positions on environmental issues are strongly partisan. *See generally* William R. Lowry & Charles R. Shipan, *Environmental Policy and Party Divergence in Congress*, 54 POL. RES. Q. 245 (2001); Jon P. Nelson, *"Green" Voting and Ideology: LCV Scores and Roll-Call Voting in the U.S. Senate, 1988–1998* (2001), *available at* http://papers.ssrn.com/sol3/ papers.cfm?abstract_id=301392. This empirical analysis would be a natural follow-up to the work presented here. However, as explained in some detail by J.R. DeShazo & Jody Freeman, *The Congressional Competition to Control Delegated Power* 28 n.96 (UCLA School of Law Research Paper, No. 02-24, 2002), *available at* http://ssrn.com/abstract_id=324482, the problem with such a regression is that party affiliation and district-specific variables are almost perfectly correlated. This makes it impossible to get unbiased estimates of the separate effects of these two variables on congressional attitudes toward the ESA. While they do provide further evidence of partisan influence on environmental voting, DeShazo and Freeman's findings that Republicans on key committees act to restrict species listing and species recovery funding by the USFWS while Democracts on such committees do the opposite does not generate any insight into whether it is party affiliation or district characteristics that account for the difference. While informal, my analysis does help to distinguish the separate roles played by party affiliation versus district characteristics—whether the ESA would actually impose costs on a Congressperson's constituents—in shaping congressional voting patterns on the ESA.

277. *See* Heim, *supra* note 113, at 95 (stating that most of what appears to be new regional development in the Southwest and West is "mainly urban and suburban growth").

278. Observe that while there are various indirect ways that the ESA can affect private land development—for example by causing changes in how federal water managers release water from dammed reservoirs—the only direct way is through the Section 9 taking prohibition, and my discussion here is restricted to the latter.

increasingly dominant western metropolitan areas is interested in halting such growth, Democratic senators elected by precisely such a constituency have simply mirrored a shift in statewide median voter preference with respect to the ESA.

Congressional voting patterns within particular state delegations provide further evidence for the notion that the ESA's land development prohibitions have profoundly unequal effects within states. As Table 5 clearly shows, California and Texas have both been profoundly affected by the ESA's private land development controls. When one looks at how the California and Texas House delegations voted on the two House measures in Table 6,[279] however, one finds very sharp differences. Although both Texas and California are relatively urbanized states, as Table 4's land loss index reveals, Texas experienced more growth in land development, and has more room for further development, than California.[280] Reflecting these statewide differences, a much higher fraction of the California House delegation supported the anti-ESA measures than did the Texas delegation (sixty-five percent versus forty-five percent). This statewide difference was in large part due to even larger differences in voting behavior by Democratic representatives from the two states. In Texas, forty-four percent of Democratic representatives voted for the anti-ESA measures, while in California only nine percent voted in favor. As my theory predicts, in both Texas and California, the only House Democrats to vote in favor of the anti-ESA measures were from districts that are either very rural or still relatively undeveloped.[281] These are precisely the sorts of "latecomer" jurisdictions to the development process whose residents generally strongly benefit from development. The overall difference in

279. Votes on the Biological Survey bill are found at 1994 CONG. Q. ALMANAC, 76-H and 77-H; votes on the Marbled Murrelet Bill at 1996 CONG. Q. ALMANAC, H-84 and H-85.

280. During the 1990s, population growth in California slowed significantly. STATISTICAL ABSTRACT OF THE UNITED STATES, *supra* note 114, at 29. What growth did occur was solely due to foreign immigration; indeed, over two million domestic residents left California over the 1990–98 period. *Id.* at 31.

281. In California, Democratic Representatives Condit, Lehman, and Dooley, representing the 18th, 19th, and 20th congressional districts, voted in favor of the anti-ESA measures. In Texas, Democratic Representatives Chapman (in only one case), Hall, Edwards, Geren, Sarpalius, Laughlin, de la Garza (in one case), Stenholm, Gonzalez (in one case), Ortiz, and Tejeda, representing the 1st, 4th, 11th, 12th, 13th, 14th, 15th, 17th, 27th, and 28th districts voted in favor of the anti-ESA measures. *See supra* note 279.

voting by the states' Democratic members is fully accounted for by the fact that Texas has far more Democratic representatives from rural or relatively undeveloped by rapidly developing districts than does California.[282]

III. NORMATIVE EVALUATION OF CENTRALIZATION AND ALTERNATIVE RESPONSES TO THE DYNAMIC OF MARKET INTEGRATION AND DECENTRALIZED REGULATION

A. Normative Evaluation of Regulatory Centralization

Unsurprisingly, it is not possible to reach a simple and unambiguous normative judgment about the efficiency of centralized natural resource development controls. This is true from both static and dynamic points of view. From a static point of view—looking only at the time period in which centralized development controls are imposed—such controls can overcome the inefficiency that arises when local owners of an open-access resource do not internalize the global value of preserving that resource in an undeveloped, open-access state. On the other hand, centralized controls may simply represent inefficient rent-seeking by non-local users of an undeveloped natural resource, who seek to preserve it in an undeveloped state for their own, free-access use even though the local value of development exceeds the non-local loss.

From a dynamic point of view—looking at the influence of anticipated future centralized controls on present-day decentralized development decisions—centralization is also normatively ambiguous. When rationally anticipated by early-

282. In California, the 18th, 19th, and 20th congressional districts comprise the Central Valley and the Westlands, an area of vast farms made possible by federal water projects. *See* CONG. QUARTERLY INC., CONGRESSIONAL DISTRICTS IN THE 1990S, at 85–89 (1993). These are among the most rural and farm-based areas in the state (with an average of 22 percent rural housing compared to a statewide average of only 7.4 percent and 13 percent farm employment compared to a statewide average of only 2.7 percent). *Id.* at 58–59. Although Texas as a state is much more rural than California (19.7 percent rural residence versus 7.4 percent), anti-ESA Texas Democratic representatives likewise come from districts (the 4th, 11th, 12th, 13th, 14th, 17th, 20th, 27th, and 28th) that are much more rural and farm-based than is Texas as a whole (with an average in the relevant districts of 32.7 percent rural residence and 4.6 percent farm employment compared to statewide averages of 19.7 percent rural and 2.6 percent farm-based). Other than the 12th (which is essentially Fort Worth) and 28th (which includes rapidly growing San Antonio), the Texas districts are all huge and very sparsely populated rural areas. *Id.* at 704–44.

developing communities, such federal regulations will increase the level of development in such communities beyond the level that would be undertaken under decentralization. Inasmuch as early development incentives are too weak under decentralization, federal controls improve global welfare. But the prospect of future federal controls may stimulate too much development in early-developing communities.

The same theoretical framework that reveals this normative ambiguity, however, also reveals a number of observable factors that provide guidance in judging the likely efficiency of any particular instance of regulatory centralization. These general factors include the extent to which the costs as well as the benefits of centralized development controls are borne by people who live outside the jurisdiction where the resource is located and the way in which economic development itself may change preferences over development versus preservation within such a resource rich jurisdiction. In this Part of the Article, I explain these general factors and illustrate their application by looking back at some of the examples of centralization described in the previous Part.

1. The Distribution of Development Costs and Benefits as an Efficiency Signal

One of the most striking things about the centralized development controls discussed in the previous Part is that so many brought very little cost or benefit at the time they were implemented. The national forests, for instance, were created long before there was really any national demand for the timber they contained. The ESA was passed well before private land development in the United States had reached the point at which further private development would endanger species survival. As I have argued earlier, there is a very good reason for what might seem to be such premature centralization. It is much less costly politically to adopt centralized development controls well before the development opportunities that they are intended to regulate even arise, and well before the full aesthetic and recreational value of undeveloped resources has been realized, than after concrete benefits and beneficiaries from development have been identified. The effect of reserving a particular resource from development is likely to be opaque to all but the most rational of actors before development is economically possible. Likewise, the normative desirability of

such controls depends upon relative values from development versus preservation at some future point.

Were the arrival of the development opportunity the only change between the time such centralized controls are adopted and the time they are implemented, the normative analysis of such controls would be simple and static. Because they may prevent local developers and communities from sacrificing the value from preserving open-access natural resources that goes to non-local residents even when that value exceeds the global (but not local) value of preservation, centralized controls may be efficient. Because they deprive developers (local or not) of potential value without compensation, such controls may inefficiently transfer rents from development winners to preservation winners.

Of course, disputes over resource development often center around the relative magnitude of preservation versus development value. The framework developed above is not especially useful in addressing this issue,[283] but the present framework does reveal how the *distribution* of gains and losses from development within a federation can be highly informative as to the likely efficiency of centralized development controls. The best case for the efficiency of centralized development controls over free-access resource development arises when all the gains from development accrue locally, while all the losses from development are borne by non-residents. In this case, the developing jurisdiction bears none of the global costs of development, and there is the greatest risk of inefficient decentralized development and the strongest likelihood that centralized controls are globally efficient. As we decrease the fraction of global development value that accrues locally, it becomes increasingly less likely that the local jurisdiction will develop the resource inefficiently.[284] In the limit, when the gains from development go solely to non-residents, the risk under decentralization is not inefficient overdevelopment but rather inefficient underde-

283. The measurement and expression of preservation value through the political process is a topic I explore elsewhere. *See* Jason Scott Johnston, *On the Market for Ecosystem Control*, 21 VA. ENVTL. L.J. 129 (2002).

284. If we let s denote the share of total development value that accrues locally, and r the fraction of global preservation value that accrues locally, then under decentralization, the resource is developed if and only if $sD > rV$. Development is globally efficient whenever $D > V$. Global and local incentives are identical whenever $s = r$. The smaller s is, the less likely it is that the local jurisdiction will develop.

velopment. Especially when the costs of development are locally concentrated, in this case, centralized development "controls" may actually be development subsidies relative to what the local jurisdiction would adopt on its own. Local and global development incentives converge when the local share of global development value equals the local share of global development costs.[285]

Great care must be taken in applying this general analysis to evaluate the efficiency of any particular centralized regulatory regime. For example, if we look only at the federal ESA's statutory structure, then the analysis strongly suggests that the ESA's private land development controls may be inefficient. Because anyone may initiate the process of species listing that can end up imposing restrictions on the development of habitat, there is nothing within the statute to ensure that the global value of protecting any particular species outweighs the local cost to developers and both present and future residents.[286] A particular danger is posed by the fact that a species may be used purely instrumentally to control or limit land development, regardless of whether the individual who petitions for listing, or anyone else for that matter, believes that the species in question has any particular value (above and beyond the value of species preservation in the abstract).

However, the ESA's statutory structure—which tells the USFWS to treat all species equally—deviates sharply from actual practice under the ESA. Regardless of what the statute may say, political pressure is exerted on the USFWS through-

285. In the notation of the previous note, it is only when $s = r$ that the global social welfare calculus of developing if and only if $V < D$ becomes identical to the local welfare calculus of developing if and only if $sD > rV$.

286. It is true that under 16 U.S.C. § 1536(h) (2000), there is an exemption from the "no-jeopardy" provision in Section 7(a)(2) of the ESA, 16 U.S.C. § 1536(a)(2), when there are no reasonable or prudent alternatives to the federal action. It is also true that the no jeopardy mandate applies only to actions that affect the "critical habitat" of a species, and that under Section 4(b)(2), "critical habitat" is specified only after USFWS takes into account the "economic impact . . . of specifying any particular area as critical habitat." 16 U.S.C. § 1533(b)(2). Thus economic costs are to be balanced against species preservation benefits in the critical habitat determination. However, the source of the ESA's private land development restrictions, the Section 9(a), 16 U.S.C. § 1538(a), prohibition on the "take" of endangered fish and wildlife species, is not limited to land development of critical habitat. For a recent decision reaffirming the statutory duty to consider economic impact in designating critical habitat, see *New Mexico Cattle Growers Ass'n v. USFWS*, 248 F.3d 1277 (10th Cir. 2001).

out the species protection process.[287] Threats by the USFWS to simply ban all private development of any large area are not politically credible, so that if Section 9 is actually used to restrict private land development, then it will only be through the successful negotiation of an HCP.[288] Whether an HCP is finalized and the extent of land protected from development by any particular HCP depend upon the outcome of a highly complex negotiating process that involves not only private developers and federal regulators but state and local regulators, local government, and local community groups.[289] When local community groups effectively represent the local costs of development restrictions in this process, there is much less risk of inefficient application of the Section 9 prohibition than would otherwise seem to be the case.

2. Endogenous Preferences and the Difficulty of Judging the Efficiency of Centralization

As indicated by the earlier discussion of residential mobility, normative analysis becomes more complex when jurisdictional composition and hence voter preferences change over time. On my model, development increases the demand for pristine, undeveloped places and provides the wealth and transportation infrastructure that allows people to move to such places. If sufficiently strong, these market forces would themselves shift the balance of local preferences toward preservation in undeveloped communities. It is possible that in this case federal development controls are merely replicating the market's natural reaction or that such controls may simply be providing time for the salutary market dynamic to develop, ensuring that resources are around long enough to increase in (undeveloped) value.

The problem, however, is that federal development controls not only preserve resources but also create high levels of resource use by non-residents. Congestion from such non-

287. This is clearly demonstrated by the empirical analysis in DeShazo & Freeman, *supra* note 276.

288. As of the end of 2002, the UWFWS has never brought a criminal prosecution under Section 9 against a private (as opposed, for example, to state or municipal) actor whose "taking" of a species resulted from land development activities.

289. For case studies of this process, see TIMOTHY BEATLEY, HABITAT CONSERVATION PLANNING: ENDANGERED SPECIES AND URBAN GROWTH (1994).

resident use weakens rather than strengthens the market for places. People will not move to be near resources that have been severely degraded by the overuse that is a consequence of loose federal open-access management. And those who are near have little incentive to preserve what has been (irretrievably) degraded. Centralized preservation of open-access resources thus itself tends to weaken the market and local political forces that would inhibit future inefficient development. Centralized preservation regimes inevitably mushroom: they preserve incentives for resource overuse, the consequences of which then prompt calls for even tougher centralized preservation mandates, which themselves even further displace salutary decentralization with increasingly restrictive centralized controls.

The history of the national forests vividly illustrates this phenomenon.[290] Post-World War II affluence increased the demand for outdoor recreation, and the interstate highway system dramatically lowered the cost to easterners of taking their recreation in the vast national forests of the West. Over the period between 1948 and 1976, total recreational visits to national forests increased from the historical average of 10 million to 190 million.[291] At the very same time, the postwar housing boom and the exhaustion of private timber lands generated intense and successful pressure on the Forest Service to accelerate timber production from the national forests.[292] By authorizing large scale clear cuts during the 1950s and 1960s, Forest Service regional managers systematically acted to maximize timber harvest.[293] Moreover, as the supply of easily accessible high quality timber declined, the Forest Service spent more and more money on increasingly costly logging roads into more remote areas of the forests.[294] As the national forests became more and more degraded (or, in the case of clear cutting, depleted) by increasingly intense use, pressure grew to

290. Although space does not allow me to elaborate here, similar trends have taken place with respect to National Park management. *See* RICHARD WEST SELLARS, PRESERVING NATURE IN THE NATIONAL PARKS: A HISTORY 191–203 (1997).

291. WILKINSON, *supra* note 20, at 137.

292. DAVID A. CLARY, TIMBER AND THE FOREST SERVICE 112–13 (1986). On the variety of Forest Service responses to this atmosphere, see more generally HIRT, *supra* note 137, at 105–38.

293. HIRT, *supra* note 137, at 171–242.

294. *Id.* at 233.

establish even stricter regulation of remaining undeveloped forest. In 1958, the Forest Service had designated only 14 million of the 188 million acres of national forest, slightly more than seven percent of the total, as "wilderness," "wild," or "primitive."[295] Throughout the late 1950s and early 1960s, the large and growing number of recreational users of the national forests lobbied intensively for more wilderness areas.[296] In securing passage of the Wilderness Act of 1964, such preservation beneficiaries did not obtain everything they wanted—the bill allowed a number of resource development activities, such as mining, to continue in some wilderness areas—but they did succeed in toughening centralized development controls over at least some national forest lands.[297]

3. Beyond Efficiency: Distributional Fairness and Regulatory Centralization

One of the central normative implications of my approach is that the efficiency of natural resource development is temporally contingent. When natural resources are globally abundant, no resource is used with particular intensity and therefore no resource has particularly high value. As development proceeds and undeveloped resources become increasingly scarce, their value increases. The later in the development process, the more likely it is that the global cost-benefit calculus tips in favor of preservation. Such time-dependent calculus may unfairly impact local residents of undeveloped resource jurisdictions. The global cost-benefit calculus says that they ought to refrain from developing their resource simply because their jurisdiction was settled and/or got the opportunity to develop after many other jurisdictions. Local residents may well reply that such calculus penalizes them simply for being later

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295. Most of this land, moreover, was noncommercial forest, rock or ice that did not contain any timber. *Id.* at 162.

296. From its introduction in 1957 until its passage in 1964, there were nine separate hearings and over sixty-six rewrites of the Wilderness Act, leading one commentator to say that "Congress lavished more time and effort on the wilderness bill than on any other measure in American conservation history." RODERICK NASH, WILDERNESS AND THE AMERICAN MIND 222 (2d ed. 1973); *see also* J. Michael McCloskey, *The Wilderness Act of 1964: Its Background and Meaning*, 45 OR. L. REV. 288 (1966) (discussing the history of the Wilderness Act).

297. *See* CRAIG ALLIN, THE POLITICS OF WILDERNESS PRESERVATION (1982); Mark Harvey, *Echo Park, Glen Canyon, and the Post-War Wilderness Movement*, 60 PAC. HIST. REV. 43 (1991).

to arrive, or later to get a development opportunity, and denies them opportunities for economic gain that were freely available not only to early generations but that remain available to current residents of developed jurisdictions.

This kind of complaint has been at the heart of western opposition to the public lands ever since the creation of the first forest reserves in the late nineteenth century.[298] It is certainly true that the forest reserves represented a dramatic change in federal land policy, upsetting very long-held expectations that most of the public domain would be disposed of by grant or sale.[299] Some reserved lands had begun to be settled, and for settlers in these places, the creation of the reserves did indeed represent a denial of development opportunities.[300] For the most part, however, the retention of federal ownership and control over natural resources has not meant the denial of development but merely its regulation.[301] As observed above, some kinds of development are permitted even in national forest wilderness areas. Other federal lands, such as the grazing lands managed by the Bureau of Land Management, have been used for precisely the same purposes after federalization as before.[302]

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298. *See* discussion accompanying notes 67–100, *supra*; *see also* WILLIAM L. GRAF, WILDERNESS PRESERVATION AND THE SAGEBRUSH REBELLIONS (1990).

299. *See, e.g.*, Daniel Kemmiss, THIS SOVEREIGN LAND: A NEW VISION FOR GOVERNING THE WEST 35 (2001) ("[T]he conservation movement with which Pinchot and Roosevelt are so strongly associated in historical memory was a radical departure from that deep and deeply cherished strain of American democratic thought and practice exemplified by the homesteading phenomenon.").

300. *See* James High, *Some Southern California Opinions Concerning Conservation of Forests, 1890–1905*, 33 HIST. SOC'Y S. CAL. 291, 295, 299 (1951) (discussing "injured settlers and timber interests").

301. For example, the Multiple-Use Sustained-Yield Act of 1960, § 1, Pub. L. 86-517, 74 Stat. 215 (codified at 16 U.S.C. § 528 (1960)) provides that "it is the policy of the Congress that the national forests are established and shall be administered for outdoor recreation, range, timber, watershed and wildlife and fish purposes." Similarly, the Taylor Grazing Act, ch. 865, 48 Stat. 1269 (1934), authorizes the federal Bureau of Land Management to issue grazing permits to "settlers, residents and other stock owners." 43 U.S.C. § 315b (2000). Even federal statutes that seem to be all about withdrawing resources from all development, such as the Wilderness Act of 1964, Pub. L. 88-577, 78 Stat. 890, actually permit significant development. For example, 16 U.S.C. § 1133(d)(3) (2000) provides that "notwithstanding any other provisions of [the Wilderness Act]," federal mining and mineral leasing laws apply in wilderness areas "to the same extent" they applied prior to the passage of that law. This statute was repealed. I cannot find another statute that states this in Title 16.

302. *See* the discussion by Justice Breyer, writing for the Court in *Public Lands Council v. Babbitt*, 529 U.S. 728, 733 (2000) (observing that the Act's objective, set forth in 43 U.S.C. § 315, is to "promote the highest use of the public

In reality, federalization has meant a shift in the distribution of rents from resource development—toward non-local, national development interests—and away from former or future potential local owner/developers.

The unfairness to these local groups has, however, been significantly mitigated by the federal government's enormous investment in public infrastructure in the western states. Without federal water projects, the enormous agricultural industry of the naturally arid western lands would literally not exist.[303] Without the federal interstate highway system and the federally subsidized airline industry, the western half of the United States would never have been integrated into the national market. Without below-market timber sales by the Forest Service, many small western lumber towns would never have been on the map.[304]

The highly simplified model of Part I, and lots of the rhetoric of "wise use" and "sagebrush rebellion" groups today, make natural resource federalization seem to be a naked taking from western resource users for the benefit of eastern preservationists. Under the American political system, however, natural resource federalization has involved an exchange under which local opposition to federalization has been bought off by a variety of federal subsidies to local users. Inasmuch as the opportunity to develop many American natural resources would never have arisen without subsidies financed by residents of older, more highly developed states, the retention of federal control over the exercise of those development opportunities may itself be understood as an attempt to achieve a fair distribution by returning value back to those who made development possible.

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lands" and to "stop injury" from overgrazing while nonetheless providing for "their use, improvement and development" so as to "stabilize the livestock industry dependent upon the public range").

303. For the classic journalistic account of the federal reclamation movement, see generally REISNER, *supra* note 51. For a more detailed account of the legal and regulatory infrastructure that made the western reclamation miracle possible, see generally MARK FIEGE, IRRIGATED EDEN: THE MAKING OF AN AGRICULTURAL LANDSCAPE IN THE AMERICAN WEST (1999).

304. As of the early 1990s, the Forest Service counted 234 communities with at least ten percent of their local employment in the timber industry and at least fifty percent of their timber supply from national forests. *See* WILKINSON, *supra* note 20, at 171.

B. Evaluating Alternatives to Centralization

Whenever local development decisions involve open-access natural resources whose preservation is of value to non-local residents, there is a risk that local development will proceed even though its non-local costs exceed its local benefits. Centralized development controls are not, however, the only way that such decentralized overdevelopment can be avoided. Rather than open access, a resource rich jurisdiction may control access and charge resource users a fee for use. Such a regime allows the jurisdiction to internalize the global benefits of preservation. Even under open access, bargaining may take place across jurisdictions, and jurisdictions whose residents benefit from preservation may thereby attempt to purchase such preservation. In this Section, I analyze these alternatives.

1. Bargaining to Preserve Publicly Held Resources

Insofar as the problem with decentralized development is that late-developing communities fail to internalize the global value from preserving their undeveloped resources, transaction cost economics suggests a remedy that is much more direct than centralized regulation. If the losses from development are so great that development is actually inefficient—in that these losses are bigger than the gains from development—then development losers should be able to pay development winners to refrain from developing. This is the essence of Ronald Coase's famous theorem.[305] It says that the way to deal with the failure of one group to internalize the harm its actions cause for others is for the two groups to bargain. If development losers were somehow able to capitalize the entire collective value of the undeveloped resource to them, then they would be able to pay up to this amount to purchase a promise to either halt or limit resource development. Under this Coasean deal, local resource owners might well end up with a big share of the global value from the undeveloped resource, which they could use to finance other non-environmental local public goods.[306] Preservation and economic progress might well be compatible. A fundamen-

305. Ronald Coase, *The Problem of Social Cost*, 2 J.L. & ECON. 1 (1960).

306. For case studies where precisely such win-win deals have been realized, see ANDERSON & LEAL, *supra* note 85, at 1–19.

tal obstacle, however, impedes such a Coasean solution: the inability of governments to commit future citizens to present preservation decisions.

a. *Capitalization and the Asymmetry between Bargains to Preserve and Bargains to Develop*

The Coasean story rests upon the supposition that people who lose when a resource is developed are somehow able to capitalize and exchange the value to them of the collectively owned natural resource. Only if this is true can we be assured that development losers can pay off development winners to prevent inefficient development. Coase's theorem holds only by assuming away the problem of collectively held goods and supposing that the externality is essentially private—a dyadic interaction with linked production or consumption functions.[307] But bargaining over the development of a collectively held natural resource is inherently political: strategic incentives depend not on fixed legal entitlements, as with privately owned resources, but on political power allocation. Concretely, for development losers to buy out the winners, private capital markets must be willing to front the present value of the undeveloped resource V, relying on a promise by local jurisdiction politicians that the resource will not be developed.

Even if such a promise were credible, so long as the resource is open-access public property, there is no way for development losers to actually earn an economic return from the undeveloped resource that will allow them to pay off the money that has been borrowed to fund its preservation. Only if it is managed in a way that generates a flow of income can a resource become valuable in private capital markets.

Thus there is little opportunity for privately financed Coasean bargains to preserve valuable undeveloped natural resources so long as those resources are managed on a free-access basis. The only way that private capital can become available is if free-access management is replaced by a system of user fees or some other income-generating system. But even if such a system were adopted, the retention of public resource owner-

307. For a formal demonstration of the invalidity of the Coase theorem when collective goods are being bargained over, see generally Avinash Dixit & Mancur Olson, *Does Voluntary Participation Undermine the Coase Theorem?*, 76 J. PUB. ECON. 309 (2000).

ship means that any commitment by the host jurisdiction to refrain from development will be merely political rather than legal. Were the number of local winners from development to decrease over time, then the commitment would become increasingly credible as a political matter. But were the number of development winners to grow into a substantial local majority, then the political commitment to preservation would weaken. A political commitment is highly uncertain from the point of view of a potential private capital market lender.

Bargaining around inefficient local public decisions regarding resource development is much more likely when the problem is local opposition to globally efficient development. Under majoritarian decisionmaking, when only a minority in the undeveloped community are development winners, the local majority may inefficiently block development. As before, the Coasean solution is a transfer payment from the winners to the losers sufficient to at least compensate the losers for the cost that development inflicts upon them. Whereas the value of preserving a resource as a free-access public good is inherently difficult to capitalize, the value of development is typically directly capitalizable. Even if some form of public ownership and/or control over the resource is maintained (through local zoning or other forms of local regulation), a large share of the financial gain from development will go to developers—the people who bring the capital and technological and market know-how that comprise a development opportunity. As development will typically involve a conversion from public to private ownership and from free to exclusive (or at least controlled) access, it will be much easier to capitalize the value of development than it is to capitalize the value of retaining resources in an undeveloped state. For this reason, developers can easily borrow against future expected income to make the transfer payments required to obtain local governmental consent to develop.

b. Economic versus Political Control of Resources and Distributional Obstacles to Bargaining

Resource development requires two things: a resource to develop, and the capital and expertise to realize a development opportunity. Capital and expertise are themselves often a by-product of prior development and tend therefore to be owned by developed community residents. But under decentralized own-

ership and control of natural resources, developers cannot realize the value of development without obtaining the political consent to develop from undeveloped communities. Therefore, residents of developed and undeveloped communities are locked in a bargaining game in which each side holds a veto: the older, developed community has the capital and expertise to make development happen, but the newer, undeveloped community has political control over the natural resource that is a vital input. Without an agreement to share the gains from development, either group can prevent the gains from being realized.

The likelihood of successful bargaining to reach such an agreement is shaped by two basic dimensions of power: the distribution of economic gains within the developed community and the distribution of political control within the undeveloped community.

i. Economic Power: Distribution of the Gains from Development

Consider first the significance of how the gain from development is distributed among developed community residents. The more concentrated is the gain from development among developed community residents—the smaller the number of "developers"—the lower is the cost to developers of losing undeveloped natural resource value when that resource provides a pure public good under free-access management. Rather than realizing a cost of NV per period—where N is the number of residents in the developed community—developers realize only a loss equal to DV—where D is the number of developers. Hence concentrating the benefit of development increases the net value of development to developers by externalizing costs to other residents of the developed community. These costs *are* externalized under decentralized development because the resource is located in another community, which means that developed community residents do not get to vote on whether the resource is developed. The fewer the number of developers, the bigger the fraction of the cost of development *to the developed community* that is externalized (not borne by development beneficiaries).

For this reason, the more concentrated are the gains from development within the developed community, the more likely is an inefficient decentralized deal between developers and the

majority of the undeveloped community. But the concentration of development gains within the developed community *enhances* the probability that a centralized decision to override local control and mandate development is efficient. The reason is that if the majority of developed community residents strictly lose from development and yet have agreed to support development, then it must be that development generates gains at least sufficient to allow the winners to compensate the losers within the developed jurisdiction. This is, it should be stressed, merely a relative matter. It remains true that under centralized ownership and control, the residents of a more populous developed jurisdiction can simply externalize the harm that development does to residents of the undeveloped community without making any transfer to them. The proposition is merely that the more concentrated are the gains from development, the larger are the number of losers from development in the absence of transfers and hence the greater the need for developers to make transfers in order to obtain majority consent even within the developed community. This is a consequence of the more general fact that when a public good is lost by development, the smaller the number of winners, the larger the aggregate transfer that must be made to get majority support and the greater the likelihood that development is efficient.

ii. Distribution of Political Power within the Undeveloped Community

An additional and crucial factor in determining the efficiency of development deals under decentralized control is the cost to developers of excluding undeveloped community residents from receiving any transfer the developers might make to the undeveloped jurisdiction. That is, the developer's transfer payments are minimized by paying off the smallest number of undeveloped community residents needed to get the development decision approved. To see this, suppose that one hundred voters reside in the undeveloped jurisdiction, each suffering a loss of one dollar from development. If the developer needs to obtain consent from a bare majority of local residents, then she will need to transfer at least fifty-one dollars. If she needs to obtain the consent of two-thirds of the undeveloped jurisdiction voters, then consent will cost her at least sixty-six dollars. Hence the more residents of the undeveloped community whose

consent must be obtained, the costlier is such consent to the developer and the less likely is development. On the other hand, the more residents whose consent must be obtained, the greater the likelihood that consented development is efficient (with efficiency guaranteed by a unanimity requirement).

Because the cost of exclusion effects the efficiency of bargaining to develop a collectively held resource, the form of the transfer from developers to resource owners may itself be a strong signal of the efficiency of development.[308] If development costs the undeveloped jurisdiction a natural resource that provides a pure public good, then transfers that provide local public goods to residents of the community hosting the development tend to indicate that development is efficient. In this case, deals under which developers provide benefits that are concentrated upon a few individuals or areas within the jurisdiction are presumptively inefficient. In contrast, when only a minority of local residents valued the developed resource and lose from development, development does not destroy a local public good from the point of view of the jurisdiction as a whole. In this case, transfers that confer universal local public goods may represent an inefficient sell-out of the local losers from development.

Another consequence of political exclusion costs is that political structures in undeveloped jurisdictions affect efficiency. Other things equal, just as developers benefit from an increase in the economic concentration of the development industry, so too does an increase in the concentration of political control in the undeveloped community lower the transaction costs developers incur in order to obtain consent to develop there. If a single resident were to have dictatorial control over the undeveloped asset, then the developer's transaction costs of obtaining consent would be minimized. As for the size of the required transfer, this would depend upon the efficiency with which the dictator captured the aggregate undeveloped community value V from the undeveloped asset.[309]

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308. For recent work formally demonstrating how the form of the transfer matters to redistributive political rent-seeking, see Stephen Coate & Stephen Morris, *On the Form of Transfers to Special Interests*, 103 J. POL. ECON. 1210 (1995).

309. When we allow for governmental corruption, this argument may be completely reversed. The greater openness and transparency of a democratic undeveloped jurisdiction may effectively prevent its leaders from siphoning off a personal share of any transfer that developers make to obtain consent. Openness

c. *Bargaining to Protect Global Resources: An Example*

Moving from the local to the global, my approach illuminates one of the central issues in international environmental law: the preservation of global biodiversity. The problem arises because most of the various species that scientists and environmentalists would like to protect are located in developing countries.[310] These countries control the development of habitat critical to the survival of these species, even though most of the benefits of species preservation will accrue to residents of other countries.[311] The protection of global biodiversity thus involves precisely the kind of situation captured by my model: one in which development potentially may generate both real benefits for the residents of biodiversity-rich developing jurisdictions and real costs for developed jurisdiction residents who value biodiversity preservation.

For a time it was hoped that species preservation might itself be a kind of development. The idea was that if new and incredibly valuable drugs and other products could be derived from endangered plants and animals, then leaders of developing countries would find species preservation to be in their own interest if they got a big enough share of the profits from pres-

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and transparency also increase the credibility of a democratic government's political commitment to allow development. Theoretical dictatorships are only that. In practice, the system of side payments—i.e., institutionalized corruption—that a dictator relies upon to maintain power involves very high costs. From a developer's point of view, not only the dictator but layers of underlings must be paid off. Moreover, given the relative secrecy under which such deals are made, there is nothing to stop a dictator or her underlings from repeatedly attempting to renegotiate the deal, waiting until the developer has committed substantial capital before demanding a greater share of the value of development.

310. *See* Norman Myers et al., *Biodiversity Hotspots for Conservation Priorities*, 403 NATURE 853 (2000).

311. According to Curtis H. Freese, *The "Use it or Lose it" Debate*, *in* HARVESTING WILD SPECIES: IMPLICATIONS FOR BIODIVERSITY CONSERVATION 1, 5 (Curtis H. Freese. ed., 1997), "[p]eople who benefit most from wild species are often not those who pay the costs of maintaining the species and its ecosystem." Among the various values that biologists argue will flow from preserving biodiversity—such as scientific value, ecological value, economic value, and social amenity value—it is clear that many do not bring any tangible benefit to the people who actually live in or near biodiversity hotspots. On the values of biodiveristy preservation, see DAVID TAKACS, THE IDEA OF BIODIVERSITY: PHILOSOPHIES OF PARADISE 194–287 (1996). For an example of how the distribution of economic benefits may even disfavor local residents, see Colin Hunt, *Local and Global Benefits of Subsidizing Tropical Forest Conservation*, 7 ENV'T & DEV. ECON. 325 (2002).

ervation. The most recent data on the market value of endangered species reveal that given current technology, there simply is not much that can be made from any of them. Several private companies that tried to make a business of marketing biodiversity have recently gone belly-up.[312]

The nascent ecotourism business is another way to try to turn species preservation into profit. But there are two big problems confronting ecotourism, one empirical and one theoretical. The data problem is that for ecotourism to generate large profits, it will have to have mass appeal. Recent data suggest that ecotourism appeals not to the masses but rather to the elites.[313] And there is nothing in the history of tourism in developed nations to suggest that people from across the world will begin to take more delight from spending days in sweltering tropical heat and humidity to catch a thirty-second glimpse of an endangered bird than they do from, say, playing golf on manicured lawns or blazing across the bays on "personal watercraft" (i.e., water motorcycles). It would seem that unless school biology teachers begin to have unprecedented success in altering the preferences of their students to make the man-on-the-street absolutely wild for nature observation, ecotourism will remain a rather small market.

The second, theoretical problem is that even were there to be a sea-change in consumer preferences so that mass ecotourism were to arise, it is far from clear that mass ecotourism is consistent with species preservation. That is, even if lots of people wanted to spend days or even weeks observing rare species in undespoiled habitats, getting lots of people to those habitats would seem inevitably to entail their despoilation.[314]

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312. For instance, Jason W. Clay, *Brazil Nuts, and Palm Heart Harvesting in the Amazon Estuary*, *in* HARVESTING WILD SPECIES: IMPLICATIONS FOR BIODIVERSITY CONSERVATION, *supra* note 311, at 246–314, has found that harvesters in Amazonian Brazil get at most one percent of the retail price of Brazil nuts, and one to four percent of the retail price of palm hearts. Thus bioprospecting often does little to cut local incentives to develop versus preserve. *See also* TRAVIS LYBBERT ET AL., DOES RESOURCE COMMERCIALIZATION INDUCE LOCAL CONSERVATION? A CAUTIONARY TALE FROM SOUTHWESTERN MOROCCO (2002) (explaining that efforts to commercialize agran oil, a product of rural southwestern Morocco, has not created strong local conservation incentives, because of barriers to market entry and land tenure insecurity).

313. *See* DAVID A. FENNELL, ECOTOURISM: AN INTRODUCTION 56–61 (1999).

314. For an example of this phenomenon, see *A Good Trip?*, THE ECONOMIST, Aug. 30, 1997, at 48. (observing that the one million annual visitors to Brazil's Iguacu National Park are disrupting that protected area's natural balance).

Under free access, people would either wait forever to get their time in the jungle or else destroy it in their eagerness to observe. This would inevitably lead some to find a substitute recreational pastime (local bird-watching when the birds migrate back in the spring from the tropics).

Thus there is seemingly inevitable conflict between the interests of developing countries in having more development and less endangered species habitat and the interests of older, more developed nations in forestalling development and preserving habitat. Since there is no international state, it is impossible to prevent undeveloped countries from developing unless either the political leadership of those countries agrees to refrain from developing or military force is employed. Assuming away the latter possibility, my analysis suggests a number of obstacles to consensual international development control. The natural route to preservation under decentralized nation-state control over the scarce natural asset is for developed community residents to make transfers to the undeveloped community contingent upon promised preservation of the natural asset in its undeveloped state. As argued above more abstractly, the difficulty with such a trade is that if local (flow) benefits of development exceed the local benefits of preservation, then there will be an incentive for the undeveloped community to accept the transfer and then renege on the promise and allow development after all. To make the deal stick, developed country residents would need to tie a continuing flow of transfers to the undeveloped country's continuing forbearance from development.

For developed countries to make a credible commitment to continue transfers requires both that they have the financial ability to make the transfers and that the transfers continue to receive majoritarian support. Even if bioprospecting generates more commercial success than now seems likely, most species will probably not turn out to have great commercial value, and for those that do, their commercial value will be far less than the total global benefit from ensuring their preservation. In this sense, species preservation will not finance itself. Consequently, the money necessary to keep developing countries from developing (or more generally, to alter *how* they develop) will have to come at the expense of other domestic spending programs. Whether this is politically tenable depends upon the demand for domestic substitutes for international habitat protection. Since domestic residents directly benefit *financially*

from various domestic programs (including habitat acquisition), there will always be a majoritarian preference for domestic "environmental" programs as opposed to foreign programs.

The other large problem goes to the nature of developing country governance structures. As the earlier general analysis of migration indicates, development itself provides an incentive for those who prefer the higher levels of non-environmental local public goods, such as education, that are offered by developed communities to migrate from the undeveloped community to the developed community. Although a more anti-development majority may then remain in the undeveloped country, the loss of some of its most ambitious individuals does not further such a country's prospects for building effective democratic political institutions. Especially with low levels of spending on education, undeveloped communities are susceptible to political capture by elites. When such elites control resource development, they are in a position to extract a disproportionate share of the gains from development. If, by contrast, they agree to refrain from development in exchange for a developed community's long-term commitment to transfer public goods to the undeveloped community, their own return is much lower. For even if the developed community keeps the promise, undeveloped country elites may lose power in the future, and the flow of benefits may be in a form more difficult for them to capture for personal gain.

2. The Market Pricing Alternative

The bargaining possibilities considered in the previous Section all assume that the undeveloped resource is available on a free, open-access basis under public ownership. Free-access management is the underlying cause of the potential inefficiencies analyzed earlier—over-development by late-developing jurisdictions under decentralization as well as inefficient centralized development controls. The most direct response to these inefficiencies is also the most fundamental: to replace free-access management with a system of market-determined prices for resource use. By making the right to use an undeveloped resource conditional upon payment of a price or use fee and excluding from use those who do not pay, a resource owner can internalize the value of the resource in alternative uses to alternative users. If the resource really is more valuable in an undeveloped state—used by low-intensity har-

vesters and recreationists, for instance—then market prices should signal this to the owner. On this view, market pricing allows resource owners to internalize global resource value and thus ensures that neither resource development nor preservation will be undertaken unless it is efficient to do so.

The obvious assumption underlying the market-pricing solution is that market prices will accurately reflect the social value of a resource in alternative uses. Many environmentalists hold the failure of this assumption as matter of faith, believing that market prices can never capture the full social value of either preserving or cleaning up our natural resources.[315] In particular, they believe that either the spiritual and/or civic value of the environment is contingent not only upon continued public ownership but also free-access management.[316] Although this is an interesting issue,[317] in order to critique the market-pricing alternative under its best-case scenario, I assume that at least in principle, market prices can capture the full value generated by alternative choices about natural resource development. The analytical question then becomes whether moving from a free-access regime to a regime of exclusive resource management with market prices for resource use (what I shall refer to as an "exclusive pricing" regime) might overcome the dynamic inefficiencies that beset both decentralized development and centralized development controls and environmental cleanup mandates.

a. Market Pricing and Dynamic Development

In analyzing the exclusive pricing regime, there are two questions. The first is how a given set of prices affects intertemporal development incentives. The second is how a local jurisdiction is likely to set its prices. The first question focuses on the degree of market power exercised by a resource owner. The second question investigates the incentives facing a public

315. For a sustained attack on private ownership and market allocation of natural resources, see THEODORE STEINBERG, SLIDE MOUNTAIN OR THE FOLLY OF OWNING NATURE (1995).

316. For such a view, see MARK SAGOFF, THE ECONOMY OF THE EARTH: PHILOSOPHY, LAW AND THE ENVIRONMENT 46–49, 51–57 (1988) (arguing for a distinction between consumer versus citizen preferences).

317. *See* Jason Scott Johnston, *Million-Dollar Mountains: Prices, Sanctions, and the Legal Regulation of Collective Social and Environmental Goods*, 146 U. PA. L. REV. 1327 (1998).

resource owner—a local jurisdiction of potentially heterogeneous users—in choosing how to exercise whatever market power it may possess.

i. How Pricing Affects the Distribution of the Gains from Preservation

I first consider how exclusive pricing will affect dynamic development incentives under decentralized control. First, assume that the public owns the resource and that the jurisdiction in which the resource is located manages it. Second, assume that a local politician proposed that the jurisdiction should do away with the open-access regime and switch to exclusive pricing as defined above. The first thing to notice is that such a regime cannot be feasible unless the potential user fees are big enough to cover the cost of monitoring resource use to exclude users who have not paid the required fee. When use intensity is low relative to the resource's carrying capacity, this is not likely to be true.[318] Not only does monitoring involve fixed costs, but the probability of successful enforcement is low when there are a small number of users relative to the size of the resource. Hence as positive matter, the exclusive pricing regime is unlikely to become economically feasible until economic development within the federation has proceeded to the point where undeveloped resources have become scarce, high-demand goods.

The increasing scarcity of undeveloped resources not only makes exclusive pricing economically viable but also affects the degree of market power possessed and prices charged by profit-maximizing resource owners. As scarcity and market power increase, so too will the price charged by the resource owner.[319] In the limit, under monopoly ownership and control, the resource owner will charge a price that extracts most, and in some circumstances, all of the value that resource users get

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318. More generally, the resource must be such that users can be excluded economically in order for a pricing regime to be effective in allocating and limiting use. *See* MARION CLAWSON & JACK L. KNETSCH, ECONOMICS OF OUTDOOR RECREATION 280–82 (Resources for the Future Series, 1966).

319. This is a theorem about increasing market concentration on prices. Underlying it is the notion that as the number of suppliers falls, it becomes easier for them to collude and approximate the monopolistic solution. For a precise but fairly technical discussion, see XAVIER VIVES, OLIGOPOLY PRICING: OLD IDEAS AND NEW TOOLS 306–13 (2001).

from resource use.[320] Indeed, any price that internalizes all of the use value to the resource owner necessarily takes all value away from the resource user.

Insofar as the goal of pricing is to internalize use value to resource owners, this distributional consequence may appear to be irrelevant to the efficiency of the owner's decision whether or not to develop the resource. It is not. Development is dynamic. If early-developing jurisdictions anticipate that undeveloped jurisdictions will someday acquire and use market power over their undeveloped resources to charge high prices that attempt to extract full user value, then they will be no better off under a regime of market pricing than they are under open access. From the point of view of developed jurisdictions, the problem with open access is that it does not give undeveloped jurisdictions a sufficiently strong incentive to preserve their resources. From that same point of view, the problem with market pricing is that it succeeds in internalizing preservation value to undeveloped jurisdictions only by transferring development value away from developed jurisdiction resource users. The scarcer and more valuable the resource, the higher the price of access and the lower the value of preserving the resource to developed community residents. From the point of view of the developed jurisdiction, market pricing may be just as effective in eliminating the value of the distant undeveloped resource as is decentralized development.

Thus from a dynamic point of view, market pricing may have the same effect as does decentralized development in chilling early development. The reason is that in either case, residents of an early-developing community rationally forecast that they will eventually get little, if any, value from remaining non-local undeveloped resources, either because they will be developed under decentralization or available only at very high exclusive prices. Given this forecast, early developing communities have an incentive to preserve too large a fraction of their own undeveloped resources. They preserve local resources even when those resources have relatively low value in their undeveloped state because they rationally anticipate that in

320. This is just to restate the well-known result that a perfectly price-discriminating monopolist will fully extract all consumer value. Note that with positive travel costs, the fully rent-extracting price must be interpreted as the price that extracts all net user value.

the future, they will not get any of the rents from preserving distant undeveloped resources.

The case in which the late-developing jurisdiction has monopoly power in the undeveloped natural resource market is obviously extreme. More generally, the greater resource owner's market power, the larger the share of the rents from preservation that will go to the resource owner under exclusive pricing. The greater the share that the owner gets, the stronger are the owner's incentives to preserve the resource in an undeveloped state. However, the greater the owner's share of the preservation value, the lower is the share that goes to users. Hence the stronger is the incentive for earlier-developing jurisdictions to preserve local resources.

ii. The Political-Economic Logic of Discriminatory Use Fees

This analysis of how market pricing will affect the gains from preservation that accrue to non-resident users of the preserved resource does not say anything about the prices that local residents will set. When a resource is publicly owned, pricing is not nearly so simple as in the case of private ownership. This subsection explores the factors that determine whether local residents will agree to market pricing and, if so, whether they will charge residents and non-residents the same price.

a) The Rationale for Discriminating between Local and Non-local Users of Preserved Natural Resources

Implicit in the immediately preceding discussion is the assumption that if an early-developing jurisdiction has the foresight to preserve its local natural resources today, then its residents will continue to enjoy a big share of the value from such undeveloped resources tomorrow. Local incentives for preservation are much more complicated when resources become congested by overuse. With congestion effects, the greater the future global demand for undeveloped resources, the more their future value will be lowered by congestion (overuse). Anticipated future congestion can thus significantly cut the present local value of preservation.

It would seem, however, that there is a simple solution to this dilemma. By using market prices to allocate future access

to the preserved resource, and taking account of the way that congestion lowers users' willingness to pay, the resource-preserving jurisdiction will both internalize preservation value and take full account of congestion.

There is, however, an objection to the market pricing solution. If local residents have to pay market prices even to use local resources, one may argue, market pricing will deprive local residents of a potentially large share of the gains from preservation and hence cut their incentive to preserve local resources in the first place. It would seem that insofar as exclusive pricing succeeds in rationing resource use to prevent congestion, it must remove the local political incentive to preserve publicly owned natural resources.

This general problem was recognized long ago by Aldo Leopold, who supported public open-access resource management precisely out of concern that market pricing would destroy local support for resource preservation.[321] By 1900, virtually all states and territories had passed laws that reversed the longstanding American presumption that hunters were allowed to trespass onto private land by prohibiting such trespass provided that landowners gave appropriate notice of an intent to exclude (ranging, in cost, from fencing, posting, to the mere presence of growing crops).[322] Sportsmen-owned and controlled preserves were quite popular during the late nineteenth and early twentieth centuries[323] and provided not only exclusive access but also incentives for managing wildlife resources.[324] In New Mexico, where state law gave private landowners the right to acquire title to wild game on their property for a nominal fee, the northeast corner of the state developed into virtually one vast private game preserve with an eerie and—to American settlers' eyes—troubling resemblance to the private game estates owned by British and Continental nobility.[325]

Supporters of this evolving system of private ownership of game argued that the high fees charged to non-local hunters

321. *See* WARREN, *supra* note 180, at 71–73, 104–05.

322. TOBER, *supra* note 173, at 123.

323. On the tremendous increase in such private game estates during the late nineteenth century, and the outrage they often stirred among local hunters, see JACOBY, *supra* note 126, at 29–48.

324. TOBER, *supra* note 173, at 126.

325. According to historian Louis S. Warren, by 1920, private game parks had become a "dominant feature of New Mexico conservation." WARREN, *supra* note 180, at 78, 80.

and consumers would give landowners a strong economic incentive to carefully manage habitat and annual harvest so as to provide a secure long-run supply of game animals.[326] Aldo Leopold campaigned tirelessly against this emerging private system and in favor of public hunting lands and public wildlife. He argued that to adopt the "European system" of private game ownership and management, where hunting had become the privilege of the wealthy, was not only undemocratic but also unsuccessful. Such a system would eliminate hunting as a mass pastime and therefore also the general public interest in game protection, ultimately putting at risk the survival of American game.[327]

Leopold's focus was on exclusive pricing by private resource owners. But the tradeoff he identified is even more fundamental to the exclusive pricing of publicly owned natural resources. The need to preserve local political support for the preservation of natural resources will generally impose constraints on the user fees (prices) charged to local resource owners by the public resource manager. Under such a constraint, schemes that discriminate in either pricing or use levels against non-residents may be economically justifiable.

b) Unpacking the Rationale for Discriminatory Fees and Access

To explain when fees that discriminate between local and non-local users may be economically necessary to establish local incentives for preservation, it is best to begin with the opposite case that arises when a single, non-discriminatory or uniform fee suffices to create globally optimal local conservation incentives. Suppose that local and non-local users have identical willingness to pay for use rights, given any level of aggregate use. Now suppose that they pay identical fees (fees that may vary with the individual user's value but do not discriminate on the basis of the user's place of residence). Suppose also that everyone in the local jurisdiction is an identical user of the preserved resource and that all local users get the fees they pay returned to them in a lump sum transfer. In this case, a typi-

326. *Id.* at 80.

327. *Id.*; *see also* CURT MEINE, ALDO LEOPOLD: HIS LIFE AND WORK 169 (1988); Aldo Leopold, *The National Forests: The Last Free Hunting Grounds of the Nation*, 17 J. FORESTRY 150 (1919).

cal local user gets some use value v, pays a user fee equal to v, but then has that user fee v returned to her as a lump sum transfer. The typical local resident thus nets v from preservation. Provided that the local jurisdiction sets the correct value-maximizing prices, it can use prices to optimally ration overall resource use (that is, maximizing total local value from the resource, given congestion effects) while ensuring that local residents get just as much value from the preserved resource as they would have gotten were it still available to them on a free, open-access basis. Indeed, in the more general case—in which the local resource management agency is not able to charge a price that extracts all user value—local residents get a net value from use (the difference between their actual willingness to pay and the price charged) plus their share of non-local user fee revenues.

Now vary this case by assuming that local residents have a lower willingness to pay for use rights than do non-local residents. Such a situation is more than plausible when non-local users come from affluent, developed jurisdictions and local users live in relatively poor, undeveloped places. In this case, at any given level of aggregate use, local willingness to pay for use will be less than non-local willingness to pay. At the level of use and use fee which maximizes the jurisdiction's net revenues (profit) from preservation, local use will be less than non-local use. Indeed, if local willingness to pay is sufficiently low, then local users may even be entirely priced out of accessing their own preserved natural resource.[328]

It is true that even in this case, if the revenues gained from non-local users are costlessly returned lump sum to local residents, then they gain from preservation—exclusive pricing once again allows local residents to internalize the global benefits of preservation. When, however, local residents are priced out of actually using their undeveloped natural resource, their receipt of a benefit from preservation depends entirely upon how the local jurisdiction spends the revenues from non-local user fees. That is, when local use is high despite the user fee requirement, local users get a direct benefit from use, so that they get a benefit from preservation even if some of the fees paid by non-local users get eaten up in transaction costs and

328. The Appendix contains a simple graphical example demonstrating such a situation.

diverted to various local government projects. When, by contrast, there is little or no local resource use because high user fees price out local residents, the only benefit that local residents get from preservation is the user fee revenue. To the extent that the user fees paid by non-locals get eaten up or diverted by local government bureaucrats, those fees never make it back to local residents. Thus the more inefficient or corrupt are local governments in returning user fees back to local residents, the less local residents actually gain from a user fee regime that preserves the resource but prices them out of actually using it.

It is thus the inability (or political unwillingness) of local governments to effectively transfer revenues from non-local user fees back to local residents that provides the basic economic rationale for regimes that discriminate between local and non-local residents. By setting a low (or zero) user fee for residents, an undeveloped jurisdiction increases the *number* of local voters who get direct use benefits from preserving the local resource in an undeveloped state. By charging a higher fee to non-local users, the local jurisdiction internalizes the global value from preservation. In this way, such a discriminatory scheme enables a resource rich jurisdiction to internalize both local and global benefits from preservation.

An alternative to discriminatory user fees in rationing resource use is for a jurisdiction to simply prohibit use by non-residents. Exclusive local access has two globally salutary effects: it preserves undeveloped value for local residents and it prevents congestion effects due to non-local use. However, unlike the optimal pricing regime, the exclusive local access regime does not allow the resource rich jurisdiction to internalize non-local preservation value. Exclusive local access is generally inferior therefore to a regime of optimal user fees.

The exceptions to the inferiority of exclusive local access are important. One case in which discrimination against non-local use is economically superior to user fees arises when non-local use is qualitatively different than local use and imposes large congestion costs. In this situation, as when non-local users bring a much more intensive and destructive technology of use, the net global gain from non-local use is actually negative or zero and so should be prohibited.[329] Another case for exclu-

329. The relationship between the costs imposed by excluding non-local us-

sive local access is when non-local users have very low willingness to pay relative to local users. In this case—which is the polar opposite to that which favors discriminatory user fees—non-local users would be priced out of the market in any event, so that charging and then returning user fees to local users would involve wasteful transaction costs. A final case in which exclusive local access dominates the user fee regime is when, because of the transitory nature of non-local use, the cost of enforcing the user fee regime against non-local users would offset any gain in efficiency from allowing such use.

c) Some Evidence

On the foregoing analysis, the economic case for user fees that discriminate against non-local users arises only when there are large disparities between local and non-local willingness to pay (so that residents of the relatively poor, resource rich jurisdiction would be mostly or entirely priced out of the market were local user fees to rise to the (single fee) profit maximizing level) and when local user fee revenues are likely to be diverted away from local users (so that local users end up with a very small net-of-fee benefit from the local natural resource). These predictions are strongly confirmed by the stylized facts of American game regulation. As discussed above, the first effective state game laws were a product of the Progressive Era, and the first states to adopt non-resident hunting

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ers and the actual cost their use would impose on locals depends upon how use levels affect the value of the undeveloped natural asset and upon the relative number of local versus non-local users. If population is equal in the two communities, and the two natural assets are identical, then the lost value to excluded non-local users will precisely equal the loss they would impose on locals if they were allowed free access. If, for instance, there were ten local users each getting a value of $1.00, but increasing the use level to twenty reduced average user value to $0.50, then the cost of exclusion, $5.00, would be just equal to the cost of allowing free access. If population in the two communities is unequal, then exclusion may impose either too large or too small a cost on development. With increasing costs of congestion (average user value falls more quickly, the larger the number of users), exclusion generally imposes too low (too high) a cost on residents of a developing community which is larger (smaller) in population than the undeveloped community. Suppose, for example, that non-local users in a community of twenty go from a value of $0.50 per user at home to $0.10 if they are allowed free access in still-undeveloped community with a population of 10. Residents of the undeveloped community have seen their per user value drop from $1.50 to $0.10. Development under free access would cost the ten residents of the undeveloped community a total of $10.00; under exclusive local access, the twenty residents of the developed community internalize a cost of $8.00.

licenses at that time were relatively poor and undeveloped jurisdictions (such as Florida and Maine).[330] From the very beginning, states set non-resident license fees up to ten or twenty times higher than resident fees.[331] My analysis accounts for the historical fact that these highly discriminatory fee structures arose at a time when states did not return game license revenues to local users but instead diverted them to state highway or school construction programs.[332] Because states' local users were getting back only a small portion of their license fees, they might well have been net losers from the fee scheme had they been required to pay the higher, market-clearing fees charged to out-of-state hunters.

IV. THE CONSTITUTION, THE MARKET, AND RESOURCE CONSERVATION

In this Part of the Article, I apply the analysis from the previous Parts to evaluate the Supreme Court's Commerce Clause[333] and Dormant Commerce Clause[334] doctrines. Along with a variety of other constitutional doctrines,[335] the Com-

330. Dean Lueck, An Economic Guide to State Wildlife Management 3–4 (PERC Research Study RS 00-2, 2000), *at* http://www.perc.org/publications/ research/eco_guide.html.

331. *See id.*

332. LUND, *supra* note 169, at 86.

333. The Commerce Clause, Article I, Section 8 of the United States Constitution, expressly confers upon Congress the power to "regulate Commerce . . . among the several States." U.S. CONST. art. I, § 8, cl. 3.

334. The Dormant Commerce Clause is the Court's construction of the Commerce Clause's affirmative grant of regulatory power to Congress to limit state regulatory authority. *See* LAURENCE H. TRIBE, AMERICAN CONSTITUTIONAL LAW § 6-2 (3d ed. 1999). On the Court's attempt to use Dormant Commerce Clause analysis to invalidate state protectionist legislation, see Donald Regan, *The Supreme Court and State Protectionism: Making Sense of the Dormant Commerce Clause*, 84 MICH. L. REV. 1091 (1986); Mark Tushnet, *Rethinking the Dormant Commerce Clause*, 1979 WIS. L. REV. 125 (1979).

335. The Commerce Clause has not been the only source of resuscitated constitutional limits on federalization. The Tenth and Eleventh Amendments have become increasingly important doctrinal tools in the Court's continuing attempt to set limits on federal regulatory authority. In *New York v. United States*, 505 U.S. 144 (1992), the Court held that by requiring states to take title to low level radioactive waste if they failed to regulate as specified by federal law, Congress had gone beyond the limits permitted under the Tenth Amendment, which reserves to the states those "powers not delegated to the United States by the Constitution, nor prohibited by it to the States." In *Seminole Tribe v. Florida*, 517 U.S. 44 (1996), the Court held that state liability under the federal Superfund law violated the Eleventh Amendment's grant of state immunity against suit in federal

merce Clause provides a constitutional basis for judicial policing of federalization. Dormant Commerce Clause doctrine, by contrast, imposes constitutional limitations on state regulation of interstate commerce.[336] Reflecting this difference, my analysis of the Court's Dormant Commerce Clause cases that address state natural resource regulation is straightforwardly normative, while my analysis of the Court's Commerce Clause doctrine is primarily positive.

In my view, in its Dormant Commerce Clause jurisprudence, the Court has consistently confused salutary state natural resource conservation measures with barriers to interstate trade, thereby creating a self-fulfilling prophecy of required federalization. In its attempt to remove barriers to efficiency in interstate trade, the Court has neglected some very important differences between public natural resources and private goods and services. It has erected the Dormant Commerce Clause as a barrier to intertemporally efficient decentralized resource management.

My analysis of the Court's Commerce Clause doctrine is more limited. Unlike Dormant Commerce Clause jurisprudence—in which market efficiency through free interstate trade provides a clear normative objective—neither the Court nor commentators have articulated a clear normative criterion for establishing boundaries on the scope of federal regulatory authority.[337] Thus, rather than asking whether the Court's

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court. For criticism of the Court's development and use of all of these doctrinal tools of federalism, see Jenna Bednar & William N. Eskridge, Jr., *Steadying the Court's "Unsteady Path,"* 68 S. CAL. L. REV. 1447, 1450–60 (1995).

336. *See* Saul Levmore, *Interstate Exploitation and Judicial Intervention*, 69 VA. L. REV. 563 (1983); Henry Monaghan, *Foreword: Constitutional Common Law*, 89 HARV. L. REV. 1, 15–17 (1975).

337. As observed by Larry Kramer, *Putting the Politics Back into the Political Safeguards of Federalism*, 100 COLUM. L. REV. 215, 217 (2000), perhaps the most influential statement of the case for federal regulation *per se* remains that of Herbert Wechsler, *The Political Safeguards of Federalism: The Role of the States in the Composition and Selection of the National Government*, 54 COLUM. L. REV. 543 (1954). Federal regulation is generally justified as solving various failures at the state level. *See, e.g.*, William N. Eskridge, Jr. & John Ferejohn, *The Elastic Commerce Clause: A Political Theory of American Federalism*, 47 VAND. L. REV. 1355, 1364 (1994) ("We expect federal authority to be exercised most often . . . where there is a need for national and uniform response (as to emergencies), where state-by-state regulation tends to yield spillover effects or externalities, or where interstate competition for economic development yields a 'race to the bottom'"). Precisely what those failures might be, however, and how to balance political versus economic concerns, remains a difficult problem to which there is no agreed-upon analytical approach, let alone solution. For an attempt to develop

Commerce Clause jurisprudence furthers efficiency or some other normative goal, I confine myself to asking whether that jurisprudence is conceptually sound. Does it, in other words, ask the right questions? When it comes to federal regulation of natural resource development, the answer is clearly no. As suggested by my theoretical model and revealed by American history, the interstate market has profoundly affected incentives to both develop and preserve American natural resources. But under the Court's Commerce Clause cases, the question is not whether the interstate market affects local incentives but whether local decisions affect the interstate market. In the area of federal natural resource regulation, the Court's Commerce Clause tests get the direction of causality all wrong. As a consequence, that doctrine cannot be sensibly applied to set limits on the scope of federal regulatory authority over natural resources.

A. *Justifying Natural Resource Federalization under the Commerce Clause: An Impossible Fit*

Since the time of John Marshall, the Supreme Court has sought to promote the creation of a national, interstate market within the United States.[338] During the second half of the twentieth century, the Court's deferential attitude toward federal regulation, even for matters traditionally regulated by the states,[339] increasingly matched its enthusiasm for federally subsidized national economic development.[340] By the late twentieth century, a general presumption favoring federal regulation emerged from both the Court and legal commenta-

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such a general approach, see Robert P. Inman and Daniel L. Rubinfeld, *Rethinking Federalism*, J. ECON. PERSP., Fall 1997, at 43.

338. *See* Ernest J. Brown, *Justice Frankfurter and the Position of the Judiciary*, 67 YALE L.J. 219 (1957); Richard B. Collins, *Economic Union as a Constitutional Value*, 63 N.Y.U. L. REV. 43, 43 (1988). For the classic statement by the Supreme Court, see *Baldwin v. G.A.F. Seelig, Inc.*, 294 U.S. 511, 523 (1935) ("The Constitution was framed . . . upon the theory that the peoples of the several states must sink or swim together, and that in the long run prosperity and salvation are in union and not in division.").

339. For a criticism of this transition, see Edward S. Corwin, *The Passing of Dual Federalism*, 36 VAND. L. REV. 1, 2, 4 (1950).

340. A vivid example of this attitude is provided by the Supreme Court's interpretation of Section 8 of the Reclamation Act of 1902, 43 U.S.C. §§ 372, 383 so as to virtually eliminate any residual state authority over the operation of federal reclamation projects. *See* California v. United States, 438 U.S. 645 (1978); Ivanhoe Irrigation Dist. v. McCracken, 357 U.S. 275 (1958).

tors, which I term Regulatory Centralism. Underlying Regulatory Centralism is the intuition that inasmuch as the federal government has built a nationally integrated economic market, only Congress can fix the problems created by market integration. My model provides theoretical support for this intuition in the natural resource context. The key insight provided by the theoretical model developed in Part I is that by increasing both the developed and preservation value of previously uneconomic natural resources, national market integration will typically increase the local incentive to develop and the global incentive to preserve. Once interstate markets drive up the local value of development, they make inefficient decentralized development much more likely. Centralized resource development control may well be an instrument of efficient resource preservation.

As argued in the previous Part, however, centralized resource development controls may also be an instrument of inefficient majoritarian redistribution. Regulatory centralization is a way for developed jurisdiction interest groups to effectively transfer to themselves the economic rents from both present-day preservation and future development that the residents of resource rich jurisdictions would get under decentralization. The fundamental normative ambiguity underlying Regulatory Centralization is that while centralized resource controls may protect global or national values from being lost due to the unduly narrow calculus of sub-global jurisdictions, they may also inefficiently stifle development in order to transfer economic rents across jurisdictions. Concerned with state regulatory failure and the vertical relationship between federal regulatory authority versus the "states" as an abstract lower level authority,[341] Centralists have ignored the very real risk that federal regulation may be used not to rectify national market inefficiencies that the states cannot handle, but rather to redistribute the economic rents that national markets bring.

The Court's recent revival of constitutional limits on federal regulatory authority[342] has renewed the debate over the case for imposing constitutional limits on regulatory federaliza-

341. The distinction between "vertical" and "horizontal" federal aggrandizement, and the argument that traditional federalism analysis ignores the latter, is due to Lynn A. Baker & Ernest A. Young, *Federalism and the Double Standard of Judicial Review*, 51 DUKE L.J. 75, 106–33 (2001).

342. *See* authorities discussed in note 334, *supra*.

tion. This general debate has two parts: 1) whether there is anything that the courts can do to discipline the federalization process that Congress cannot also do and do better (the "political safeguards" of federalism argument); and 2) whether any such effective disciplining devices are within actual judicial competence.[343] The analysis presented above directly applies to both of these questions in the natural resource context.

As for the political safeguards issue, the most important thing to see is that the kind of inefficient federalization relevant here is not vertical federalization—overreaching by federal regulators versus state regulators considered as unitary, lower level in a hierarchical system—but rather inefficient, regionally redistributive federal regulation of private economic activity. Most rigorously put,[344] the argument for political safeguards against over-federalization contends that the federal government is structured to enhance the power of state interests in the federal legislative and regulatory process.[345] At

343. Justice Souter's recent dissenting opinions have clearly set forth this two-part analysis. *See, e.g.*, United States v. Morrison, 529 U.S. 598, 635–50 (2000) (Souter, J., dissenting). Justice Souter defines Congress's commerce power as plenary. Plenary in this sense means complete, absolute, and "unaffected by the coexistence of the States, and their powers." EDWARD S. CORWIN, THE COMMERCE POWER VERSUS STATES RIGHTS, 10–11 (1936). Such plenary power is not susceptible to "categorical exclusions" imposed by the Court. Rather, "Congress's discretion in the exercise of this power, that is to say, in the selection of the purposes to be realized by its exercise, is limited only by that body's political responsibility. The power is *not* in this aspect subject to judicial review." *Id.* at 11–12. One way of reading Justice Souter's position that the courts should not attempt to impose constitutional limitations on regulatory federalization is that the analytical questions are just too difficult to answer. An alternative reading has Justice Souter saying that he has worked through these complex questions and decided that courts simply can't make a difference, or at least a difference that is normatively superior to simply leaving to the Congress the decision about when and what to centralize. In attempting to fashion a workable doctrinal test for the limits of federal regulatory authority under the Tenth Amendment in *Garcia v. San Antonio Metropolitan Transportation Authority*, 469 U.S. 528, 537–43 (1985), Justice Blackmun reached Justice Souter's conclusion that the only limits on federal regulatory authority were those imposed by the structure of the federal government itself, the states' role in selecting electors, and their equal representation in the Senate. *See generally* Baker & Young, *supra* note 341.

344. *See generally* the discussion in Bednar & Eskridge, Jr., *supra* note 335.

345. Key structural features are said to include the pro-rata representation of states in the Senate and state power to choose the electors who actually decide Presidential elections through the Electoral College. Bednar and Eskridge, for instance, argue that every state's senator will rise up and "fight like a wildcat to protect the State against specially targeted harms," while the "winner-take-all calculus of the Electoral College makes the president institutionally leery of alienating an entire state." Bednar & Eskridge Jr., *supra* note 335, at 1477.

most, this argument provides reason for thinking that the structure of the federal government will prevent Congress from using federal legislation to take advantage of particular *state governments* or their governmental subdivisions. The problem my analysis identifies with regulatory federalization is not that costs are imposed on states and local governments but that costs are inflicted upon *private* actors. Federal natural resource development limitations are designed to slow the pace of *private* development in states and localities that would not do so on their own.

Such limitations redistribute the benefits and costs of natural resource development among individuals living in different states. Centralized development controls may prevent people who live in undeveloped jurisdictions from realizing development value, but they do not generally stifle all development. Rather, development rents are transferred from potential local developers to very concrete, identified non-local developers. Even though total development value is lower with federal controls than without, out-of-state developers get a bigger share of federally limited development and bigger total development value than they would get under decentralized local control. Historically, non-local development interests have repeatedly banded together with non-local preservationists to successfully federalize natural resource development.[346] Not only are there no political safeguards against such federalization, the structure of Congress has historically affirmatively encouraged such redistributive deals.

In the context of Commerce Clause analysis, the second of the two federalism questions—whether the Court has the institutional competence to somehow limit federalization—ought not even to be asked before first establishing that the Commerce Clause is at least arguably the appropriate doctrinal locus for such a role. Here, my model reveals a fundamental conceptual problem: natural resource federalization arises not because natural resource development affects interstate commerce but rather because interstate commerce almost inevita-

346. This understanding of the politics of natural resource federalization is consistent with the most recent work in political science dealing with the issue of how the type of legislation under consideration affects the equilibrium size of congressional coalitions. *See* Carrubba & Volden, *supra* note 48, on the general tradeoff the legislators face in constructing coalitions; Barry R. Weingast, *A Rational Choice Perspective on Congressional Norms*, 23 AM. J. POL. SCI. 245 (1979).

bly affects local natural resource development decisions. Whether natural resource development activities have a substantial effect on interstate commerce says nothing about the general need for federal resource regulation. As a positive matter, what drives the campaign for centralized natural resource regulation is the increasing value and scarcity of undeveloped natural resources brought about by economic development and market integration. While the products generated from natural resources may be put into interstate commerce, the resources themselves have fixed locations. The interstate market for resources and locations both brings development opportunities and increases the value of preservation. The interstate market affects resource development decisions and the national optimality of those decisions. Resources do not have an effect on the market, but vice versa. The direction of causation is precisely the opposite of the general constitutional concern with the development and maintenance of the interstate market. From a normative perspective, moreover, the interstate market plays an ambiguous role. Although market integration may bring local development opportunities, it also increases the national value of resource preservation and may actually tend to lessen development incentives in jurisdictions found within the market's interior (by increasing the competition faced by and decreasing the economic rents accruing to land and resource owners there).

There is, in other words, a radical chasm between the actual role played by both national market integration and interstate markets in driving federalization and the relationship that the Court thinks could justify federal natural resource regulation under the Commerce Clause. While far from the exclusive constitutional basis for federal regulatory authority over natural resources,[347] the Commerce Clause historically provided the constitutional authority for the federal reclamation programs that re-engineered America's natural resources in the cause of economic development. In the early nineteenth century, when rivers served as the country's major artery for

347. Of particular importance in the natural resource field has been the Property Clause of Article IV of the Constitution, which not only provided authority for Congress to regulate public lands, but much less obviously was interpreted by the Court to authorize federal regulation of wildlife on and even outside of federal land. *See* Kleppe v. New Mexico, 426 U.S. 529 (1976); Hunt v. United States, 278 U.S. 96 (1928).

interstate commerce, the Court quite naturally concluded that Congress's commerce power extended to the regulation of interstate navigable waters.[348] By the end of the twentieth century, the Court had completely reversed this logic, reasoning with wonderful circularity that if federal regulation of waters had anything to do with commerce—broadly construed to include flood control, watershed development, or the provision of power—then those waters were navigable.[349]

The Court thus effectively made the Commerce Clause a constitutional rubber stamp for any and all federal regulation having even the most tenuous relation to national market integration. By the late twentieth century, the Court could see as well as any other group of Americans that Congress had succeeded in promoting national economic development and market integration. Perhaps because of this very success, the Court has recently indicated that the Commerce Clause indeed imposes some limits on federal regulatory authority.[350] The Court imposed these limits by reinterpreting the third prong of its test for congressional commerce power: congressional power to regulate "activities having a substantial relation to interstate commerce."[351] Reasoning that to hold otherwise would "effectually obliterate the distinction between what is national and what is local and create a completely centralized govern-

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348. Gilman v. Philadelphia, 70 U.S. (3 Wall.) 713 (1866); Gibbons v. Ogden, 22 U.S. (9 Wheat.) 1 (1824).

349. In *United States v. Appalachian Electric Power Co.*, 311 U.S. 377, 407, 426–27 (1940), the Court defined navigable waters for purposes of Commerce Clause authority as those "'which either in their natural or improved condition' are used or suitable for use" for commerce, and went on to hold that:

> [I]t cannot . . . be said that the constitutional power of the United States over its waters is limited to control for navigation. . . . In truth the authority of the United States is the regulation of commerce on its waters. . . . [N]avigable waters are subject to national planning and control in the broad regulation of commerce granted the Federal Government.

See also Kaiser Aetna v. United States, 444 U.S. 164 (1979).

350. *See* United States v. Morrison, 529 U.S. 598 (2000); United States v. Lopez, 514 U.S. 549 (1995).

351. Under the Court's most recent formulation, federal legislation is within Congress's authority under the Commerce Clause if it 1) regulates "the channels of interstate commerce;" 2) "regulate[s] and protect[s] the instrumentalities of interstate commerce, or persons or things in interstate commerce, even though the threat may come only from intrastate activities;" or 3) "regulates activities having a substantial relation to interstate commerce." *Lopez*, 514 U.S. at 558 (citing, respectively, Heart of Atlanta Motel, Inc. v. United States, 379 U.S. 241, 256 (1964); Shreveport Rate Cases, 234 U.S. 342 (1914), and NLRB v. Jones & Laughlin Steel Corp., 301 U.S. 1, 37 (1937)).

ment,"[352] in *United States v. Lopez*[353] and *United States v. Morrison*,[354] a majority of the Court signaled that some activities have such an indirect and attenuated effect on interstate commerce that they fall outside Congress's power under the Commerce Clause.

The Court held that neither the activity regulated by the statute at issue in *Lopez*—possessing a gun on school grounds—nor that in *Morrison*—gender-motivated violent crime—were sufficiently "economic" for Congress to regulate under the Commerce Clause. In reviewing its precedent in *Morrison*, the Court stressed that "in those cases where we have sustained federal regulation based upon the activity's substantial effects on interstate commerce, the activity in question has been some sort of economic endeavor."[355] It reemphasized the view advanced in *Lopez* that the distinction between economic and non-economic activity is useful not only in identifying activities that really have a direct and substantial effect on interstate commerce but in precluding federal commerce power to regulate areas of traditional state regulatory authority (the non-economic sphere).[356]

The problem with the distinction between economic and non-economic activities is that in a geographically integrated market economy such as that in the United States, when aggregated across the country, virtually every kind of activity eventually has some effect on the interstate market and might therefore be considered "economic" and subject to federal regulation. In *Lopez* and *Morrison*, the Court attempted to overcome this problem by imposing a requirement that the connection between the regulated activity and the interstate market must not be too attenuated.[357] This rationale clearly emerged in *Morrison*, because Congress had made an explicit finding that gender-motivated violent crime deleteriously affected interstate commerce.[358] The majority opinion in *Morrison* emphasized that the determination of whether an activity substantially affects interstate commerce is a judicial function, and it found unpersuasive legislative findings that violence

352. *Jones & Laughlin Steel Corp.*, 301 U.S. at 37.
353. 514 U.S. 549.
354. 529 U.S. 598.
355. *Id.* at 611.
356. *Lopez*, 514 U.S. at 577–80 (Kennedy, J., concurring).
357. *Lopez*, 514 U.S. at 563–67; *Morrison*, 529 U.S. at 612–18.
358. *Morrison*, 529 U.S. at 614.

against women affects interstate commerce.[359] In refusing to defer to these findings, the Court declared that a sufficient causal link between the regulated activity and interstate commerce could not simply be created by aggregation. According to the majority, allowing "Congress to regulate any crime so long as the nationwide, aggregated impact of that crime has substantial effects on employment, production, transit or consumption" would give Congress the authority to regulate matters of family law and other areas traditionally left to state regulation as well as criminal activity.[360]

Whatever its potential to establish constitutional limits to congressional commerce power, this test creates nothing but confusion and absurdity when applied to natural resource regulation. Such confusion is fully revealed by recent judicial opinions analyzing the constitutionality of federal endangered species and wetlands protection statutes.[361] For example, *Hoffman Homes v. EPA*[362] and *Solid Waste Agency of Northern Cook County v. United States Army Corps of Engineers (SWANCC)*[363] involved constitutional challenges to Congress's Commerce Clause authority to regulate isolated wetlands—wetlands with no surface water connection to a navigable waterway and that are therefore wholly intrastate. In each of these cases, Army Corps of Engineers had asserted jurisdiction to regulate isolated wetlands under its so-called "migratory bird rule," a 1986 statement in regulatory preamble that the Corps' wetlands regulatory jurisdiction would extend to wholly intrastate wetlands (isolated wetlands) if they were used by migratory birds protected by federal migratory bird treaties.[364] In *Hoffman*, the Seventh Circuit initially held that because the annual inter-

359. *Id.* at 614–16.

360. *Id.* at 615.

361. The federal wetlands protection program is based on Section 404 of the Clean Water Act. Under Section 301 of the Clean Water Act, 33 U.S.C. § 1311 (2000), it is unlawful to "discharge of any pollutant" without a permit under Section 404, 33 U.S.C. § 1344(a) "for the discharge of dredged or fill material into the navigable waters." Certain types of wetlands have been classified by the Army Corps of Engineers as "navigable waters," and filling those wetlands requires a Section 404 permit. *See* the discussion in *Solid Waste Ass'n v. United States Army Corps of Eng'rs*, 531 U.S. 159 (2001) (SWANCC). Because wetlands are often found on private lands, the Section 404 program effectively regulates private land development on lands that contain wetlands.

362. 961 F.2d 1310 (7th Cir. 1990) (Hoffman I), *aff'd on other grounds*, 999 F.2d 256 (7th Cir. 1993) (Hoffman II).

363. 531 U.S. 159.

364. *See id.* at 164; *Hoffman I*, 961 F.2d at 1319.

state migration by such birds "by itself does not affect commerce," such migration by itself could not establish Congressional commerce power to regulate isolated wetlands.[365] The Seventh Circuit, however, had second thoughts about ruling unconstitutional the federal regulation of isolated wetlands,[366] and it was not until *SWANCC* that the Supreme Court confronted the Commerce Clause issue raised by the migratory bird rule. In *SWANCC*, the government made a better effort than had been made in *Hoffman,* arguing persuasively to the Seventh Circuit that the effect on interstate commerce occurred because millions of Americans engage in interstate travel to hunt and observe the migratory birds that use isolated wetlands.[367] The government thus identified an interstate market that captures some of the economic rents from preserving wetlands.[368]

The government and sympathetic judges have had equal difficulty in finding a plausible connection between interstate commerce and endangered species. In *National Ass'n of Home Builders v. Babbitt*,[369] the county of San Bernadino planned to build a half-billion dollar public hospital on a seventy-six–acre site that included some of the last remaining habitat of the endangered Dehli Sands Flower Loving Fly. Although the county was willing to set aside and acquire sixteen acres of fly habitat, its need for emergency vehicle access roads ultimately conflicted with the USFWS's fly experts' demand for a one hundred-foot–wide fly migration corridor.[370] Along with other plaintiffs, the county argued that the Commerce Clause did not authorize the ESA's regulation of non-federal lands in order to protect a species that is found solely within a single state.[371]

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365. *Hoffman I*, 961 F.2d at 1319.

366. In *Hoffman II*, 999 F.2d at 261–62, the Seventh Circuit rejected its earlier reasoning that the Migratory Bird Rule was unconstitutional, but affirmed its ruling that the developer there had not needed a wetlands fill permit on the ground that the particular areas in question had not been shown to host migratory birds.

367. *SWANCC*, 531 U.S. at 173.

368. Of course, this effect exists only in the aggregate, not only in the sense that losing one small isolated wetland is irrelevant to waterfowl population health, but also in the sense that unless a sufficient density of isolated wetlands are present in a particular locality, those wetlands will in fact not be used by *migrating* (as opposed to local, non-migratory) birds.

369. 130 F.3d 1041 (D.C. Cir. 1997).

370. *Id.* at 1045; *see also* John Copeland Nagle, *The Commerce Clause Meets the Dehli Sands Flower-Loving Fly*, 97 MICH. L. REV. 174, 175 (1998).

371. *Nat'l Ass'n of Home Builders*, 130 F.3d at 1045.

Judge Wald's majority opinion in *National Ass'n of Homebuilders*, holding that the Commerce Clause justified such application of the ESA, squarely illustrates the disjunction between the interstate market's actual role in natural resource federalization and the role required under the Commerce Clause. Judge Wald reasoned first that the ESA's private land development proscription was necessary to stop the interstate transportation and selling of endangered species and was therefore justified as a regulation of the channels of interstate commerce.[372] Even defenders of the ESA's Commerce Clause constitutionality recognize the absurdity of this argument.[373] No one disputes that the Dehli Sands Loving Fly, like most endangered species, is not part of commerce. It is not bought, sold, or traded on interstate markets, and even if it were, species that are "taken" when their habitats are destroyed are not captured or killed for sale on interstate markets.

Perhaps recognizing the weakness of this justification, Judge Wald found two other connections between species protection and interstate commerce. First, she located congressional findings in the ESA's legislative history that explicitly note how present species preservation efforts may lead to future commercial exploitation.[374] Second, Wald concluded her rather complex analysis favoring the constitutionality of the ESA's private land use development controls by arguing that the ESA actually prevents destructive interstate competition.[375]

There *is* more or less tautological ESA legislative history indicating that Congress enacted the private takings ban in part out of concern that "growth and development" would imperil species.[376] This history may weakly support Judge Wald's conclusion that Congress determined that "states are motivated to adopt lower standards of endangered species protection in order to attract development" and so could constitutionally regulate local development because "it is likely to have destructive effects on interstate commerce."[377] But that conclu-

372. *Id.* at 1046–47.

373. *See* Nagle, *supra* note 370, at 179.

374. *Nat'l Ass'n of Home Builders*, 130 F.3d at 1051.

375. *Id.* at 1053–57.

376. *Id.* at 1056 (quoting H.R. REP., *Endangered and Threatened Species Conservation Act of 1973, Findings, Purposes and Policy*, 119 CONG. REC. 25,694 (1973)).

377. *Id.* at 1056. Wald also relied upon the Court's discussion of congressional findings in the legislative history of the SMCRA in *Hodel v. Virginia Sur-*

sion repeats the basic conceptual confusion noted earlier: interstate markets may create development pressures, but those pressures cannot have "destructive effects" on interstate commerce because species are not in commerce. Like the government's argument in *SWANCC* regarding interstate travel and wetlands, Judge Wald's future commercial value rationale implicitly recognizes the basic dynamic driving centralization: an integrated interstate market has almost surely increased the value of and created a national constituency for wetlands and species preservation. However, the fact that the integrated interstate market has increased the value of species and wetlands preservation—by vastly expanding the universe of potential users—does not put these biological assets *in commerce*. The entire point of the federal endangered species and wetlands programs is to *keep them off* the interstate market and to retain their status as open-access natural resources. There are no present markets in species ownership and no prospect for future markets either. Federal species protection does not protect future markets or commerce in species and wetlands any more than the national forests were designed to protect future markets or commerce. Federal species protection programs safeguard the future right of private actors to exploit free-access public resources.

These statutes regulate private development activities that threaten wetlands and species survival not because wetlands and species are involved in interstate commerce but precisely because they are not.[378] "Wetlands" and "endangered species habitat" found on privately owned land provide public goods and services for many people beyond the local landowner. In terms of the framework from Part I, there are very significant benefits to non-local owners and users from preserving wetlands and species habitat. These benefits, moreover, are available on a free-access basis. Under American law, a landowner has title neither to the imperiled species provided by her land with a place to live nor to the surface and groundwater that her

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face Mining and Reclamation Ass'n, Inc., 452 U.S. 264, 281–82 (1981), that without federal regulation, interstate competition would create a race-to-the-bottom, as states lowered their environmental standards to please the coal industry. Whether states could compete to please coal producers does not, of course, say anything about whether local land use regulators will compete to please real estate developers.

378. Indeed, Section 9(a)(1) is clearly designed to shut down any market in endangered species. *See* 16 U.S.C. § 1538(a)(1) (2000).

wetland purifies. For most landowners, there is no way to economically capture a monetary return from preserving a wetland or habitat. The development of wetlands and species habitat is precisely the sort of situation captured by the initial model in Part I. Species are unowned, open-access public goods, as are the services provided by wetlands. Developing land providing species habitat or containing wetlands brings concrete profits and benefits that are relatively locally concentrated but imposes potentially large costs on non-local users. It is in precisely this situation that local decisions to develop are likely to inefficiently sacrifice global preservation value for local development gains.

The crucial point for constitutional analysis, however, is that this inefficiency arises because "wetlands" and "species habitat" are virtually un-owned, non-market assets that generate free public goods and services, not because they are produced and exchanged on the interstate market. The case for centralized control over local development decisions that affect these valuable resources exists because the resources are not protected by any sort of property right and therefore cannot be bought and sold in commerce. Centralized control over the development of wetlands and endangered species habitat is not a way to regulate interstate commerce but a substitute for nonexistent property rights and markets.

Even if this analysis persuaded a federal judge, the Court's opinion in *SWANCC* might nonetheless deter the judge from acknowledging that the only interstate market that the federal species and wetlands protection programs regulate is the interstate market in real estate. In *SWANCC*, the majority argued that interpreting the federal wetlands program to include isolated wetlands such as "ponds and mudflats . . . would result in a significant impingement of the States' traditional and primary power over land and water use."[379] In light of its longstanding view that "regulation of land use [is] a function traditionally performed by local governments,"[380] the Court reasoned that Congress did not intend that the Clean Water Act "readjust" the federal-state balance in such a constitutionally suspect manner. The Court held that the Clean Water Act did not

379. *Solid Waste Ass'n v. United States Army Corps of Eng'rs*, 531 U.S. 159, 174 (2001).

380. *Hodel*, 452 U.S. at 281; *see also* Hess v. Port Auth. Trans-Hudson Corp., 513 U.S. 30, 44 (1994).

extend federal regulation to isolated wetlands.[381] Even though the *SWANCC* majority stated that the fact that an activity is "local" does not "resolve the question of whether Congress may regulate it under the Commerce Clause," the opinion highlights this factor in determining congressional power to regulate.[382] Thus the Court's opinion in *SWANCC* may well be taken by lower court judges to mean that if they do acknowledge that the federal species and wetlands programs are regulating local land use decisions, then they must also find those programs unconstitutional.[383]

A close reading of *SWANCC* and similar cases involving the constitutionality of federal regulation of private land development, however, suggests that this fear may be overblown. *Lopez*, *Morrison*, and *SWANCC* seem clearly to have left undisturbed the federal power to regulate interstate markets. If the government could establish that Congress intended to regulate the interstate real estate market by passing the federal wetlands and species protection programs, then such regulation would seem to fall within congressional commerce power. Without such congressional findings (and there is in fact little in the legislative history either of the ESA or the Clean Water Act approaching such findings), a court's acknowledgement of the actual role of the interstate market in the federal wetlands and species protection laws might require the court to rule that

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381. An alternative basis for the holding in *SWANCC* is that under *Lopez* and *Morrison*, the connection between the activity (filling an isolated wetland) and the effect on interstate commerce (the impact of wetland loss on the interstate market in hunting and bird-watching) was simply too attenuated for Congress to reach under the commerce power. For such analysis, see, for example, William Funk, *The Court, the Clean Water Act, and the Constitution:* SWANCC *and Beyond*, 31 ENVTL. L. REP. 10,741, 10,768–69 (2001).

382. A much more important factor, moreover, than previously. In *Hodel*, the Court upheld the constitutionality of the very detailed land use and reclamation scheme set out by the Surface Mining Control and Reclamation Act (SMCRA) of 1977, Pub. L. 95-87, 91 Stat. 445. However, the SMCRA was, like the federal air and water acts, based around a "cooperative federalism" arrangement under which the states have primary enforcement authority.

383. In addition, a very (perhaps the most) plausible reading of *Lopez/Morrison* is that when Congress seeks to supplant state regulation in areas traditionally under state control, then it must be very clear in specifying the substantial effects on interstate commerce that justify such an intrusion. Since neither Section 404 of the Clean Water Act nor the Endangered Species Act contain such a clear finding, acknowledging openly that the federal species and wetlands protection programs do indeed regulate private land use would seem to threaten their constitutionality.

the private land development controls imposed by those laws exceed Congress's commerce power.

B. How Market Integration Trumps Resource Conservation in the Supreme Court's Dormant Commerce Clause Doctrine

In the previous Part of this Article, I demonstrated that there will often be a very strong economic case in favor of allowing jurisdictions to discriminate between residents and non-residents in allocating rights to use local undeveloped natural resources. In this Section, I apply that analysis to critique the Supreme Court's increasing hostility toward state schemes that discriminate between resident and non-resident natural resource users. I first summarize some of the key stages in the Court's doctrinal path toward presuming the unconstitutionality of such schemes and then conclude by showing how the Court's objective of precluding discrimination has seriously impeded the states' ability to use prices to conserve their natural resources.

1. From "State Ownership" to State Subordination

Through what became known as the "state ownership" doctrine, by the beginning of the twentieth century, the Supreme Court had effectively conferred very broad authority on state governments to regulate wildlife.[384] States were allowed to entirely ban non-resident use of collectively held natural resources such as tidal oyster beds[385] and to entirely shut down the market in game.[386]

By the late twentieth century, however, the Court's overriding objective of facilitating national market integration had led it to eviscerate state authority over natural resources. Ironically, the Court's erosion of state discretion over natural

384. The state ownership doctrine originated with *Corfield v. Coryell*, 6 F. Cas. 546 (C.C.E.D. Pa. 1823) (No. 3,230), which upheld a New Jersey statute prohibiting non-residents from harvesting oysters against a challenge under the Privileges and Immunities Clause and Dormant Commerce Clause on the ground that the state owned the oysters. For a summary of the evolution of the doctrine, see GOBLE & FREYFOGLE, *supra* note 213, at 459–63.

385. *See* McCready v. Virginia, 94 U.S. 391 (1876); Smith v. Maryland, 59 U.S. (18 How.) 71 (1855).

386. Geer v. Connecticut, 161 U.S. 519 (1896).

resources had its foundations in Justice Holmes's 1920 opinion in *Missouri v. Holland*,[387] a case upholding federal power to regulate to protect migratory birds. On its face, the holding of that case—that the federal treaty authority power trumped whatever interest the states might have had in wildlife—seems simply to assert the supremacy of the federal treaty power. Justice Holmes's opinion for the Court, however, went to rather great lengths in reiterating the very limited claim that states have to wildlife and stressed that "the whole foundation of the State's rights is the presence within their jurisdiction of birds that yesterday had not arrived, tomorrow may be in another State and in a week a thousand miles away."[388] In Holmes's view, far from "paramount powers" or exclusive authority, states merely have the power to regulate the killing and sale of wildlife by their own residents.[389]

With the post–New Deal expansion in federal spending and regulation, Holmes's vision of very limited state authority to regulate natural resources soon became the law. Decided shortly after the end of World War II, the plaintiffs in *Toomer v. Witsell*[390] were non-resident coastal shrimp fishermen who challenged the constitutionality under the Privileges and Immunities Clause[391] of a South Carolina statute that set a twenty-five hundred–dollar annual license fee for non-resident commercial shrimp fisherman when the resident license fee was only twenty-five dollars. The discriminatory license fee had effectively ended legal, non-resident commercial shrimping in South Carolina waters.[392] Justice Vinson's opinion for the court is notable first for interpreting the Privileges and Immunities Clause as a very general edict barring "discrimination against citizens of other States where there is no substantial reason for the discrimination beyond the mere fact that they are citizens of other States."[393] Under this interpretation, the Court's job is to determine whether there are "valid independ-

387. 252 U.S. 416 (1920).

388. *Id.* at 434.

389. *Id.*

390. 334 U.S. 385 (1948).

391. That clause, found in Article IV, Section 2 of the U.S. Constitution, provides that "the Citizens of each State shall be entitled to all Privileges and Immunities of Citizens in the several States." U.S. CONST. art IV, § 2, cl. 1.

392. As the Court observed in *Toomer*, 334 U.S. at 397 n.28, no $2500 licenses were taken out.

393. *Id.* at 396.

ent reasons" for a state's decision to discriminate between residents and non-residents.[394] In the Court's view, only a gross difference in non-residents' effects on the fishery resource could justify a radical disparity in South Carolina's treatment of residents and non-residents—a hundred-fold differential in license fees. Finding that the total number of commercial shrimp boats fishing off South Carolina had actually increased after the enactment of the different license fees and that out-of-state boats imposed no additional costs on the state, Vinson concluded that South Carolina's discriminatory license fee scheme bore no reasonable relationship to the "danger" that non-resident fishermen posed.[395]

The *Toomer* Court also rejected the suggestion that South Carolina's regulation was entitled to constitutional deference because the regulated coastal shrimp stock was a collective public resource held in trust for the people of South Carolina.[396] Although the *Toomer* majority attempted to distinguish South Carolina's discriminatory license fee regime from the outright ban on non-resident oyster planting upheld in *McCready v. Virginia*,[397] it went out of its way to remark that the "whole ownership theory, in fact, is now generally regarded as but a fiction."[398]

As Justice Frankfurter correctly anticipated,[399] perhaps *Toomer*'s most important implication[400] was the notion that while the Privileges and Immunities Clause "does not touch the right of a State to conserve or utilize its resources on behalf of its own citizens,"[401] once a state allows such a resource to be harvested for the interstate market, state regulation is "subordinate to the Commerce Clause."[402] This view directly implies that once a state permits an interstate market in a natural resource, Congress may preempt any attempts by a state to dis-

394. *Id.*
395. *Id.* at 399.
396. *Id.* at 399–406.
397. On the ground that because shrimp are migratory and harvested in the three-mile zone of coastal waters rather than from tidal streambeds. *Id.* at 401–02.
398. *Id.* at 402.
399. In his *Toomer* concurrence, *id.* at 409.
400. Due to the Court's caveat, *id.* at 405, that the case might have come out differently had South Carolina "attempted to retain for the use of its own people the shrimp caught in the marginal sea."
401. *Id.* at 408.
402. *Id.* at 409.

criminate in favor of state residents.[403] Less directly, if Congress can preempt state natural resource regulations whenever the resource is used in interstate commerce, then "state ownership" of natural resources clearly does not provide states with much regulatory leeway. Just how little was left of "state ownership" was clarified in *Hughes v. Oklahoma*.[404] The *Hughes* Court categorized an Oklahoma statute that banned the export of naturally occurring minnows taken from state waters as openly discriminatory, presumptively protectionist, and unconstitutional under the Court's Dormant Commerce Clause analysis.[405] Because the Oklahoma legislature had done nothing to limit the number of minnows taken by licensed minnow dealers in the state and had not attempted to limit the intrastate market in minnows,[406] the *Hughes* majority concluded that the Oklahoma statute was actually the "most discriminatory means" of conserving the resource and hence clearly unconstitutionally discriminatory.[407]

In overruling the state ownership doctrine, the *Hughes* Court further suggested that states *must* open their natural resources to the interstate market. According to the Court, "[a] State may no longer 'keep the property, if the sovereign so chooses, always within its jurisdiction for every purpose.'"[408] Thus a state not only sacrifices regulatory autonomy by allowing non-local market use of its natural resources but *must* allow such use. The Constitution now compels states, once owners of the natural resources within their borders, to open those

403. In *Douglas v. Seacoast Products, Inc.*, 431 U.S. 265, 283 (1977), the Court interpreted a federal license to engage in the coastal mackerel fishing trade as preempting a Virginia law prohibiting non-residents from catching menhaden (a small fish commercially harvested in vast numbers to make fertilizer) in the Virginia portion of Chesapeake Bay. According to Justice Marshall, even though this necessarily extended federal regulatory authority to the taking of fish in state waters, "[t]he movement of vessels from one State to another in search of fish, and back again to processing plants, is certainly activity which Congress could conclude affects interstate commerce." *Id.* at 282.

404. 441 U.S. 322 (1979).

405. The Court's Dormant Commerce Clause framework was set out in *Pike v. Bruce Church, Inc.*, 397 U.S. 137 (1970). Under that test, statutes that openly discriminate against interstate commerce are presumptively protectionist. They pass constitutional muster only if the Court's "strict scrutiny" reveals that the statute was the least discriminatory way that the state could pursue a compelling and demonstrable local purpose. *See* C&A Carbone, Inc. v. Clarkstown, 511 U.S. 383, 401–03 (1994) (O'Connor, J., concurring).

406. *Hughes*, 441 U.S. at 338.

407. *Id.*

408. *Id.* at 337 (quoting Geer v. Connecticut, 161 U.S. 519, 530 (1896)).

resources to interstate markets. According to the *Hughes* majority, the need to end the "fiction of state ownership" as a tool to "force those outside the State to bear the full costs of 'conserving' the wild animals within its borders" requires such compulsion.[409]

The Court has offered thin and unconvincing justifications for its anti-conservationist pronouncement that state laws, such as that struck down in *Hughes*, constitute interstate protectionism. As Justice Rhenquist pointed out in his dissent in *Hughes*,[410] the statute at issue in *Hughes* had nothing to do with economic protectionism. It in no way favored in-state businesses or discriminated against out-of-state businesses: no person was allowed to export natural minnows from Oklahoma, while anyone could export as many hatchery-raised minnows as he or she wished. The notion that game export bans force non-residents to bear the full costs of game conservation is false whenever at least some residents—whether as harvesters, dealers, or transporters—would benefit from such interstate trade.

The *Hughes* pronouncement that states may not reserve their natural resources from the market and preserve them solely for the use of state residents was quite clearly dictum. Correctly read, one might have thought, *Hughes* said only that by choosing to allow intrastate markets in a resource, a state subjects any regulation limiting interstate commerce to traditional Dormant Commerce Clause scrutiny. However, in expressly overruling *Geer*, the *Hughes* majority cast into question the whole notion of state ownership of natural resources. One of the rights of resource ownership is the right to decide not to market or develop the resource but to reserve it for one's own use. *Hughes* did not disturb this logic, which virtually defines the concept of ownership. But if the state is not, after all, the owner of (or even trustee over) wildlife resources within its border, then obviously the state has *no* rights of ownership. In particular, it does not have the right, as an owner, to simply decide not to allow a particular resource to be bought and sold.

In *Sporhase v. Nebraska*,[411] the Court followed the logic of *Hughes* and reached precisely this conclusion. In *Sporhase*, the defendant challenged the constitutionality under the Com-

409. *Id.*
410. *Id.* at 344 (Rehnquist, J., dissenting).
411. 458 U.S. 941 (1982).

merce Clause of a Nebraska statute that prohibited anyone from withdrawing and transferring groundwater out of Nebraska for use in an adjoining state unless that state granted reciprocal rights to withdraw and transport groundwater into Nebraska.[412] The Court recognized that its precedents[413] clearly demanded a degree of solicitude for the interest of a state in conserving and managing its water resources. It acknowledged also that the state of Nebraska did not allow groundwater to be traded on either intrastate or interstate markets[414] and that "the continuing availability of groundwater in Nebraska is not simply happenstance; the natural resource has some indicia of a good publicly produced and owned in which a State may favor its own citizens in times of shortage."[415] It professed its reluctance "to condemn as unreasonable, measures taken by a State to conserve and preserve for its own citizens this vital resource [water] in times of severe shortage."[416] Yet all these factors, said the Court, merely "inform the determination whether the burdens on commerce imposed by state ground water regulation are reasonable or unreasonable."[417]

Multifactor tests are sometimes an effective way for courts to refine and apply general principles, but in *Sporhase*, the Court's analysis was at best cursory. The defendant in *Sporhase* sought to send Nebraska groundwater to Colorado, a state that did not allow export of its own groundwater.[418] On the facts of *Sporhase*, therefore, Nebraska's statutory reciprocity requirement operated as an "explicit bar" to commerce between the two states. On the Court's analysis, this then required Nebraska to meet a very high burden. If, for instance, Nebraska could show that it suffered from a statewide water shortage, that the intrastate transportation of water from areas of abundance to areas of shortage was feasible regardless of distance,

412. *Id.* at 943.

413. *E.g.*, Hudson County Water Co. v. McCarter, 209 U.S. 349 (1908), which had often been read as holding that water was simply not an item in commerce.

414. *Sporhase*, 458 U.S. at 953.

415. *Id.* at 957.

416. *Id.* at 956.

417. *Id.* at 953.

418. *See* Charles E. Corker, Sporhase v. Nebraska *ex. rel.* Douglas*: Does the Dormant Commerce Clause Really Limit the Power of a State to Forbid (1) The Export of Water and (2) The Creation of a Water Right for Use in Another State?*, 54 U. COLO. L. REV. 393, 414 (1983).

and that the importation of water from adjoining states would roughly compensate for any exportation to those states, then the conservation and preservation purpose might be credibly advanced for the reciprocity provision.[419] In the absence of such a showing—which obviously would only be possible under the most extreme circumstances of state-wide shortage—the Court held Nebraska's reciprocity provision to be clearly unconstitutional.

Together, *Hughes* and *Sporhase* destroy any notion that states have a special interest in their natural resources that entitles state laws discriminating in favor of resident resource users to special deference in Dormant Commerce Clause analysis. Indeed, the cases strongly suggest that states *must* permit non-discriminatory interstate marketing of resource use rights regardless of whether they permit intrastate trade in those rights. As my model explains, however, the consequence of disabling local resource owners from regulating to discriminate in favor of local resource use is to tilt local development decisions strongly in favor of development. Perhaps most remarkably, the Court has even amplified this pro-development tilt. In *Reeves, Inc. v. Stake*,[420] the Court upheld a South Dakota statute reserving all cement produced by a state-owned cement plant for use by state residents in the event orders exceed supply. Except in one respect, the South Dakota law at issue in *Reeves* was identical to the Pennsylvania state law giving preference to state-resident consumers of natural gas; a preference in the event of gas shortages that the Court struck down almost sixty years earlier.[421] The one difference, according to the Court: "[c]ement is not a natural resource, like coal, timber, wild game, or minerals. . . . It is the end product of a complex process whereby a costly physical plant and human labor act on raw materials. South Dakota has not sought to limit access to the State's limestone or other materials used to make cement."[422] *Reeves* clearly tells the states that if they do decide to develop their natural resources, then they get all sorts of leeway in choosing to give residents discriminatory access to the state-owned products of development; but if they leave resources undeveloped, then they more or less cede all

419. *Sporhase*, 458 U.S. at 958.
420. 447 U.S. 429 (1980).
421. Pennsylvania v. West Virginia, 262 U.S. 553 (1923).
422. *Reeves*, 447 U.S. at 443–44.

ownership rights to the federal government, including the right to decide not to allow the resource to be put on interstate markets in the first place.

2. Interstate Discrimination as an Instrument of Resource Conservation, not Interstate Protectionism

In order to critique the Court's approach to the constitutionality of state laws that discriminate in favor of state residents in access to or fees for using publicly held state natural resources, it is useful to recall the basic conclusions from my analysis in the previous Part. On that analysis, when high, non-discriminatory prices would price-out relatively poor local resource users, and local citizens get little benefit from the fees paid by non-local users due to various kinds of political transaction costs, discriminatory fee or access regimes create incentives for local natural resource preservation that would not otherwise exist. Especially for those states that are relatively poor but rich in undeveloped natural resources, such discriminatory regimes may be vital to natural resource preservation.

On this analysis, a common justification underlies both discriminatory state fishing and hunting license fees and state prohibitions on the export of various state natural resources: the recognition that state voters will not support resource conservation unless they perceive that they are getting value from conservation. Were state governments perfect and costless agents of their residents, and those residents wealthy, then it would be possible to charge both in-state and out-of-state resource users a single resource use fee and to return the full amount of the fee to state voters. Were those voters omniscient, they would see that the uniform resource use fee regime makes them better off than any other alternative regime. But state governments are not perfect and costless agents, so that user fees are diverted and eaten up in political transaction costs. Residents of many resource rich states are relatively poor and would not be using state natural resources were they required to pay the same use fees as do out-of-state users. Even if they were wealthier, they would likely fail to believe claims that user fee revenues really had been returned to them, even if those claims were true.

In this light, the Supreme Court's tendency to presume the unconstitutionality of any state law that attempts to withdraw

state natural resources from the interstate market or to give state residents discriminatory access to such resources is itself presumptively contrary to efficient natural resource conservation. May this presumption be overcome? One possibility is suggested by *Baldwin v. Fish and Game Commission*.[423] There, the Court upheld under the Privileges and Immunities Clause a Montana hunting license statute that allowed residents to pay only $4 for an annual elk hunting license but required nonresident elk hunters to buy a combination hunting license (including species other than elk) for $151. The majority opinion laudably recognized that the elk stock "which has been entrusted to the care of the State by the people of Montana" was "finite and must be carefully tended in order to be preserved."[424] Unfortunately, however, the decision's driving rationale was quite clearly that "[e]lk hunting by nonresidents in Montana is a recreation and a sport. . . . It is not a means to the nonresident's livelihood,"[425] and not the sort of privilege or immunity "bearing upon the vitality of the Nation as a single entity [with respect to which] must the State treat all citizens, resident and nonresident, equally."[426] The majority effectively removed elk hunting—a sport "available only to the wealthy non-resident or to the one so taken with the sport that he sacrifices other values in order to indulge in it"[427]—from the category of serious, commercial activities to which the Privileges and Immunities Clause's non-discrimination principle applies.

Although a number of commentators seem to think otherwise,[428] the Court's distinction—between commercial resource use, in which discrimination is not allowed, and "noncommercial" use, in which discrimination is allowed[429]—does not make sense from the point of view of encouraging globally efficient resource conservation. As the more formal analysis in Part II

423. 436 U.S. 371 (1978).
424. *Id.* at 388.
425. *Id.*
426. *Id.* at 383.
427. *Id.* at 388.
428. *See* GOBLE & FREYFOGLE, *supra* note 213, at 581.
429. This is actually overgenerous to the Court. Even in *Baldwin*, the state of Montana needed to find an at least plausible justification for the discriminatory scheme in order to overcome an equal protection challenge. It did so by pointing to the fact that Montana residents' taxes already paid for part of the costs of producing and maintaining the state's elk herd, and also to the need to limit hunting pressure from a rapidly increasing number of non-resident hunters. *Baldwin*, 436 U.S. at 390.

has revealed, whether natural resource use is "commercial" (e.g., harvesting fish for sale on interstate markets) or "non-commercial" (e.g., recreational sportfishing) is irrelevant to the basic economic problem of decentralized resource conservation. That problem is that resource rich jurisdictions will have an inadequate incentive to preserve natural resources unless they both internalize non-local user value from preservation and ensure that local residents continue to benefit from preservation. Discriminatory user fees restore incentives for conservation under decentralized regulation by allowing resource rich jurisdictions to accomplish these twin goals. Whether the value from preservation is "commercial" or "noncommercial" is functionally irrelevant.

A defender of the Court's approach may argue that the distinction between "commercial" and "non-commercial" activities is really intended to screen for interstate protectionism. On this argument, only those state laws that discriminate with respect to commercial use raise the specter of interstate protectionism—advantaging local businesses to stifle interstate competition. The Court, at least, does seem persuaded by this argument. Regardless of the natural resource—whether water, wildlife, or natural gas[430]—the Court has repeatedly expressed concern with balkanization, likening a state's attempt to "hoard" its resources to economic protectionism. In *Pennsylvania v. West Virginia*,[431] the Court explained that if it allowed states to prefer residents in natural resource use, then "a singular situation might result. Pennsylvania might keep its coal, the Northwest its timber, the mining states their minerals." The Court has come to presume that any attempt by a state to discriminate between residents and non-residents in the commercial use of its natural resources is a form of economic protectionism forbidden by the Dormant Commerce Clause.

As a number of commentators and an increasing number of justices recognize, however, natural resources differ from other kinds of goods and assets in a way that the Court has failed to understand.[432] Simply put, the Court seems to have forgotten

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430. *See* Pennsylvania v. West Virginia, 262 U.S. 553 (1923).

431. *Id.* at 599.

432. *See* C&A Carbone, Inc. v. Clarkstown, 511 U.S. 383, 423–30 (1994) (Souter, J., dissenting); Hughes v. Oklahoma, 441 U.S. 322, 342–46 (1979) (Rehnquist, J., dissenting). For similar views in the context of land disposal of solid waste—where the state public resource being protected is groundwater—see David Pomper, Comment, *Recycling* Philadelphia v. New Jersey: *The Dormant*

the myriad ways in which location matters from both political and economic perspectives. Just as any point in two-dimensional space is unique, so too is any particular natural resource—understood as a location with a third, qualitative dimension—unique. When natural resources are developed, state residents receive a varying but often substantial share of the benefits from development. Schemes that give state residents discriminatory access to undeveloped natural resources might seem to give a competitive advantage to state residents who make business or commercial use of those resources. But the more competitive are the interstate markets that the Court has been so keen to encourage, the more mobile are people and businesses and the greater the extent to which locational advantages are capitalized into business or residential prices. Thus schemes that give state residents discriminatory access to state natural resources make the state itself a more valuable location, thus creating a very general incentive for state residents to preserve rather than develop their natural resources.

It is true that state laws preferring in-state users of natural resources will indeed have a tendency to spread across states. In *Douglas v. Seacoast Products, Inc.*, for instance, the Court noted that a number of coastal states had adopted discriminatory fishing laws and worried that "with all natural resources becoming increasingly scarce and [therefore] more valuable, more such restrictions would be a likely prospect, as both protective and retaliatory measures."[433] From a resource conservation perspective, however, such "[b]alkanization of interstate commercial activity"[434] is far from undesirable. As my earlier analysis establishes, discriminatory state laws cure, rather than cause, inefficient late-stage overdevelopment. The entire point of discriminating in favor of state residents is to change the balance of costs and benefits so that the people who get most of the economic rents from development—state residents of coastal, fishing communities—also get a bigger share of the benefits from conservation. From the point of resource conservation, the Court offers truly remarkable reasoning: it says that the *problem* with state laws imposing territorial restrictions on fishing is that restrictions may succeed, however

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Commerce Clause, Postindustrial "Natural" Resources, and the Solid Waste Crisis, 137 U. PA. L. REV. 1309, 1309–10 (1989).

433. 431 U.S. 265, 285–86 (1977).

434. *Id.* at 286.

indirectly, in reducing fishing pressure and help to conserve the resource.

This leaves the question as to why the Court should be so hostile toward state efforts to favor residents as a way to conserve state natural resources. The answer to this question lies in the observation that it was generally liberal, pro-conservation justices who effectuated both the move to a rule of nearly per se illegality for discriminatory state resource regulation and the abolition of the *Geer v. Connecticut* state-ownership doctrine.[435] For these Justices, state control over natural resources was itself the cause of natural resource degradation. The logical solution was to displace state regulation as completely as possible.[436] This would have been inconceivable for a Progressive Era conservationist: why would one leave completely unprotected by state law what one wants badly to conserve for the future? But jurists such as Justices Brennan and Marshall were of a different era, the Environmentalist Era of the late twentieth century. Such jurists were strong regulatory Centralists—believers in the need for federal regulation as a solution to virtually every social and environmental problem.[437] On this view, anything that would disable federal environmental and resource regulation had to be struck down. Hence the state ownership doctrine—which would erect the sovereign interest of the states as an absolute bar to federal regulation—clearly had to be eliminated. So too did Centralists invalidate any state law that attempted to keep a state natural resource off the interstate market. For if a state such as Nebraska can keep a resource such as groundwater off the interstate market, then the judicial Centralists' nightmare

435. The Court's opinion in *Hughes v. Oklahoma*, 441 U.S. 322, abolishing the state ownership doctrine, was written by Justice Brennan. The opinion in *Douglas v. Seacoast Products, Inc.*, 431 U.S. 265, striking down discriminatory commercial fishing license fees, was written by Justice Marshall. Justice Rehnquist dissented in both cases. While space does not permit me to adduce supporting data here, Justices Marshall and Brennan were clearly among the most generally pro-environmental justices (in terms of voting to uphold, for instance, increasingly stringent federal environmental regulations) while Justice Rehnquist would generally not have been included in such a list.

436. As persuasively argued by Dan T. Coenen, *State User Fees and the Dormant Commerce Clause*, 50 VAND. L. REV. 795, 815–35 (1997), Centralists went far beyond the Court's historical approach to state user fees and the Commerce Clause, an approach which invalidated only those discriminatory state fees that directly impinged upon interstate commercial transportation and thereby directly stifled the interstate market.

437. *See generally* MASHAW, *supra* note 2.

the myriad ways in which location matters from both political and economic perspectives. Just as any point in two-dimensional space is unique, so too is any particular natural resource—understood as a location with a third, qualitative dimension—unique. When natural resources are developed, state residents receive a varying but often substantial share of the benefits from development. Schemes that give state residents discriminatory access to undeveloped natural resources might seem to give a competitive advantage to state residents who make business or commercial use of those resources. But the more competitive are the interstate markets that the Court has been so keen to encourage, the more mobile are people and businesses and the greater the extent to which locational advantages are capitalized into business or residential prices. Thus schemes that give state residents discriminatory access to state natural resources make the state itself a more valuable location, thus creating a very general incentive for state residents to preserve rather than develop their natural resources.

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Commerce Clause, Postindustrial "Natural" Resources, and the Solid Waste Crisis, 137 U. PA. L. REV. 1309, 1309–10 (1989).

433. 431 U.S. 265, 285–86 (1977).

434. *Id.* at 286.

CONCLUSION: CENTRALISM, COURTS, AND CONSERVATION

At the heart of regulatory centralism lies a fundamental contradiction. Natural resources, such as species, wetlands, and forests, become endangered because they are unpriced, free-access public resources that will surely be overharvested, either intentionally or, as in the case of land development, unintentionally. Centralists view this—a decision to keep certain resources off market, managed as free-access public goods—as a failure of decentralized market regulation. They respond to this market failure by proposing more centralized, higher level government regulation. But such regulation itself succeeds politically precisely because it perpetuates the open-access, public good management regime. Inasmuch as centralization ensures that resources will never be valued on the market, it ensures also that problems of resource scarcity will intensify over time, prompting calls for even more intrusive centralized regulation. Thus not only does the centralization of natural resource regulation fail to curb the problem of overdevelopment, it actually guarantees it.

Today in the United States, this tragedy of centralization perhaps appears most in the area of endangered species protection. In remedying the law's failure to give people rights in species, the centralized federal endangered species protection laws perpetuate the open-access species management regime and ensure the inevitability of conflict over species management and, worse, their inevitable overharvest. The greater are the future commercial benefits from species that Judge Wald and the biologists talk about, the greater is the amount of wealth transferred by the ESA from today's development winners to tomorrow's winners from the commercial exploitation of species. Rather than having to spend money on habitat acquisition in order to preserve potentially valuable species, scientists and pharmaceutical companies are able, via the ESA, to get the cost of species protection shifted to existing landowners and developers. As the history of the national forests shows, within the utilitarian justification for present-day species preservation—that they may have enormous value in commerce at some future time—lies the rationale for future commercial harvest.[441] Harvest, moreover, that will not be limited by the eco-

441. *See* HIRT, *supra* note 137, at 131–49 (detailing tremendous growth in

nomics of the market but that will be determined by federal government regulators under intense lobbying pressure to increase harvest levels to speed the development of lifesaving drugs.

In the ESA context, Congress is regulating not to protect, curb, or enhance interstate markets, but to ensure that the property rights requisite to an interstate market never exist. Rather than finding a way to give the local human neighbors of species a direct interest in the preservation and health of the species, the ESA's taking prohibition disenfranchises local residents and makes their interests as a species opposed to rather than coincident with the interests of their non-human neighbors. There could be no better illustration than that provided by the Dehli Sands Flower Loving Fly case: the land that San Bernadino County wanted to use for a public hospital was not only fly habitat but the site of a cement quarry, petroleum tank farm, sewage plant, and the Stringfellow Acid Pits, arguably the worst Superfund site in the country.[442] There, development benefits would have been almost entirely in the form of local public goods, both in the provision of health care and the mitigation of risks from hazardous waste. County residents were asked to forego these large and concrete public benefits, while getting nothing in return save the warm glow of knowing they had helped to preserve an unusual, if virtually unknown and unseen, creature.

The divorce between local and centralized interests and incentives in endangered species protection likely will widen even further, as the focus of federal efforts moves from species protection to species reintroduction. Federal species reintroduction involves restocking federal lands with predators, the same predators which were deliberately removed under federal and state predator removal programs. These reintroduction efforts are fascinating analytically because they represent a complete reversal of the economic problem captured by my analysis of decentralized development. The specter of inefficient decentralized development of open-access resources arises because local owners do not internalize the global benefits of

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hugely subsidized timber cut from National Forests during post World War II housing boom).

442. William Booth, *Developers Wish Rare Fly Would Buzz Off: Flower-Loving Insect Becomes Symbol for Opponents of Endangered Species Act*, WASH. POST, Apr. 4, 1997, at A1.

preserving fixed natural resources enjoyed by mobile, nonresident users. The possibility of inefficient centralized predator reintroduction, by contrast, arises because central wildlife restoration agencies fail to internalize the costs imposed by mobile animal predators on local landowners and communities.

Unsurprisingly, the courts have had just as much difficulty applying evolving Commerce Clause doctrine to predator reintroduction as they have had in applying that analysis to the federal ESA and wetlands private land development programs. These difficulties are well illustrated by *Gibbs v. Babbitt*.[443] That case arose from the USFWS's program to reintroduce the eastern red wolf in federal wildlife refuges in eastern North Carolina and western Tennessee. With limited exceptions, USFWS regulations prohibited private landowners from intentionally killing red wolves that strayed from the refuges onto private land. The Fourth Circuit rejected the landowners' argument that the Commerce Clause did not provide the authority for such federal regulation of activities on private land. The court acknowledged the lack of congressional findings that the protection of endangered species affects interstate commerce[444] but sided with the government in finding a "quite direct" relationship between wolf reintroduction and interstate commerce. According to the court, the reintroduction of red wolves will not only foster interstate tourism, as people come from across the country to visit wolf refuges, but will also generate scientific research, itself an interstate market. In the future, moreover, the regeneration of the red wolf population may permit a renewed commercial harvest of wolves and interstate trade in wolf pelts.[445]

This much of the reasoning in *Gibbs* is similar to the reasoning in *National Ass'n of Homebuilders* discussed earlier.[446] Beyond this, however, is the argument that "endangered wildlife regulation has not been an exclusive or primary state function"[447] but rather is part of longstanding, opposed tradition dating to the Progressive Era under which "the conservation of scarce natural resources is an appropriate and well-recognized

443. 214 F.3d 483 (4th Cir. 2000).
444. *Id.* at 494.
445. *Id.* at 493–95.
446. *See* text accompanying notes 373–376, *supra*.
447. *Gibbs*, 214 F.3d at 500.

area of federal regulation."[448] The federal role, opines the majority, is necessary because states may "forego or limit conservation measures" because of the private costs of such measures, triggering the race-to-the-bottom as other states "follow suit in order to compete."[449]

This might well be taken to suggest that the federal and state roles in species protection conflict. Heroically, the *Gibbs* majority argued to the contrary that predator reintroduction exemplifies a dynamic, cooperative federal-state relationship in species protection. The court found such a relationship only through an exceptionally creative and indeed almost fanciful interpretation of the ESA.[450] According to the Fourth Circuit, language in the ESA defining "conservation" to mean taking steps to bring a species back to the point where it no longer needs to be listed under the ESA[451] and mandating that listing is not to occur until the USFWS reviews state efforts to protect the species[452] somehow means that the ESA "embod[ies] principles of cooperative federalism and seek[s] to involve the states in the conservation effort."[453] The provisions of the ESA relied upon by the court make no reference to state responsibilities and do not impose any real limit on federal regulators' discretion to determine how long "conservation" must last before giving way to state regulation. The ESA itself sheds little light on the appropriate federal-state relationship in species reintroduction.

The Fourth Circuit's sanguine interpretation of this small statutory provision rests on a misunderstanding of the states' historical interest in wildlife management. The majority somehow imagines that by reintroducing the red wolf and other

448. *Id.*

449. *Id.* at 500. Remarkably, just a few paragraphs later, the very same opinion observes that the Endangered Species Act does not "sweep away the role of the states" but rather contemplates (at 16 U.S.C. § 1532(3) (1973)) that "once the species has recovered and is 'delisted,' management responsibility will return to the states." *Id.* at 503.

450. *Gibbs*, 214 F.3d at 503.

451. 16 U.S.C. § 1532(3) (2000) (defining conservation as "the use of all methods and procedures which are necessary to bring any endangered species or threatened species to the point at which the measures provided pursuant to this chapter are no longer necessary").

452. 16 U.S.C. § 1533(b)(1)(A) (mandating that a species is to be listed only after reviewing "those efforts, if any, being made by any State . . . to protect such species").

453. *Gibbs*, 214 F.3d at 503.

predator species and forcing private landowners to live with these predators whether they like it or not, the federal government is somehow giving the states a valuable wildlife resource. This completely ignores the history of state wildlife management discussed earlier in Part II. States actively encouraged the elimination of predator species not only to protect and encourage livestock growing but also to restore prey populations. These prey—be they deer or pheasant—are the game animals demanded by recreational hunters, the primary constituency served by state fish and wildlife agencies. Predator reintroduction is the cornerstone of a federal wildlife management vision completely at odds with the traditional and continuing vision of wildlife management at the state level. To label the federal-state relationship under the ESA one of "cooperative federalism" is to twist "cooperation" to mean its opposite.

The ESA does nothing to deal with the structural conditions that lead to species extinction in the first place. Rather, via the ESA, the federal government has intervened to ensure the perpetuation of the legal conditions—their status as an unowned and unownable resource—that cause species overharvest. The role of the federal government should be to encourage and foster the creation of legal rights and markets in species so that people have a direct interest in species preservation. The notion that the Constitution somehow authorizes the federal government to perpetuate market failure must be rejected. The Commerce Clause was written and interpreted to give Congress the power to bring the states together in a national market. Congress can still do this, and it will, if encouraged to do so by the courts.

The permanent legacy of the Court's New Deal crisis is, in our understanding, that the most direct doctrinal routes to such encouragement are foreclosed by the structure of the federal government. The most direct route to curbing inefficient environmental federalization would be for the Court to ask whether there really are sizeable extra-state benefits from preserving particular habitat or cleaning up the local environment. The Court has shown no willingness to get back into the business of undertaking close substantive review of Congress's determination of the relative size of extra-state benefits and the closeness of their relationship to the stated statutory goals.

On my analysis, such substantive review is unnecessary. Even if it could do so in a perfectly objective way, the Court need not use the Constitution to block inefficient centraliza-

tion. The Court's role is instead to create incentives for the beneficiaries of federalization to compensate the losers from federalization. As my model shows, inefficient centralized development controls exist only when the beneficiaries from the preservation of undeveloped resources do not need to compensate the losers from preservation. Similarly, inefficient federal environmental mandates arise simply because the additional costs imposed by such mandates on lesser-developed jurisdictions are not borne by the mandates' developed jurisdiction beneficiaries. Neither the identity of regulatory losers nor the magnitude of their losses can be identified with precision at the time federal regulation is enacted. What the Court can and should do, however, is to narrowly interpret statutes that federalize natural resource regulation as and when they are applied. Such narrow interpretation effectively limits the scope of the right that is bestowed by the courts upon the beneficiaries of federalization. To get greater rights, those beneficiaries must compensate the losers from federalization. Such compensation is typically indirect: legislators representing districts that lose from federalization will typically demand some form of compensation before agreeing to grant expanded rights to federalization beneficiaries. However problematic and imperfect may be the "currency" of congressional trading, the Court can have a much greater role in influencing federalization by using the tools of statutory interpretation to force such trading than by invoking the very blunt instrument of constitutional invalidation.

APPENDIX

I. DECENTRALIZED DEVELOPMENT

This Part of the Appendix provides a formal model that demonstrates some of the more general claims in the text regarding decentralized development incentives.

A. Notation and Structure of the Model

Each of two jurisdictions of identical population N possesses a publicly owned, free-access natural resource. To simplify, I set $N = 1$. If the resource is developed, it generates an aggregate per period flow of value D (which begins to be realized immediately). If the resource is preserved in an undeveloped state, then it generates a per period aggregate value of V. Development is an on-off, one time, and permanent decision. That is, development generates D forever, while preservation generates V forever. Each jurisdiction acts so as to maximize its residents' present value from the resource, where jurisdictions assume that they will always exist (at constant population) and so have infinite horizons.

Future payoffs are discounted at a rate δ, with $0 < \delta < 1$.

There are two periods. In the first period, one of the jurisdictions gets a development opportunity (the old jurisdiction). Period one is a time of autarky, meaning that transportation costs are so high that the decisions of one jurisdiction have no effect on the welfare of individuals in the other jurisdiction, and in particular, Jurisdiction One residents find it prohibitively costly to access the natural resource located in the new jurisdiction (Jurisdiction Two). Between periods one and two, the jurisdictions become linked in a single market with zero transportation costs between jurisdictions. In period two, Jurisdiction Two gets a development opportunity.

The development game is thus a sequential game of complete information played by self-interested jurisdictions. Using the fact that for $0 < \delta < 1$,

$$\sum_{i=0}^{4} \delta^i = 1/(1 - \delta),$$

and discounting all payoffs back to the initial period, the normal form of the game is given by Table A1.

B. Results

TABLE A1

Old/New	Develop	Preserve
Develop	$D/(1-\delta)$, $\delta D/(1-\delta)+V$	$(\delta V+D)/(1-\delta)$, $V/(1-\delta)$
Preserve	$V/(1-\delta)$, $(V+\delta D)/(1-\delta)$	$V/(1-\delta)$, $V/(1-\delta)$

1. Subgame Perfect Equilibria under Decentralized Development

The decentralized development game depicted in normal form in Table A1 is sequential, with Jurisdiction One moving first. In such sequential games, an equilibrium pair of strategies for the entire game might involve incredible threats. To rule out such incredible threats, I restrict attention to subgame perfect Nash equilibria (SPNE).[454] In such equilibria, at each and every stage of the game, each player's strategy optimizes its payout, given the strategy of the other player.

To solve for the SPNE, we consider two cases:

i. $D > V$

In this case, if Jurisdiction One has developed, then Jurisdiction Two develops provided that $D/(1-\delta) > V/(1-\delta)$, that is, that the present value of developing, assessed at the time of decision, is greater than the present value of preserving. Hence the new jurisdiction develops. When Jurisdiction Two will develop, Jurisdiction One develops provided that $D > V$. If Jurisdiction One has not developed, then Jurisdiction Two always develops. But as just shown, Jurisdiction One develops whenever $D > V$. Hence when $D > V$, the unique SPNE has both jurisdictions developing.

454. For a definition and discussion of the concept of a subgame perfect equilibrium, with several examples, see PRAJIT K. DUTTA, STRATEGIES AND GAMES: THEORY AND PRACTICE 197–205 (1999).

ii. $D < V$

In this case, if Jurisdiction One has developed then Jurisdiction Two preserves (because D < V). If Jurisdiction One preserves, then Jurisdiction Two develops (compare the second payoff across the bottom row in Table A1). Jurisdiction One thus enjoys a first-mover advantage because its strategy determines Jurisdiction Two's choice. The Jurisdiction One's (discounted present value) payoff, given optimal reaction by Jurisdiction Two, is $V/(1 - \delta)$ if it preserves and $(D + \delta V)/(1 - \delta)$ if it develops. Hence Jurisdiction One is better off preserving iff $V > \delta V + D$ or if $(V - D)/V > \delta$ (in other words, either preservation followed by development or development followed by preservation may be a SPNE). Thus if residents are impatient (δ small), Jurisdiction One preserves because its residents are unwilling to sacrifice present-day value from undeveloped resources in order to have both developed and undeveloped value (via market integration) tomorrow. As they become more patient, residents are willing to wait for market integration to make undeveloped resource value once again available, and so develop today.

Another way to look at this is that if Jurisdiction Two develops, then Jurisdiction Two develops iff $D > V$. If Jurisdiction Two preserves, then Jurisdiction One develops iff $D > (1 - \delta)V$, which is obviously a less stringent condition.

2. Global versus Local Incentives in Development versus Preservation

Suppose that the global social welfare objective is simply to maximize the discounted net global benefit over the two periods. There are again two cases to consider:

i. $D > V$

Observe first that the off-diagonal payoffs in Table A1 clearly show that it is always better in this case to have Jurisdiction One develop then have Jurisdiction Two preserve, rather than vice versa (that is, $\delta V + D + V > V + V + \delta D$, or $D - V > \delta (D - V)$ when $D > V$). The joint payoff from having Jurisdiction One develop and Jurisdiction Two preserve is bigger than development by both provided that $\delta V + D + V > D + \delta D + (1 - \delta)V$, or if, $2V > D$. That is, as explained more informally in

the text, preservation by Jurisdiction Two generates an external global benefit—the additional value V that residents of Jurisdiction One receive—and this must be included in determining whether development is globally desirable.

ii. $D < V$

In this case, Jurisdiction One determines Jurisdiction Two's choice, and Jurisdiction One's decision does not create any externality—viz., because markets are not integrated when Jurisdiction One makes its decision, it bears all the costs and benefits of that decision. In this case, global and local incentives are identical.

3. Late Stage Overdevelopment Leads to Early Stage Underdevelopment

As shown above, when Jurisdiction Two preserves, Jurisdiction One develops whenever $D > (1 - \delta)V$, whereas when Jurisdiction Two develops, Jurisdiction One develops iff $D > V$. Hence Jurisdiction One always has a greater incentive to develop when Jurisdiction Two preserves than when it does not. Another way to put this is to note that provided that $D < 2V$, Jurisdiction Two should preserve, and so if Jurisdiction Two was acting in a globally optimal way, then a sufficiently patient Jurisdiction One would always develop. When Jurisdiction Two develops, however, it triggers development by Jurisdiction One.

4. Centralized Mandates for Late Stage Preservation and Early Stage Development

i. $D > V$

In this case, the anticipation that centralized controls will be imposed to prevent Jurisdiction Two from developing will guarantee early stage development.

ii) $D < V$

In this case, a guarantee of future preservation either replicates the equilibrium outcome that Jurisdiction One would

induce under decentralization—development followed by preservation—or would be pointless, in that if Jurisdiction One preserves, then it is indifferent to whether or not Jurisdiction Two preserves. In such an instance, a centralized development prohibition is surely credible from the point of view of Jurisdiction One—it does not lose any undeveloped resource value by carrying out the threat—and is significant as a threat used to induce Jurisdiction Two to transfer some of the development value to Jurisdiction One residents.

II. DISCRIMINATORY USER FEES

This Part of the Appendix graphically illustrates how local residents may be priced out of natural resource use when they are poorer and have lower willingness to pay than non-local users.

The figure below presents two cases. In one, the marginal cost of providing exclusive access to the natural resource is so low (MC_l) that the profit-maximizing price (set by equating marginal revenue to marginal cost) p_l is low enough that there is positive local use (at that level where p_l intersects the local demand curve). When marginal cost is higher, the profit-maximizing price p_h is so high that local demand is zero.