Studies in American Political Development, 34 (April 2020), 110–131.
doi:10.1017/S0898588X20000024
ISSN 0898-588X/20
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Leader to Laggard: How Founding Institutions Have Shaped American Environmental Policy

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The U.S. led the world in environmental policy in the 1970s, but now lags behind comparable nations and resists joining others in tackling climate change. Two embedded, entwined, and exceptional American institutions—broad private property rights and competitive federalism—are necessary for explaining this shift. These two institutions shaped the exceptional stringency of 1970s American environmental laws and the powerful backlash against these laws that continues today. American colonies ensured broad private rights to use land and natural resources for profit. The colonies and the independent state governments that followed wielded expansive authority to govern this commodified environment. In the 1780s, Congress underwrote state governance of the privatized environment by directing the parceling and transfer of federal land to private parties and of environmental governance to future states. The 1787 Constitution cemented these relationships and exposed states to interstate economic competition. Environmental laws of the 1970s imposed unprecedented challenges to the environmental prerogatives long protected by these institutions, and the beneficiaries responded with a wide-ranging counterattack. Federalism enabled this opposition to build powerful regional alliances to stymie action on climate change. These overlooked institutional factors are necessary to explain why Canadian and American environmental policies have diverged.

The U.S. government led the world in environmental policy half a century ago. But now the United States lags behind comparable nations and resists joining others in tackling climate change. What brought about this dramatic shift in American environmental policy?

To understand this shift, it is necessary to understand how two distinctly American institutions have structured environmental policy: (1) extensive private owner control over the use of private land (or real property) and (2) a federal system that encourages states to compete in nurturing in-state industries, attracting new investment, and growing the state economy. These institutional arrangements have encouraged Americans to prioritize the use of natural resources for profit. In the past fifty years, these broad private-property prerogatives and competitive federalism had a distinctive impact, initially on the design of stringent, confrontational environmental regulations in the 1970s and, in response, on a hostile, uncompromising resistance to these regulations since the 1970s. These exceptional institutional foundations are indispensable for fully understanding why the design of American national environmental regulations was so rigorous, why the backlash against environmental regulations has been so strong and effective, and why the United States shifted from an environmental leader to a laggard, even compared to Canada, a nation very similar to the United States. This institutional structure encourages regional conflict and resistance to environmental regulation that is more effective in the United States than in Canada, a nation with different institutional arrangements.

I begin by describing the distinctive shift in American environmental policy since the 1960s. In the second section, I argue that political polarization is not a sufficient explanation. Although polarization contributes to this shift, it is necessary to understand the impact of the *institutional* underpinnings that

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Acknowledgments: Many thanks to the anonymous reviewers and the editors of *Studies in American Political Development* for very helpful comments on an earlier version. I thank many colleagues for comments that strengthened the article: Larry Gragg, Richard Bensel, Bat Sparrow, David Siemers, Steven Kautz, Ruth Iyob, David Kimball, Lorenzo Gonzales, Jeff Pasley, Jerritt Frank, Robert Konig, Peter Kastor, Robert Paulett, Susan Flader, Lorri Glover, Chris Deutsch, Shannon Fogg, Michael Bruening, Jeff Schramm, Kathleen Sheppard, Jack Rakove, and Petra Dewitt. I am deeply indebted to Missouri University of Science and Technology for awarding me a Maxwell C. Weiner Distinguished Professorship of Humanities for spring 2016; this honor allowed me necessary time to research and focus on this project.

https://doi.org/10.1017/S0898588X20000024 Published online by Cambridge University Press

shaped both environmental polarization and the shift in American policy. In the third section, I explain how the institutions of private real property and competitive federalism are distinctive in the United States and why they are important for understanding American environmental policy now. In the fourth section, I trace why private property and competitive federalism evolved as they did in the colonial and founding period, and why that matters for subsequent environmental policy. In the fifth section, I explain why broad real-property rights and competitive federalism explain the stringent strategy of 1970s environmental regulation and the effectiveness of the backlash against it. Within these sections, I compare institutional developments in Canada to help illuminate the way that the intertwined development of American property rights and federalism are essential for understanding why the United States shifted from an environmental leader to a laggard.

1. HOW AND WHY THE UNITED STATES IS EXCEPTIONAL

While most environmental protection laws are a relatively recent development, these measures built on centuries of policies that shaped the natural environment. European nations inevitably imposed legal systems in colonies they established to capitalize on natural resources in distant lands.[1] Abroad, European land hunters tenaciously cleared land, filled wetlands, built farms, and extracted salt, iron, precious metals, and other valuable materials. Advances in international markets increased demand for furs, crops, and timber.[2] Even then, governments limited the rate of colonial resource exploitation to serve practical purposes, such as preserving trees suitable for ship masts. Local, regional, and national governments began to expand environmental conservation in the nineteenth century. In the mid-twentieth century, regional and national governments began more systematically to mitigate environmental hazards in the air, water, and soil. Between 1965 and 1975, the number of environmental laws increased dramatically in the wealthy nations of the Organisation for Economic Co-operation and Development (OECD).[3] In this period, the United States became an international environmental leader.

In the 1960s and 1970s, the United States pioneered strict and confrontational environmental laws and led international efforts to mitigate global environmental problems.[4] American environmental quality standards were "more stringent, comprehensive and innovative than in either individual European countries or in the European Union."[5] The U.S. government pioneered the use of environmental impact statements, an important tool for auditing environmental threats of proposed activities. Nations around the world adopted this American invention.[6] The United States was a catalyst in the 1972 United Nations Conference on the Human Environment and in major international environmental treaties throughout the 1970s.[7]

But American environmental efforts have fallen behind comparable wealthy democracies since the 1980s.[8] In a 2016 analysis of clean air and climate policy stringency in the OECD nations, the United States ranked below average, nineteenth out of thirty-three nations. The Scandinavian nations, Germany, Switzerland, South Korea, Japan, and Canada all ranked ahead of the United States.[9] The Bertelsmann Foundation ranked the United States dead last among forty-one nations in its wide-ranging index of environmental protection and clean energy efforts.[10] The

1. John C. Weaver, *The Great Land Rush and the Making of the Modern World, 1650–1900* (Montreal: McGill-Queens University Press, 2006). See David B. Schorr, "Historical Analysis in Environmental Law," in *The Oxford Handbook of Legal History*, ed. Markus D. Dubber and Christopher Tomlins (Oxford: Oxford University Press, 2018).

2. Weaver, *The Great Land Rush*, 61–66.

3. James Meadowcroft, "Greening the State?" in *Comparative Environmental Politics: Theory, Practice, and Prospects*, ed. Paul F. Steinberg and Stacy VanDeveer (Cambridge, MA: MIT Press, 2012), 64.

4. Richard N. L. Andrews, "United States," in National *Environmental Policies: A Comparative Study of Capacity-Building*, ed. Martin Jänicke and Helmut Weidner (Berlin: Springer, 1997), 25–43; David Vogel, *The Politics of Precaution: Regulating Health, Safety, and Environmental Risks in Europe and the United States* (Princeton, NJ: Princeton University Press, 2012), 103. See also David Vogel, *National Styles of Regulation: Environmental Policy in Great Britain and the United States* (Ithaca, NY: Cornell University Press, 1986), 164; Lennart Lundquist, *The Hare and the Tortoise: Clean Air Policies in the United States and Sweden* (Ann Arbor: University of Michigan Press, 1980); Cynthia H. Enloe, *The Politics of Pollution in a Comparative Perspective: Ecology and Power in Four Nations* (New York: David McKay, 1975).

5. David Vogel, "The Hare and the Tortoise Revisited: The New Politics of Consumer and Environmental Regulation in Europe," *British Journal of Political Science* 33, no. 4 (2003): 557–80; Richard B. Stewart, "Environmental Regulation and International Competitiveness," *Yale Law Journal* 102, no. 8 (1993): 2046.

6. Ian Burton, John Wilson, and R. E. Munn, "Environmental Impact Assessment: National Approaches and International Needs," *Environmental Monitoring and Assessment* 3, no. 2 (1983): 133–50.

7. Lynton K. Caldwell, "The World Environment: Reversing U. S. Policy Commitments," in *Environmental Policies in the 1980s: Reagan's New Agenda*, ed. Norman J. Vig and Michael E. Kraft (Washington, DC: CQ Press, 1984), 322–23; R. Daniel Kelemen and David Vogel, "Trading Places: The Role of the United States and the European Union in International Environmental Politics," *Comparative Political Studies* 43, no. 4 (2010): 427–56.

8. Norman Vig and Michael Faure, "Introduction," in *Green Giants? Environmental Policies of the United States and the European Union*, ed. Norman J. Vig and Michael Faure (Cambridge, MA: MIT Press, 2004).

9. OECD, *How Stringent Are Environmental Policies?* (Paris: OECD, 2016), 6, accessed July 7, 2019, http://www.oecd.org/eco/greeneco/How-stringent-are-environmental-policies.pdf.

10. Bertelsmann Stiftung [Foundation], "Policy Performance: Environmental Policies," accessed December 25, 2018, http://www.sgi-network.org/2018/Policy_Performance/Environmental_Policies. The U.S. ranked last among forty-one industrial nations from 2014 to

https://doi.org/10.1017/S0898588X20000024 Published online by Cambridge University Press

libertarian, free-market Fraser Institute of Canada, adjusting for such factors as the remoteness of pollution from populated areas, ranked the United States twenty-third out of thirty-three nations on environmental performance (Canada ranked tenth).[11] Once a leader in international environmental negotiations, the United States declined to participate in many international agreements after 1980 and refused to ratify them (the 1987 Montreal Protocol on ozone depletion is a major exception).[12] Although President Obama unilaterally signed the Paris Climate Agreement of 2015 and took executive action to implement it, his efforts were not durable; his successor rejected the agreement and terminated implementation.[13] While California and some other states actively extend environmental protections, many states do not, including those that depend heavily on producing or consuming fossil fuel resources.

Comparison with Canada, the nation most similar to the United States, helps clarify the singularity of this American environmental policy shift. The two nations share ecosystems and abundant land, freshwater, forests, and fossil fuel reserves. Both nations developed as settler societies, where Europeans occupied lands that indigenous peoples inhabited. English culture and common law are embedded in the development of both nations. Canada, like the United States, is a wealthy capitalist democracy with a federal political system. In both nations, subnational governments have boosted the use of natural resources for profit (and for government revenue). Both Conservative and Liberal Party prime ministers have supported pipelines to facilitate the export of Canadian oil and natural gas.[14] While Canada's environmental policy performance has surpassed that of the United States, its performance has been modest compared to leading OECD nations. As in the United States, changes in party leadership of government resulted in a fitful pattern of climate change policy in Canada.

Despite its similarities to the United States, Canada unmistakably has pushed environmental protection further than the United States since the 1970s. Unlike the United States, Canada formally ratified the 2015 Paris Climate Agreement. The nation issued a Pan-Canadian Framework on Clean Growth and Climate Change in 2016.[15] The four most populous provinces—Ontario, Quebec, British Columbia, and Alberta—initiated a carbon tax or cap-and-trade system prior to the requirement by the federal government that all provinces would have to have a carbon pricing system by the end of 2018, and all the provinces had enacted carbon pricing by January 2020.[16] Unlike the United States, Canada has ratified such international environmental treaties as the 1989 Basel Convention on Transboundary Movements of Hazardous Wastes and Their Disposal, the 1992 Convention on Biodiversity, and the 1998 Protocol on Persistent Organic Pollutants. Canadian land-use planning, a provincial responsibility, is more proactive than American land-use planning; it favors more compact urban areas that reduce carbon energy use and encourages mass transit.[17]

Factors like wealth, culture, and political polarization cannot sufficiently account for the relative American policy shift from leader to laggard. Although some American leaders single out environmental regulations as constraints on national economic growth, comparably wealthy democracies with more ambitious environmental policies have experienced at least as much or more economic growth than the United States.[18] American environmental policy pioneer

2018, with a substantially declining score in 2018. In comparison, Canada ranked thirty-eighth in 2014, but twenty-fifth in 2018, with a substantially increasing score. See also Helmut Weidner and Martin Jänecke, "Summary: Environmental Capacity Building in a Converging World," in *Rankings of Capacity Building in National Environmental Policy: A Comparative Study of 17 Countries*, ed. Helmut Weidner and Martin Jänecke (Heidelberg Springer, 2002), 423. In a study by a Canadian environmental think tank, Canada ranked marginally better than the United States in environmental performance; Thomas Gunton and K. S. Calbick, *The Maple Leaf in the OECD: Canada's Environmental Performance* (Vancouver, BC: David Suzuki Foundation, 2010), 5.

11. Ross McKitrick, Elmira Aliakbari, and Ashley Stedman, *Environmental Ranking for Canada and the OECD* (Vancouver, BC: Fraser Institute, 2018), 5, accessed January 7, 2019, https://www.fraser institute.org/sites/default/files/environmental-ranking-for-canada-and-the-OECD.pdf.

12. Kelemen and Vogel, "Trading Places."

13. "Statement by President Trump on the Paris Climate Accord," June 1, 2017, accessed January 13, 2019, https://www.whitehouse.gov/briefings-statements/statement-president-trump-paris-climate-accord/.

14. G. Bruce Doern, Graeme Auld, and Christopher Stoney, *Green-Lite: Complexity in Fifty Years of Canadian Environmental Policy, Governance, and Democracy* (Montreal, QC: McGill-Queen's University Press, 2015), 6. See also Robert Paehlke, "Environmentalism in One Country: Canadian Environmental Policy in an Era of Globalization," *Policy Studies Journal* 28, no. 1 (2000): 160–75.

15. Government of Canada, *Pan-Canadian Framework on Clean Growth and Climate Change*, accessed June 29, 2019, https://www.canada.ca/en/services/environment/weather/climatechange/pan-canadian-framework/climate-change-plan.html.

16. Ibid., accessed July 14, 2019; Rose Saba, "Every Canadian Province—Including Alberta—Now Has a Carbon Tax, but the 'Pure Politics' Battle Isn't Over," *Toronto Star*, January 1, 2020, accessed January 9, 2020, https://www.thestar.com/calgary/2020/01/01/every-canadian-province-including-alberta-now-has-a-carbon-tax-but-the-pure-politics-battle-isnt-over.html.

17. Sonia A. Hirt, *Zoned in the USA: The Origins and Implications of American Land-Use Regulation* (Ithaca, NY: Cornell University Press, 2014), 86–89.

18. U.S. Council of Economic Advisers, *The Growth Potential of Deregulation* (Washington, DC: Council of Economic Advisers, October 2, 2017), accessed June 12, 2019, https://www.whitehouse.gov/sites/whitehouse.gov/files/documents/The%20Growth%20Potential%20of%20Deregulation_1.pdf. On the correlation of wealth and stringency, see OECD, *How Stringent Are Environmental Policies?*, 8. American GDP growth is very comparable to that of Australia, Canada, and Sweden since 1960, and it has been somewhat higher than that of Germany and France. World Bank, "Real Gross Domestic

https://doi.org/10.1017/S0898588X20000024 Published online by Cambridge University Press

Lynton Caldwell ascribed American reluctance to regulate the environment to its exceptional free-market political culture.[19] But political culture did not stand in the way of American environmental leadership. Caldwell's observation was published just as Congress passed unprecedented new laws—including the National Environmental Policy Act, which Caldwell himself heavily influenced.

Intense political polarization—the increasing separation of Democrats and Republicans in political attitudes and behavior—clearly affected the shift in American environmental policy. While Democrats and Republicans tended to agree on the need for environmental protections half a century ago, environmental policy has become bitterly polarized since then.[20] By 2012, those who identified as Democrats remained very supportive of the need for strong environmental protections, but fewer than half of self-identified Republicans agreed.[21] Anti-regulatory ideas have powerfully dominated the Republican Party, starting with the Reagan administration in the 1980s.The Republican Party has grown even more intensely hostile to regulation.[22] The denial of climate change distinguishes the American Republican Party from other major conservative political parties among wealthy democracies. The World Economic Forum has asserted that it is the American "division between the congressional parties that prevents serious progress in many issues of environmental and climate protection."[23]

But political polarization is not a sufficient explanation for this shift because political polarization alone cannot explain *why* opponents of environmental regulation enjoyed such exceptional success in the United States. First, neoliberalism affected public policy in all the major wealthy democracies, not just the United States, but their environmental policies did not experience the exceptional shift seen in the United States. Second, polarized public opinion on climate change and the environment do *not* strongly shift policy outcomes in themselves. While left and right party candidates in Germany, Denmark, Sweden, and Australia have polarized on these issues, the first three of these nations rank higher on the OECD environmental stringency index than the United States.[24]

Above all, the antipathy toward environmental regulation is inseparable from the deeply rooted institutions that shape the interests and strategies of Republican donors, elites, and supporters. These embedded rules for governing the American environment foster confrontational environmental regulations, followed by intense backlash against these policies.

2. INSTITUTIONS ARE NECESSARY TO UNDERSTANDING THE SHIFT IN AMERICAN ENVIRONMENTAL POLICY

The American environmental policy shift in the 1970s was layered atop two centuries of entrenched environmental control by private landowners and state governments. These two institutions—private real property and federalism—differ from property rights and federalism in comparable nations in ways that shaped policy development since the environmental era of the 1960s and 1970s. The exceptional developments of American environmental policy over the past fifty years progressed along a path structured by these interwoven institutions.[25]

Product Per Capita" (in 2010 U.S. dollars), 1960–2015, accessed June 12, 2019, https://data.worldbank.org/indicator/NY.GDP.PCAP.KD?end=2017&locations=DE-US-SE-CA-FR-AU&start=1960&view=chart.

19. Lynton K. Caldwell, "Rights of Ownership or Rights of Use—The Need for a New Conceptual Basis for Land Use Policy," *William and Mary Law Review* 15, no. 4 (Summer 1974): 759–75; Seymour Martin Lipset, *Continental Divide: The Values and Institutions of the United States and Canada* (Abingdon, UK: Routledge, 2013).

20. There is evidence that partisan opinions about environmental protection were diverging in the heyday of environmental legislation of the early 1970s, yet those laws were enacted; Riley E. Dunlap, Chenyang Xiao, and Aaron M. McCright, "Politics and Environment in America: Partisan and Ideological Cleavages in Public Support for Environmentalism," *Environmental Politics* 10, no. 4 (2001): 23–48.

21. Pew Research Center, "Partisan Polarization Surges in Bush, Obama Years," June 4, 2012, accessed July 6, 2019, http://www.people-press.org/2012/06/04/partisan-polarization-surges-in-bush-obama-years/; see Jaime Fuller, "Environmental Policy Is Partisan. It Wasn't Always," *The Washington Post*, June 2, 2014, accessed July 2, 2019, https://www.washingtonpost.com/news/the-fix/wp/2014/06/02/support-for-the-clean-air-act-has-changed-a-lot-since-1970/?utm_term=.75ffd0199e2a; Riley E. Dunlap, Aaron M. McCright, and Jerrod H. Yarosh, "The Political Divide on Climate Change: Partisan Polarization Widens in the U.S.," *Environment: Science and Policy for Sustainable Development* 58, no. 5 (2016): 4-23.

22. Matt Grossmann and David A. Hopkins, *Asymmetric Politics: Ideological Republicans and Group Interest Democrats* (Oxford: Oxford University Press, 2016).

23. See Daniel Schraad-Tischler and Christof Schiller, "Is Political Polarization Holding Back the US?" World Economic Forum, September 15, 2016, accessed July 14, 2019, https://www.weforum.org/agenda/2016/09/united-states-political-polarization-hinders-future-viability/.

24. Endre Tvinnereim, "A Polarized Climate? Party Sorting over Climate Change and the Environment among Candidates and Voters in Europe" (working paper, Uni Research Rokkan Centre, Stein Rokkan Centre for Social Sciences, Bergen, Norway, 2015), accessed June 12, 2019, http://bora.uib.no/bitstream/handle/1956/17176/WP%201-2015%20Tvinnereim.pdf?sequence=1&isAllowed=y. While Australia ranked lower than the U.S., its policy stringency increased much more after the mid-1990s.

25. Paul Pierson, *Politics in Time: History, Institutions, and Social Analysis* (Princeton, NJ: Princeton University Press, 2004), 17–53. On the importance of sequence, see Paul Pierson, "Not Just What, but *When*: Timing and Sequence in Political Processes," *Studies in American Political Development* 14, no. 1 (Spring 2000): 72–92; and the responses to Pierson in *Studies in American Political Development* 14, no. 1 (Spring 2000): 93–112, by Robert Jervis, "Timing and Interaction in Politics: A Comment on Pierson"; Kathleen Thelen, "Timing and Temporality in the Analysis of Institutional Change"; and Amy Bridges, "Path Dependence, Sequence, History, Theory." My study also employs the approach to historical

https://doi.org/10.1017/S0898588X20000024 Published online by Cambridge University Press

American farmers, ranchers, mine owners, and others became accustomed to exceptionally broad prerogatives over their environmental domains over two centuries. They have enjoyed expansive autonomy to buy, sell, and, for the most part, control and use their natural resource domains as they wish. Scholars emphasize that these broad private-property rights have been a critical factor in the development of American economic prosperity.[26] Economic historian Gary Libecap credited its broad and strong private-property protections for a record of prosperity, well-being, and freedom unique to the United States.[27] Lynton Caldwell, a critic of this perspective, agreed that "the existing aggregation of laws and practices pertaining to land ownership and use are beneficial primarily to persons interested in exploitation or litigation…. No other society appears to have gone so far in leaving the fate of the land to the discretion of the private owner."[28]

American federalism works with private property to encourage the use of natural resources for profit. Political scientist Barry Weingast emphasized that the United States has a uniquely "market-preserving" form of federalism that made property rights exceptionally secure.[29] State governments became used to managing their internal environments and natural resources (except federally owned properties). Interstate economic competition has intensified the state policies designed to profit from environmental endowments. States have strong incentives that encourage private owners to exploit the resources they own and that minimize laws restricting the use of land and natural resources. Other forces can counterbalance these incentives and contribute to stronger conservation and environmental measures. But these deeply rooted incentives are strong, durable, and dominant in many American states.

From the start of American history, struggles for political control shaped the way its distinctive property institutions and federalism have structured environmental politics. These institutions, cemented into environmental governance in preindustrial America, are easy to overlook because their origins are distant and their effects are not conspicuous. But, in historian Colleen Dunlavy's astute phrase, the "structuring presence" of those institutions is indispensable for explaining how and why proponents and opponents of environmental regulation were compelled to make federalism the key policy battlefield of the environmental era.[30] Explaining the distinctive, enduring impact of these institutions requires an understanding of the political purposes they served in the founding period, and the way this positive feedback shaped the sequence of political accommodations that affected American environmental governance for decades since.

3. THE COLONIAL-ERA UNITED STATES ESTABLISHED BROAD PRIVATE RIGHTS TO CONTROL REAL PROPERTY

American private landowners gained extensive control over their environmental domains in the colonial period, and the states that succeeded the colonies strengthened this private control. Once put in place, these laws gave property owners exceptionally strong tools for fighting restrictions on their use of their land. Put in place in a preindustrial economy, these basic rules have remained in place as the U.S. economy evolved into an urbanized, industrialized economy with unimagined land uses and environmental threats.

Broad rights for individual landowners provided a solution to the problem of governing the American colonies: how to exercise public control over an immense, exotic landscape with a thinly scattered European population. Unlike the populous but limited territory of Britain, a small number of Europeans populated a number of separate colonies spread across a thousand-mile-long North American coastal region inhabited by sometimes hostile natives.[31] Colonial officials discovered that privatized real property adequately solved this governance problem for the very different colonies. These officials encouraged European residents to take

explanation explained in James Mahoney, Erin Kimball, and Kendra L. Koivu, "The Logic of Historical Explanation in the Social Sciences," *Comparative Political Studies* 42, no. 1 (2009): 114–46.

26. Lance Edwin Davis, Douglass C. North, and Calla Smorodin, *Institutional Change and American Economic Growth* (Cambridge, UK: Cambridge University Press, 1971), 83.

27. Gary W. Libecap, "Property Rights and Federal Land Policy, in *Government and the American Economy: A New History*, ed. Price Fishback et al. (Chicago: University of Chicago Press, 2007); Thomas W. Gilligan, ed., "American Exceptionalism Due Principally to Secure Private Property Rights," in *American Exceptionalism in a New Era: Rebuilding the Foundation of Freedom & Prosperity* (Stanford, CA: Hoover Institution Press, 2017).

28. Caldwell, "Rights of Ownership or Rights of Use," 759, 762. See also John Opie, *The Law of the Land: Two Hundred Years of American Farmland Policy* (Lincoln: University of Nebraska Press, 1994), xi: American "land laws and farm policies were based entirely upon the principle of unrestricted ownership of private property for personal profit."

29. Barry M. Weingast, "The Economic Role of Political Institutions: Market-Preserving Federalism and Economic Development." *Journal of Law, Economics, & Organization* 11, no. 1 (April 1995): 1–31.

30. Colleen A. Dunlavy, *Politics and Industrialization: Early Railroads in the United States and Prussia* (Princeton, NJ: Princeton University Press, 1993), 4; see also Richard R. John, *Network Nation: Inventing American Telecommunications* (Cambridge, MA: Harvard University Press, 2010).

31. Edwin Wiley and Irving R. Rines, *Lectures on the Growth and Development of the United States* (Washington, DC: U.S. Library of Congress, 1916), 3; Kenneth L. Sokoloff and Stanley L. Engerman, "History Lessons: Institutions, Factor Endowments, and Paths of Development in the New World," *Journal of Economic Perspectives* 14, no. 3 (Summer 2000): 217–32.

https://doi.org/10.1017/S0898588X20000024 Published online by Cambridge University Press

ownership of environmental parcels, "free to develop, sell, mine, or clear their land, unless prohibited by law; for whatever price the market would pay."[32] English common law and the feudal system already were evolving toward the commodification of English land. The vast territory of the thirteen American colonies—abetted by their distance from the seat of English government, and the political turmoil of the home country in the seventeenth century—accelerated the pace of this private-property system faster and more fully than in England itself.[33]

Two key cases, Virginia and Massachusetts, exemplify how trial and error steered these very different American colonies toward the similar guarantees of broad private-real-property rights. Despite very different ecosystems, types of immigrants, and colonial philosophies, both colonies abandoned original management plans and made a virtue of privately owned parcels of landscape.

The Virginia Company, founded by profit-seeking investors, initially employed harsh military-style discipline to direct land use, production, prices, and individual behavior.[34] When gold and silver did not materialize, Virginians hit upon on opportunities afforded by growing tobacco for export. Motivated by personal ambition, colonists claimed and cultivated lands radiating outward from Jamestown. Virginia's leaders tried to use strong discipline to govern these subjects, but discipline became increasingly useless as land-hungry settlers scattered across the landscape.[35] Once it became a royal colony in 1624, Virginia's leaders employed a much more practical and indirect approach: They implemented legally enforceable land boundaries and titles, and they constructed an administrative system with some property regulations, some local policing, and courts to adjudicate property disputes. Government-certified private landholdings and free markets enlisted the acquiescence of landowners, the most influential local residents. Rights to immovable property encouraged individual investors to make the environment economically profitable. Private landholdings with fixed boundaries were easier to tax. With the right to vote, freeholders had a stake in their own laws and administration. The legal system, with the acceptance of local landowners, became crucial to governing: Local courts became "the institutional nexus of justice, administration, taxation, and local governance in the new regime."[36]

Six hundred miles to the northeast, the Massachusetts Bay colony gradually replaced its initial plans for communal land use with broad individual private-real-property rights. The Puritan founders of Massachusetts Bay mandated that families settle in towns built around a nucleus of a church and town center, with many fields held in common fanning out from this center.[37] But abundant land and individual ambition undermined this model. Massachusetts colonists seized additional land for their own crops and domestic animals, to reap the benefits of their individual effort on their own land.[38] Bowing to this centrifugal pressure, private ownership of land parcels spread across the Massachusetts landscape.[39] Colonial government sanctioned this change, gradually gaining expertise in settling land conflicts unknown to English common law.[40] Massachusetts went even further than England and Virginia in constructing a systematically administered environment of private real property. Massachusetts much more carefully recorded land ownership and ensured rectangular land surveys.[41] Ownership maps, deeds, and regulations helped state and local governments keep track of the private subdominions, and to tax the land and improvements on it.

As the American colonies continued to simplify the sale, purchase, and titling of land, private owner

32. Edward T. Price, *Dividing the Land: Early American Beginnings of Our Private Property Mosaic* (Chicago: University of Chicago Press, 1995), 332; Richard N. L. Andrews, *Managing the Environment, Managing Ourselves: A History of American Environmental Policy*, 2nd ed. (New Haven, CT: Yale University Press, 2006), 37.

33. Andro Linklater, *Owning the Earth: The Transforming History of Land Ownership* (London: Bloomsbury, 2013), 9–23, 35; Karl Polanyi, *The Great Transformation: The Political and Economic Origins of Our Time* (Boston: Beacon Press, 2001; first published in 1944), 35–44; Roger J. P. Kain, John Chapman, and Richard R. Oliver, *The Enclosure Maps of England and Wales 1595–1918: A Cartographic Analysis and Electronic Catalogue* (Cambridge, UK: Cambridge University Press, 2004), 1–39.

34. Wesley Frank Craven, *The Virginia Company of London, 1606–1624* (Charlottesville: University Press of Virginia, 1957); Karen Ordahl Kupperman, *The Jamestown Project* (Cambridge, MA: Belknap Press, 2007).

35. William E. Nelson, *The Common Law of Colonial America*. Vol. I: The Chesapeake and New England, 1607–1660 (Oxford, UK: Oxford University Press, 2008), 40, 51–52.

36. Christopher Michael Curtis, *Jefferson's Freeholders and the Politics of Ownership in the Old Dominion* (Cambridge, UK: Cambridge University Press, 2012), 54.

37. Nelson, *The Common Law of Colonial America*, 50–52.

38. John R. Stilgoe, *Common Landscape of America, 1580–1845* (New Haven, CT: Yale University Press, 1983), 47–48; see also Allan Greer, "Commons and Enclosure in the Colonization of North America," *American Historical Review* 117, no. 2 (April 2012): 373–74).

39. Barry C. Field, "The Evolution of Individual Property Rights in Massachusetts Agriculture, 17th–19th Centuries," *Northeastern Journal of Agricultural and Resource Economics* 14, no. 2 (October 1985): 97–109.

40. David Thomas Konig, "Community Custom and the Common Law: Social Change and the Development of Land Law in Seventeenth-Century Massachusetts," *American Journal of Legal History* 18, no. 2 (April, 1974): 137–77.

41. Stilgoe, *Common Landscape of America*, 35, 44–45; William Cronon, *Changes in the Land: Indians, Colonists, and the Ecology of New England* (New York: Hill and Wang, 1983), 74. Such surveys were never a characteristic of the southern colonies; Amelia Clewley Ford, "Colonial Precedents of Our National Land System as It Existed in 1800," *Bulletin of the University of Wisconsin* 852 (1908): 19–25.

https://doi.org/10.1017/S0898588X20000024 Published online by Cambridge University Press

control of real property advanced faster in the future United States than in England.[42] After independence, the American states reinforced these arrangements by adding explicit protections against government seizure of private land. States made this government power of "eminent domain" much more costly by requiring "just compensation" to private owners.[43] The Fifth Amendment to the U.S. Constitution extended this rule to the federal government. Decades later, the U.S. Supreme Court declared that even regulations that restricted land uses could constitute a taking that required just compensation.[44] These fair compensation requirements have armed landowners with legal weapons for challenging environmental regulations, and these weapons havebeen used vigorously in recent decades.

These expansive American real-property rights prioritized and encouraged the use of natural resources for profit. James Wilson, a framer of the 1787 Constitution and one of the original members of the U.S. Supreme Court, specifically cited the failed experiments in Massachusetts and Virginia when he praised the natural and "exclusive" right to property as a superior means of governance. He argued that exclusive property ensures that "the productions of the earth and the means of subsistence are secured and preserved, as well as multiplied." For Wilson, private, exclusive organization of the landscape is an essential tool for governing a populous territory: "Exclusive property prevents disorder, and promotes peace" and "is a principal source of attachment to the country, in which one resides."[45]

Canada, which became mostly self-governing in 1867, inherited more limited private property institutions than those that the United States had put in place in the preceding century. Canadian privately held property rights remain more limited than American land rights in two important ways. First, as is true in most countries, Canadian landowners lack the broad legal protections against eminent domain powers that American property owners enjoy. The Canadian government, like the governments of the United Kingdom and Australia, never implemented American-style constitutional protection against property takings. In a comparison of thirteen wealthy democracies, Canada ranked last in compensation rights for land taken by the government.[46]

Second, private ownership of property *beneath* the soil—including minerals, coal, oil, and others—is rare in Canada but common in the United States. In the early republic, the federal government conveyed farmland to private parties without making any claim on the minerals beneath the land.[47] Today, the United States "is unique in the world insofar as private individuals own a majority of subsurface minerals."[48] Canadian subsoil resources and forests were owned by the British Crown until that ownership largely passed to provincial governments rather than individuals after 1867. Today, Alberta, with immense oil reserves, owns 81 percent of the province's resources (the national government owns another 10 percent).[49] Of course, policymakers face powerful incentives for expedited extraction in both nations. But Canadian provinces have more opportunity to administer the use of natural resources from a broader, longer-term perspective than American states because provinces own most of these resources in Canada, while private-property owners control subsoil rights in the United States.[50]

42. James W. Ely Jr., *The Guardian of Every Other Right: A Constitutional History of Property Rights*, 3rd ed. (Oxford, UK: Oxford University Press, 2008), 30–31, 35; David A. Thomas, "Anglo-American Land Law: Diverging Developments from a Shared History: Part II: How Anglo-American Land Law Diverged After American Colonization and Independence," *Real Property, Probate and Trust Journal* 34 (Summer 1999): 295–361; Beverley W. Bond, "The Quit-Rent System in the American Colonies," *American Historical Review* 17, no. 3 (April 1912): 496–516. In 1732, the British Parliament subtly helped further commodify American land by privileging merchants and creditors' claims against real property in the colonies; Claire Priest, "Creating an American Property Law: Alienability and Its Limits in American History," *Harvard Law Review* 120, no. 2 (December 2006): 385–459.

43. William Michael Treanor, "The Origins and Original Significance of the Just Compensation Clause of the Fifth Amendment," *Yale Law Journal* 94, no. 3 (1985): 694–716.

44. *Pennsylvania Coal Co. v. Mahon*, 260 U.S. 393 (1922); Justice Holmes's majority opinion stated: "The general rule, at least, is that, while property may be regulated to a certain extent, if regulation goes too far, it will be recognized as a taking.…We are in danger of forgetting that a strong public desire to improve the public condition is not enough to warrant achieving the desire by a shorter cut than the constitutional way of paying for the change" (pp. 415–16).

45. James Wilson, "On the History of Property," in *The Collected Works of James Wilson*, ed. Kermit L. Hall and Mark David Hall (Indianapolis: Liberty Fund, 2007), 1: 372–98, accessed December 4, 2017, http://oll.libertyfund.org/titles/2072#Wilson_4140_1879.

46. Rachelle Alterman, *Takings International: A Comparative Perspective on Land Use Regulations and Compensation Rights* (Chicago: American Bar Association, 2010), 5, 25.

47. Gary D. Libecap, "Property Rights to Frontier Land and Minerals: U.S. Exceptionalism," in *Handbook of Cliometrics*, ed. Claude Diebolt and Michael Haupert (Berlin: Springer, 2018), accessed August 4, 2019, https://link.springer.com/referenceworkentry/10.1007%2F978-3-642-40458-0_46-1.

48. Timothy Fitzgerald, "Importance of Mineral Rights and Royalty Interests for Rural Residents and Landowners," *Choices* 29, no. 4 (2014): 1–7.

49. Alberta Land Institute, "A Guide to Property Rights in Alberta: Subsurface Property Rights," University of Alberta, 2014, accessed January 5, 2018, http://propertyrightsguide.ca/subsurface-property-rights/.

50. John Dobra, *Divergent Mineral Rights Regimes: A Natural Experiment in Canada and the United States Yields Lessons* (Vancouver, BC: Fraser Institute, 2014), accessed January 5, 2018, https://www.fraserinstitute.org/sites/default/files/divergent-mineral-rights-regimes-rev_0.pdf. For decades, American oil-producing states like Texas and Oklahoma have administered the rate of oil extracted from wells, an arrangement underwritten by federal law during the New Deal.

https://doi.org/10.1017/S0898588X20000024 Published online by Cambridge University Press

4. THE U.S. STATES INSTITUTIONALIZED GOVERNANCE OF LAND AND NATURAL RESOURCES

In the critical years between the Declaration of Independence and the crafting of the U.S. Constitution, American colonies took control over the environment within their boundaries. The national government acquiesced to state governance of natural resources in this period. Congress undertook the tasks of parceling and privatizing land as a commodity and preparing the development of new states to govern a largely privatized landscape.

The colonies reinvented themselves as separate, self-governing republics when they divorced themselves from Britain. Each state claimed authority over its internal lands and natural resources.[51] The states made steady progress in gaining a measure of effective control over their lands east of the Appalachians.[52] Long accustomed to exercising many of the prerogatives of environmental governance, the states used their new independence to fortify broad property rights, implement property taxes, and employ regulation and military power.[53]

Governments of these new states sped up the process of organizing, privatizing, and administering their internal environments. The state of Virginia set the pace, shedding remnants of English feudal claims and obligations and declaring that freeholders had "absolute and unconditional property" rights with "fee simple" titles.[54] Virginia established a government land office to sell off unclaimed state land to private parties.

The state and local governments secured their territorial power by taxing privately owned real estate. These taxes left arable lands in private hands but required governments to authenticate the ownership, size, value, and uses of lands.[55] Massachusetts and other New England states had implemented real-property taxes for decades and quickly adapted these policies to independent statehood. Virginia initially had little ability to tax property but developed a workable land tax policy by 1782. Once in place, property taxes diverged widely among the states, effectively preempting a national property tax. When the U.S. Treasury secretary surveyed the state property tax systems in 1796, he found them "utterly discordant and irreconcilable, in their original principles"—a fact that stymied any practical nationwide property tax layered atop the diverse state tax systems.[56]

States and especially their local governments also extended colonial regulation of land and natural resources. The English common law of nuisance already set some limits on landowner actions that affected others. Colonial land titles routinely had included requirements that owners clear, fence, or otherwise improve the land, subject to penalties or liability for damages. In some colonies, owners could lose mineral rights to their land if they failed to extract resources. Landowners could lose control over undeveloped riverside sites suited to the construction of mills or ironworks. Towns sometimes required the removal of unsightly or noxious vegetation. Some restrictions aimed to control the density of land use in towns. Other regulations aimed to set building standards for community safety.[57] New England states' regulations complemented bounties, tax abatements, monopoly rights, and road and bridge building to nurture mills, glassworks, and saltworks.[58]

As independent governments, the states exercised treaty making and military power to increase effective control of the territories they claimed. Colonists' spreading land demands sparked ferocious resistance where they clashed with Native Americans' land use. Colonial and state governments developed harsh tactics to overpower this Native American resistance and to clear Indians from desired lands. Virginia conducted wartime Indian massacres as early as 1610, indiscriminately killing villagers, burning villages, and destroying crops. Connecticut soldiers vigorously slaughtered Pequot villagers in a notorious 1637 massacre. To destroy native resistance to the Europeans' incursion on their lands, colonies developed agile ranger units that combined mobility, guerilla tactics, and unlimited destruction. To increase the number of Indian hunters, some colonial governments

51. Allan Nevins, *The American States During and After the Revolution, 1775–1789* (New York: Macmillan, 1924), 117–70; Samuel H. Beer, *To Make a Nation: The Rediscovery of American Federalism* (Cambridge, MA: Belknap Press, 1993), 200–206; Marc W. Kruman, *Between Authority and Liberty: State Constitution Making in Revolutionary America* (Chapel Hill: University of North Carolina Press, 1997), 15–33, 111–16.

52. For example, it was difficult for Massachusetts to establish state authority within its territory, even though it moved rapidly to do so. See Oscar Handlin and Mary Flug Handlin, *Commonwealth: A Study of the Role of Government in the American Economy: Massachusetts, 1774–1861* (Cambridge, MA: Belknap Press, 1969); Hendrick Hartog, "Losing the World of the Massachusetts Whig," in *Law in the American Revolution and the Revolution in American Law: A Collection of Review Essays on American Legal History*, ed. Hendrick Hartog (New York: New York University Press, 1981), 143–66.

53. E. James Ferguson, *The Power of the Purse: A History of Public Finance, 1776–1790* (Chapel Hill: University of North Carolina Press, 1961), 61–62; Nevins, *The American States During and After the Revolution*, 652–56, 659–60.

54. Here, "fee" had a medieval meaning as one's domain; "fee simple" titles contrasted with "fee tail," a feudal land holding that entailed obligations to the king.

55. Ferguson, *The Power of the Purse*, 30.

56. Robin L. Einhorn, *American Taxation, American Slavery* (Chicago: University of Chicago Press, 2006), 25–105.

57. Margaret Ellen Newell, "The Birth of New England in the Atlantic Economy: From Its Beginning to 1770," in *Engines of Enterprise: An Economic History of New England*, ed. Peter Temin (Cambridge, MA: Harvard University Press, 2000), 41.

58. Ibid.; Robert A. Becker, *Revolution, Reform, and the Politics of American Taxation, 1763–1783* (Baton Rouge: Louisiana State University Press, 1980), 13–14.

https://doi.org/10.1017/S0898588X20000024 Published online by Cambridge University Press

offered bounties for Native American scalps.[59] When American settlers poured into Kentucky seeking land in the 1770s, the state governments mobilized to protect them.

The states took charge of suppressing Indian resistance because the financially hard-pressed Congress had little capacity to do so. When the British tried to enlist the Cherokees as allies against the southern frontier of the rebellious United States, Virginia, South Carolina, and North Carolina military units laid waste to their settlements and compelled the Cherokee to accept tributary status. After Continental army troops proved ineffectual in pacifying Virginia's lands north of the Ohio River, Virginia commissioned George Rogers Clark and a force of rangers to drive the Shawnee from the area. The ruthlessness of Clark's forces, sometimes matched by the Shawnees, continued even after the British surrender at Yorktown.

5. THE STATES COMPETED TO CONTROL TERRITORY

The newly self-governing states competed and clashed over control of the vast American landscape. Each new state government viewed authority over land, the most valuable commodity in English North America, as a major advantage. New York and Massachusetts claimed Vermont. Pennsylvania disputed its borders with Maryland and Virginia. Connecticut settlers carved out settlements in the Wyoming River valley entirely within Pennsylvania, and the state of Connecticut recognized the area as a county of Connecticut. Land companies representing clashing state interests maneuvered to advance their own state's claims.[60]

Immense disparities of land inflamed these state rivalries. Seven land-rich states—Massachusetts, Connecticut, New York, Virginia, North and South Carolina, and Georgia—reasserted their colonial charter claims to lands that stretched from the Atlantic coast to the Mississippi River. Virginia claimed the Kentucky territory and all of the vast "Northwest Territory" between the Ohio River and Canada. Pennsylvania, Massachusetts, and Connecticut also claimed western strips of these lands.[61] These land-rich states could reap substantial revenue from selling this land, relieving political pressure to tax their residents and allowing them to grant land to restive soldiers. Favoritism in dispersing land could please influential speculators and land companies.

Virginia forcefully asserted its territorial claims.[62] In its 1776 Constitution and subsequent laws, the state declared control of land within the expansive boundaries of its original colonial charter, including the Northwest Territory. The state declared void any land company purchases from Indian tribes in this area, a mandate that angered land speculators in other states who had been trying to capitalize on these lands.[63] Virginia outraged other states by creating a state land office to distribute these lands. This controversy forced the national Congress to begin to sort national and state authority over the landscape.

6. THE U.S. CONGRESS ACQUIRED, COMMODIFIED, AND CONVEYED NATURAL RESOURCES TO PRIVATE OWNERS AND STATES

Between 1776 and 1787, the U.S. Congress set national government responsibility to commodify and transfer most of its acquired land to private parties and to accede to states the authority to govern these privatized natural resource domains. Congress's actions marked a critical turning point in American environmental governance because it extended evolving environmental responsibilities to a vast new territory: formerly British lands between the Appalachians and the Mississippi River, an area much larger than the colonial lands between the Appalachians and the Atlantic coast. State environmental authority was secured in the Articles of Confederation and Virginia's conditional cession of northwestern land claims. The Land Ordinance of 1785 established the federal role in commodifying and distributing lands. The Northwest Ordinance of 1787 ensured the handover of these privatized environmental domains to state administration.

A counterfactual captures the critical importance of this period for the development of American environmental policy. Had Congress exercised more direct control over the administration of arable land, it might have greatly strengthened national leverage in the American environment thereafter. Instead, Congress's choices entrenched the states' authority over their internal environments, and within the states, private landowners' control over environmental domains. Instead of environmental control over arable land, the national government would pacify,

59. John Grenier, *The First Way of War: American War Making on the Frontier, 1607–1814* (Cambridge, UK: Cambridge University Press, 2005), 21–43.

60. Shaw Livermore, *Early American Land Companies: Their Influence on Corporate Development* (New York: The Commonwealth Fund, 1939).

61. Robert F. Berkhofer Jr., "Jefferson, The Ordinance of 1784, and the Origins of the American Territorial System," *The William and Mary Quarterly*, 3rd ser., 29, no. 2 (April 1972): 234; Thomas Perkins Abernathy, *Western Lands and the American Revolution* (New York: Russell & Russell, 1937), 221–25.

62. Peter Onuf, "Toward Federalism: Virginia, Congress, and the Western Lands," *The William and Mary Quarterly*, 3rd ser., 34, no. 3 (July 1977): 371. Many Virginians conceded that the state could not effectively govern the distant northwest even if they kept title to the territory; Berkhofer, "Jefferson, The Ordinance of 1784," 243–44; Merrill Jensen, "The Cession of the Old Northwest," *The Mississippi Valley Historical Review* 23, no. 1 (1936): 27–48.

63. Onuf, "Toward Federalism," 353–74; Curtis, *Jefferson's Freeholders*, 53–76.

https://doi.org/10.1017/S0898588X20000024 Published online by Cambridge University Press

survey, distribute, and title lands that the new states would govern.

6.1 The Articles of Confederation

Within days of declaring independence from Britain, the Continental Congress began to develop a written constitution. The first draft of these Articles of Confederation prominently acknowledged state authority, while it set an ambiguous limit to that authority: Each colony would retain laws and power to police itself, "in all matters that shall not interfere with the Articles of this Confederation"—placing the burden of the exercise of disputed powers on the states. This first draft asserted the supremacy of national law over state law.[64]

Some of the delegates, representing states born in defiance of central power, fought even this cautious step toward national policy supremacy. The *final* version of the articles conceded even more state authority over its internal affairs. The articles declared: "Each state *retains its sovereignty, freedom, and independence, and every power, jurisdiction, and right*, which is not by this Confederation expressly delegated to" the U.S. Congress (emphasis added). It promised that no state could "be deprived of territory for the benefit of the United States," and "all controversies" over conflicting state territorial claims would be settled by a special committee, not by the full Congress itself.[65]

In the 1783 Treaty of Paris, Britain surrendered only its title to the territory between the Appalachians and the Mississippi River—a formal concession of national sovereignty that could only be effective with the elimination of Native American resistance. Many Americans believed that "the Indians must now accept American control and must surrender such lands as were wanted."[66] Knowledgeable members of Congress reported that about sixty Native American tribes, with about ten thousand warriors, still occupied these areas.[67] Congress forbade purchases or settlement of the Indian lands and negotiated major land acquisition treaties.[68] From the first, where Native Americans resisted expanding European settlement, American governments subdued them by force. After massacres of settlers in western New York and northeastern Pennsylvania, Congress sent three armies against the Seneca and their British allies in western New York. State governments materially supplemented these national military actions. New York and Pennsylvania sent state ranger units to join these troops.[69] But in the critical period of American government formation, the resistance of the land-rich states was proving more formidable than the resistance of native inhabitants.

6.2 Virginia's Conditional Cession

Conflict between the seven land-rich states and the rest made land the "most bitter controversy during the writing and ratification" of the Articles of Confederation.[70] States that lacked such western lands (Maryland, Delaware, Pennsylvania, New Jersey, Rhode Island, and New Hampshire) angrily fought the seven land-rich states' assertion that colonial-era western land belonged to the individual states.[71] Maryland's legislature emphasized the way Virginia's immense land claims gave it an unfair competitive advantage over states without such resources. By exploiting this massive land base for property taxes, Virginia could reduce its own taxes, draining a state like Maryland "of its most useful inhabitants, its wealth," and its power within the Confederation.[72] Maryland, New Jersey, and Rhode Island demanded that Congress assume control of these lands and parcel them out "into free, convenient and independent governments."[73]

Virginia leaders knew they could not effectively govern these vast land claims, but instead leveraged the cession of the lands to strengthen the states' authority over the lands within the boundaries they could govern.[74] In October 1780, Congress affirmed that lands ceded to the United States would be "granted and disposed of" and "be settled and formed into distinct republican states" that would join the union in the future, and—restating the explicit promise of the Articles of Confederation—"have

64. *Journals of the Continental Congress* [hereinafter JCC], July 12, 1776, vol. 5, 547; Jensen, *The Articles of Confederation*, 127–39, 254–61; Jack N. Rakove, *The Beginnings of National Politics: An Interpretive History of the Continental Congress* (Baltimore: Johns Hopkins University Press, 1982), 151–58.

65. The Articles of Confederation, 1781, accessed July 10, 2019, http://avalon.law.yale.edu/18th_century/artconf.asp.

66. Paul Wallace Gates, *History of Public Land Law Development* (Washington, DC: Government Printing Office, 1968), 60.

67. Nathan Dane, "Address to the Massachusetts House of Representatives," November 9, 1786, in U.S. National Archives, Letters of the Delegates to Congress [hereinafter LDC], vol. 24, 19, accessed February 5, 2018, http://memory.loc.gov/cgi-bin/query/r?ammem/hlaw:@field(DOCID+@lit(dg0245)).

68. JCC, September 22, 1783, vol. 25, 602; Elbridge Gerry to Stephen Higginson, March 4, 1784, LDC, vol. 21, 407, accessed February 5, 2018, http://memory.loc.gov/cgi-bin/query/r?ammem/hlaw:@field(DOCID+@lit(dg021306)).

69. Grenier, *The First Way of War*, 152–69.

70. Jack N. Rakove, "Ambiguous Achievement: The Northwest Ordinance," in *The Northwest Ordinance: Essays on Its Formulation, Provisions, and Legacy*, ed. Frederick D. Williams (East Lansing: Michigan State University Press, 1989), 11.

71. Gates, *History of Public Land Law Development*, 50.

72. JCC, May 21, 1779, vol. 14, 620–22.

73. Ibid.; JCC, June 22, 1778, vol. 11, 631–39; JCC, June 25, 1778, vol. 11, 648–51.

74. JCC, September 6, 1780, vol. 18, 808. Virginia approved a Resolution of Cession that followed these guidelines; "From Thomas Jefferson to Samuel Huntington, January 17, 1781, Enclosing Resolution of [Virginia] Assembly Concerning the Cession of Lands," U.S. National Archives, Founders Online, accessed February 7, 2018, http://founders.archives.gov/documents/Jefferson/01-04-02-0481.

https://doi.org/10.1017/S0898588X20000024 Published online by Cambridge University Press

the same rights of sovereignty, freedom and independence, as the other states."[75]

In response, Virginia agreed to cede its claims to the Northwest Territory on the condition that the lands were organized into independent states, the purchases of the land companies from the Indians be voided, and lands used to satisfy promised land grants to soldiers or serve as a common resource for all the states. Congress bickered about Virginia's terms for three years, but—by a single vote—finally accepted the cession on Virginia's terms on March 1, 1784.[76]

A month later, the Ordinance of 1784 reinforced the guarantee that new states would be subject to the same rules as the original states, extending the guarantees of state self-governance in the Articles of Confederation.[77] As historian Peter Onuf emphasized, these concessions protected Virginia and other states' power to govern their own lands "within manageable, permanent, and more important undisputed bounds."[78] Other states eventually ceded their western land claims to Congress on these conditions. Between 1781 and 1802, the national government received about 222 million acres in state land cessions.[79]

6.3 The Land Ordinance of 1785

As soon as it accepted Virginia's western lands, Congress obliged the national government to survey all this land, marking out discrete land parcels for sale or distribution to private owners. Land sales, it was hoped, could be the desperately needed revenue to rescue the Congress from its growing fiscal crisis. National officials also believed that the sales were urgent because it could not "afford to let squatters or speculators monopolize the best lands." Instead, "industrious, market-oriented settlers should be encouraged to buy federal lands."[80] Small-scale farmers who had a stake in land parcels would expand self-governing domains westward and add to the Confederation treasury. Other land could be given to Revolutionary War veterans as promised compensation for service, further relieving the Congress's financial burden and shoring up the defense of the frontier.[81]

The Land Ordinance in 1785 anticipated a massive westward expansion of easily marketable land parcels.[82] Government surveys would fashion land parcels into a standard rectangular shape that made boundaries clear and easy to sell, buy, title, record, and adjudicate. Chain carriers would physically measure the land and lay out boundaries of land parcels throughout the newly acquired western lands. Townships would be measured in 1-square-mile (640-acre) units, a size big enough to save the federal government money in surveying the land. The boundaries of these mapped plats would not shift when natural markers like trees fell or creeks changed course. Some areas would be sold as intact townships, as in New England, while other areas would be sold by individual sections.[83] Congress's investment in careful land surveys made public lands more valuable and more likely to sell at higher prices.[84] State governments would be prohibited from interfering with the prior transfer of land or titles of national land purchases, and states could not tax any land that the national government retained.[85]

The Land Ordinance anticipated a new federal land bureaucracy, headed by a geographer of the United States, and a surveyor appointed by each state. The U.S. geographer would send the plats to the U.S. treasurer, who would disburse them as bounties to soldiers or sell them at auction. One lot in each township would be reserved for public schools.[86]

Critically for the future of American environmental policy, the private rights of owners expanded to include the rights to valuable natural resources *underground*. These rights have given private-property owners enormous opportunities to exploit valuable subsoil resources—and powerful incentives to fight

75. JCC, October 10, 1780, 915.

76. Ibid., 18, 915–16; James Madison to Joseph Jones, September 19, 1780, LDC vol. 16, 95–96, n.1, accessed February 7, 2018, http://memory.loc.gov/cgi-bin/query/r?ammem/hlaw:@field(DOCID+@lit(dg01675)); Jensen, "The Cession of the Old Northwest," 45, 48; Thomas Jefferson to [Governor of Virginia] Benjamin Harrison, March 3, 1784, U.S. National Archives, Founders Online, February 7, 2018, http://founders.archives.gov/documents/Jefferson/01-07-02-0005; Berkhofer, "Jefferson, The Ordinance of 1784," 235.

77. Berkhofer, "Jefferson, The Ordinance of 1784," 250.

78. Onuf, "Toward Federalism," 354.

79. Farley Grubb, "U.S. Land Policy: Founding Choices and Outcomes, 1781–1802," in *Founding Choices: American Economic Policy in the 1790s*, ed. Douglas A. Irwin and Richard Sylla (Chicago: University of Chicago Press, 2011), 259–60: John Lauritz Larson, *The Market Revolution in America: Liberty, Ambition, and the Eclipse of the Common Good* (Cambridge, UK: Cambridge University Press, 2009), 15.

80. Peter S. Onuf, *Statehood and Union: A History of the Northwest Ordinance* (Bloomington: Indiana University Press, 1987) 21.

81. Paul Frymer, *Building an American Empire: The Era of Territorial and Political Expansion* (Princeton, NJ: Princeton University Press, 2017), 58–62.

82. David Howell to Jonathan Arnold, February 21, 1784, LDC, vol. 21, 383, accessed February 7, 2018, http://memory.loc.gov/cgi-bin/query/r?ammem/hlaw:@field(DOCID+@lit(dg021289)); John R. Van Atta, *Securing the West: Politics, Public Lands, and the Fate of the Old Republic, 1785–1850* (Baltimore, MD: Johns Hopkins University Press, 2014), 33–34. New England employed a systematic model for distributing land. In New England, land was sold by township, organized for a small populated area, with a presurveyed area of land organized into rectangles and ready for occupation by an entire, compact community. Southern states had developed a more haphazard approach, usually allowing purchasers to choose a desirable parcel individually; Price, *Dividing the Land*, 341–42.

83. Gates, *History of Public Land Law Development*, 65.

84. JCC, May 28, 1784, vol. 27, 446–53; Gates, *History of Public Land Law Development*, 61–62; Grubb, "U.S. Land Policy," 284.

85. Berkhofer, "Jefferson, The Ordinance of 1784," 251.

86. Onuf, *Statehood and Union*, 24; Gates, *History of Public Land Law Development*, 65–66.

https://doi.org/10.1017/S0898588X20000024 Published online by Cambridge University Press

against regulations that reduce their expansive power over the environmental parcels they own. The ordinance gave Congress claim to one-third of all gold, silver, lead, and copper within the sold lands. Soon, the federal government relinquished even these fractional claims to subsoil resources. In turn, nearly all the states conveyed the rights to subsoil minerals to private land purchasers.[87]

These nationally directed land surveys created the world's most commodified environment, a "national market in western lands."[88] Federal land surveys eventually extended from the Appalachians to the Pacific Coast. Surveyed and numbered plats now cover more than two-thirds of the land of the forty-eight contiguous American states, about 1.3 billion acres of the 1.8 billion acres that once were in the public domain. Historian Andro Linklater concluded, "Painstakingly marked out yard by yard and chain by chain by teams of surveyors, they … represent what must be the largest, homogeneous, manmade structure in history."[89] Historian John Lauritz Larson emphasized that the ordinance established "the most rational, simple, accessible, democratic, and commercial land system the world had ever seen … with fee-simple deeds and unique legal descriptions that could be bought and sold at a distance by anyone with money (not just wealthy gentlemen with political connections and expert legal advice)."[90] Today, the federal government retains about 28 percent of land in the United States, nearly all of which was unsuitable for farming. This land remains thinly populated, and often is leased for use by ranchers, timber firms, and oil, gas, and coal interests.[91]

6.4 The Northwest Ordinance of 1787

The Northwest Ordinance of 1787 provided the legal blueprint for establishing new state governments to manage the environment in the new western states. The ordinance asserted formal congressional *sovereignty* over the territory, emphasizing that it "shall forever remain a part of this Confederacy of the United States of America," but it left day-to-day *governing* to newly created states.[92] American leaders agreed that strong republican governments in the Northwest were essential for territorial security. Congressman Richard Henry Lee emphasized to George Washington that it "seemed necessary, for the security of property among uninformed, and perhaps licentious people, as the greater part of those who go there are, that a strong toned government should exist, and the rights of property be clearly defined."[93] New state governments would firmly unite western land and people into the nation.[94] Crucially, federal land parcels distributed to private parties would come under the control of existing or new states. The U.S. Supreme Court explicitly validated this handoff from federal to state control in 1839.[95] The initial territorial governments would be controlled by officials designated by Congress. New territories were required to adopt an existing state's constitution during the initial stage of territorial government and would become independent states in defined stages.[96] Territorial and new state governments could not interfere with the disposal of federal land to private landowners. The ordinance prohibited taxes on federal lands or discriminatory taxes on nonresidents—provisions that would attract investors to federal lands.

Together, these provisions strongly reinforced the exceptionally broad protection for private property in land and state governance of this privately owned land.[97] The ordinance extended the guarantee that any property taken under eminent domain required full compensation to the owner. "In the just preservation of rights and property," it prohibited any law that would interfere with private contracts.[98]

87. Edward P. Weeks, *A Commentary on the Mining Legislation of Congress* (San Francisco, CA: Sumner Whitney, 1877), 40.

88. Onuf, *Statehood and Union*, 21–43; quote, 40; see JCC, May 20, 1785, vol. 29, 375–81. On the cadastral map and land commodification, see James C. Scott, *Seeing Like a State: How Certain Schemes to Improve the Human Condition Have Failed* (New Haven, CT: Yale University Press, 1998), 46–47.

89. Linklater, *Owning the Earth*, 217, 228.

90. Larson, *The Market Revolution in America*, 15. On the cadastral map as a tool of government control, see Scott, *Seeing Like a State,* 35–36. See also Opie, *The Law of the Land*.

91. Grubb, "U.S. Land Policy," 286; Carol Hardy Vincent, Laura A. Hanson, and Carla N. Argueta, "Federal Land Ownership: Overview and Data" (Washington, DC: U.S. Congress, Congressional Research Service, Report R42346, March 3, 2017); Quoctrung Bui and Margot Sanger-Katz, "Why the Government Owns So Much Land in the West," *The Upshot*, January 5, 2016, accessed January 31, 2018, https://www.nytimes.com/2016/01/06/upshot/why-the-government-owns-so-much-land-in-the-west.html.

92. Northwest Ordinance; Paul Frymer, "A Rush and a Push and the Land Is Ours": Territorial Expansion, Land Policy, and U. S. State Formation," *Perspectives on Politics* 12, no. 1 (March 2014): 119–44; and Fyrmer, *Building an American Empire*; Berkhofer, "Jefferson, The Ordinance of 1784," 256.

93. Richard Henry Lee to George Washington, July 15, 1787, LDC, vol. 24, 356, accessed February 7, 2018, http://memory.loc.gov/cgi-bin/query/r?ammem/hlaw:@field(DOCID+@lit(dg024296)).

94. Berkhofer, "Jefferson, The Ordinance of 1784," 241; Rakove, "Ambiguous Achievement," 5–7; Malcolm J. Rohrbough, "A Freehold Estate Therein: The Ordinance of 1787 and the Public Domain," *Indiana Magazine of History* 84 (March 1988): 47–50.

95. *Wilcox v. Jackson* 38 U.S. (13 Pet.) 498 (1839).

96. Andrew R. L. Cayton, "The Northwest Ordinance from the Perspective of the Frontier," in *The Northwest Ordinance: Essays on Its Formulation, Provisions, and Legacy*, ed. Frederick D. Williams (East Lansing: Michigan State University Press, 1989), 15.

97. *Annals of Congress*, 1st Congress, 1st Sess., 1789, 45–452, accessed January 27, 2019, https://memory.loc.gov/cgi-bin/ampage?collId=llac&fileName=001/llac001.db&recNum=226; William Michael Treanor, "The Origins and Original Significance of the Just Compensation Clause."

98. Cayton, "The Northwest Ordinance from the Perspective of the Frontier," 15.

https://doi.org/10.1017/S0898588X20000024 Published online by Cambridge University Press

These provisions made it clear that other state powers were left intact, including the powers to tax and regulate the privatized lands that came under their control.[99] The ordinance also ensured marketable property rights by forbidding primogeniture, and it banned slavery in the old Northwest.[100]

Ohio, the first state carved out of this area, shows how these territories mimicked the earlier states in constructing environmental governance. Building on the bedrock of common law shared with older states, the Ohio territory borrowed other states' land, private property, and contract laws.[101] It imported laws from Pennsylvania (including laws of trespass, enclosure, a recorder of deeds in each county, seizure of land for payment of debts), New York (partition of undivided lands), and Kentucky (land offices and taxes on unimproved lands).[102]

Canada reveals how this early sorting of American environmental governance helped distinguish the United States from comparable nations. By the time the Canadian provinces gained self-governance in 1867, the American states had been independent of Britain for nearly a century. Canadian constitutional rules established explicit statements of provincial authority over property. Unlike the United States, the provinces took control of most of the Crown (or public) lands for use and distribution.[103] These public lands would provide a chief source of revenue for the new provinces.

While Canada's provincial governments have had *more* governing authority than American states, some of their powers dampened potential opposition to environmental regulations. Provinces generally have controlled the extraction of natural resources. For example, 94 percent of Canadian forests are owned by the federal and provincial governments, and of that, 90 percent is owned by the provinces. Alberta, the location of huge oil resources, owns 81 percent of the province's resources, and the federal government, 9 percent.[104] The provinces most certainly have exploited Canada's forest resources, but they have sometimes balanced the costs and consumption of forests to meet other political objectives, such as employment stability and conservation.[105] Canadian provinces also face less urgent pressures than American states to compete with each other economically because the U.S. Constitution removed some state powers.

7. THE U.S. CONSTITUTION CEMENTED ENVIRONMENTAL AUTHORITY IN ECONOMICALLY COMPETITIVE STATES

The 1787 U.S. Constitution cemented these evolving environmental institutions and stripped the states of some defenses against economic competition from other states. First, the Constitution established national power to manage acquired land and left intact its responsibilities to commodify this land for private owners and the states. Second, it bolstered the states' control of their internal affairs, including the environment within their borders. Third, it eliminated some of the powers the states had used to gain competitive advantage over other states. Fourth, it enabled states to resist national rules that impinged on their administration of private natural resources. Fifth, it enabled regions of states with shared interests to block, delay, or weaken national laws, including environmental protection. Together, these constitutional provisions underwrote state governance of most of the American environment and strengthened state incentives to capitalize on the use of their natural resources for profit in competition with other states.

1. *Federal sovereignty over American territory.* The Constitution institutionalized the federal government's sovereignty over the territory it claimed. As the agent of the nation's interests in the world, Congress now had an express warrant to make treaties with foreign powers and with Native American tribes. It could mobilize an army to control its territorial claims. Armed with stronger treaty and military authority, the U.S. government soon took charge of driving Native Americans out of the way of European settlement.[106] Congress could levy tariffs and other taxes to pay for the military, land surveys, and land disposal. It could make trade agreements that expanded markets for crops and natural resources. The Constitution enumerated federal legislative authority and declared

99. Northwest Ordinance, July 13, 1787, accessed January 25, 2018, http://avalon.law.yale.edu/18th_century/nworder.asp.

100. Paul Finkelman, "Slavery and Bondage in the 'Empire of Liberty,'" *The Northwest Ordinance: Essays on Its Formulation, Provisions, and Legacy,* ed. Frederick D. Williams (East Lansing: Michigan State University Press, 1989), 61–95. Finkelman points out that the ban on slavery was inconsistent with other provisions in the Ordinance.

101. Andrew R. L. Cayton, "Law and Authority in the Northwest Territory," in *The History of Ohio Law,* ed. Michael Les Benedict and John F. Winkler (Athens: Ohio University Press, 2004), 1: 13–39.

102. *The Statutes of Ohio and of the Northwestern Territory, Adopted or Enacted from 1788 to 1833 Inclusive, Vol. 2: Together With the Ordinance of 1787* (Cincinnati, OH: Corey and Fairbank, 1833), 111–282.

103. British North America Act, 1867, 30–31 Victoria, c. 3, sec. 92 (5), (13).

104. Province of Alberta, "Mineral Rights," accessed July 3, 2019, https://www.alberta.ca/mineral-ownership.aspx; Alberta Land Institute, "A Guide to Property Rights in Alberta," University of Alberta, 2014, accessed July 18, 2019, http://propertyrightsguide.ca/subsurface-property-rights/.

105. Melody Hessing, Michael Howlett, and Tracy Summerville, *Canadian Natural Resource and Environmental Policy: Political Economy and Public Policy* (Vancouver: University of British Columbia Press, 2005), 94.

106. Allan Greer, *Property and Dispossession: Natives, Empires and Land in Early Modern North America* (New York: Cambridge University Press, 2018), 408.

https://doi.org/10.1017/S0898588X20000024 Published online by Cambridge University Press

that federal laws—within the boundaries of this authority—superseded state laws. The Supreme Court subsequently upheld federal laws such as air pollution regulation as a legitimate exercise of federal power in interstate commerce.[107] These provisions must be understood in the context of the decision of the federal government to survey and transfer most of its arable land to private parties, ultimately accepting that the states would govern most of the land within their borders.[108]

2. *State governance of the privatized land.* The Constitution underwrote the policy that the states retained the regulation of land, its uses, and commerce *within* their boundaries. Congress's powers did not include the authority to manage or police private property. Roger Sherman, a leading participant in the Constitutional Convention, assured his state's governor that the added national powers "extend only to matters respecting the common interests of the Union and are specially defined, so that the particular states retain their Sovereignty in all other matters."[109] In the *Federalist*, Alexander Hamilton declared that the "supervision of agriculture and of other concerns of a similar nature … which are proper to be provided for by local legislation, can never be desirable cares of a general jurisdiction"[110] Today the states still administer most of the inhabited American environment.

3. *States stripped of sovereign economic defenses.* The Constitution increased each state's exposure to interstate economic competition, strengthening state government incentives to administer their natural resources for short-term profit. The colonies long had used land, trade, currency, and credit policy to protect their own economic and political interests, and the newly independent states used these tools more actively. For example, states could protect debt-ridden farmers by printing additional currency to inflate prices and protecting debtors from creditors.[111] When a nation-state uses these tools, it can delay, shift, or even conceal some of the adverse impacts of popular redistributive or regulatory policy.

The Constitution stripped the states of most of these policy defenses. States could not block competitors or try to price out of state competitors out of the in-state market.[112] Without these powers, state laws that interfered with the discretion of private-property owners to fell trees, farm, mine, drill, and build could have immediate, visible, and negative consequences for public officials, especially if they harmed state employment or public revenues.

This increased economic exposure placed strong pressures on American state officials—elected for relatively short terms of office—to nurture short-term market-driven economic growth, resist proposals that reduced the economic value of natural resources and commodities, and copy policies that benefited in-state private enterprises.[113]

4. *State power to resist federal control.* States were expected to defy unwelcome federal government policies, through their own legislatures and through the influence designed for them into the national policy process. In public and in private, James Madison put great stock in the states' capacity to defy the federal government. Several weeks after Virginia and New York ratified the Constitution, he assured Jefferson that "the limited powers of the federal Government and the jealousy of the subordinate Governments, afford a security which has not existed in the case of the State Governments, and exists in no other." In presenting the future Bill of Rights in the first new U.S. Congress, he declared that the "State Legislatures will jealously and closely watch the operations of this Government, and be able to resist with more effect every assumption of power, than any other power on earth can do."[114] A few years later, Madison and Jefferson themselves would write the Virginia and Kentucky state resolutions defying the use of federal power by the Adams administration. Individual state defiance could succeed indefinitely under the right circumstances (as in Nevada's resistance to the Yucca Mountain nuclear waste site), but regional alliances of states provide much more potent examples of successful state defiance of the federal government.

5. *Regional defense of state resource control.* The Constitution fortified the power of regional coalitions of states to obstruct national rules, an institutional feature that contributes to the environmental policy polarization today. At the Constitutional Convention,

107. *United States v. Bishop Processing Company*, 287 F. Supp. 624 (D. Md. 1968).

108. Not until decades later did it become apparent that the federal government would find it difficult to sell much of the vast, dry, rugged western landscape. Today, the federal government retains ownership of 28 percent of American land; Vincent et al., *Federal Land Ownership: Overview and Data.*

109. Roger Sherman and Oliver Ellsworth to Connecticut Governor Samuel Huntington, in *The Records of the Federal Convention of 1787* (hereinafter, "RFC"), September 26, 1787, III, 99–100, accessed July 15, 2019, http://memory.loc.gov/cgi-bin/query/r?ammem/hlaw:@field(DOCID+@lit(fr003138)).

110. Hamilton in *Federalist* 17, in Alexander Hamilton, James Madison, and John Jay, *The Federalist*, ed. Jacob E. Cooke (Middletown, CT: Wesleyan University Press, 1961), 105–106.

111. On interstate trade competition, see Albert Anthony Giesecke, *American Commercial Legislation before 1789* (New York: Burt Franklin, 1970; first published in 1910).

112. Roger Sherman and Oliver Ellsworth to Connecticut Governor Samuel Huntington.

113. David Brian Robertson, *Federalism and the Making of America*, 2nd ed. (Abingdon, UK: Routledge, 2017), 25–44.

114. James Madison to Thomas Jefferson, October 17, 1788, in Founders' Archives, U.S. Library of Congress, accessed July 27, 2019, https://founders.archives.gov/documents/Madison/01-11-02-0218; Madison, in JCC, June 8, 1789, 457; Madison, Federalist 46, in *The Federalist*, 315–23.

https://doi.org/10.1017/S0898588X20000024 Published online by Cambridge University Press

Madison observed that "States were divided into different interests above all … by other circumstances [than their size]; the most material of which resulted partly from climate, but principally from [the effects of] their having or not having slaves."[115] Southern delegates insisted on rules that defended their slaves and the commodity exports they produced. Georgia's Pierce Butler declared bluntly, "The security the South[ern] States want is that their negroes may not be taken from them."[116] After the Great Compromise made their influence in the new government less certain, Southerners successfully pressed for a boost in their representation in the House of Representatives and the Electoral College. They also secured enumerated federal powers, protection for the slave trade, and the return of escaped slaves.[117] The continued ability of the South to resist civil rights law shows that these rules, particularly equal representation in the U.S. Senate, made it possible to build a very successful Congressional coalition that could resist national directives, including environmental rules, even if the region represented a minority of the American population.

These constitutional provisions also impeded the success of regional coalitions *in favor of* national restrictions on pollution and the exploitation of natural resources. The separation of powers and independence of the branches advantages opponents of new federal laws because they provide multiple veto points for stopping, slowing, or weakening such initiatives. The Constitution also left the judiciary in a position of acquiring independent power in public policymaking—eventually encouraging adversarial litigation and the judicialization of political conflicts in many environmental and other policy battles.

8. ENDURING CONSEQUENCES OF STATE NATURAL RESOURCE MANAGEMENT AND STATE EXPOSURE TO ECONOMIC COMPETITION

Since the adoption of the Constitution, many state officials, often viewing other states as economic competitors, often have fostered public policies that privileged private entrepreneurs and the swift exploitation of natural resources—forests in the upper Midwest, coal in Appalachia, oil in the south-central states.[118] Since the expansion of national environmental regulation in the 1970s, some state officials consider laxity environmental regulation a tool for attracting investment and economic development—absent unusually strong public support to the contrary.[119]

Polluting industries' *threats* of disinvestment or relocation can influence environmental policy as strongly as actual relocation.[120] In the 1960s, a U.S. Bureau of the Budget official pointed out that

> The influence of polluting industries tends to be greater at the state and local level than at the national level. Such industries are more important to the economy of the locality or state than to the national economy and thus have more bargaining power. They can threaten to leave the locality…. Also, the state and local governments must carry on a continuing relationship with the industries involved, and it is the states and localities who must take specific actions directed for or against specific groups.[121]

The first director of the U.S. Environmental Protection Agency (EPA), William Ruckelshaus, recalled that environmental protection in the 1960s "was left to the states, and they competed with one another so fiercely for the location of industry that they weren't very good regulators of those industries."[122] A 1990s survey revealed the durability of this observation, concluding that "concern over industry relocation and siting causes state legislators and business groups to exert substantial pressure upon state environmental regulators to relax the strictures of state environmental programs."[123] During a much more recent debate on a bill to address climate change in

115. RFC, June 30, I: 486.

116. RFC, July 13, I: 605.

117. David Brian Robertson, *The Original Compromise: What the Constitution's Framers Were Really Thinking* (Oxford, UK: Oxford University Press, 2013).

118. Harry N. Scheiber, "Federalism and the American Economic Order, 1789–1910," *Law and Society Review* 10, no.1 (Fall 1975): 71, 84, 88, 95, 98–99; Sean Patrick Adams, "Promotion, Competition, Captivity: The Political Economy of Coal," *Journal of Policy History* 18, no. 1 (2006): 74–95.

119. Neal D. Woods found that interstate economic competition tended to suppress environmental stringency among regional competitors; "Interstate Competition and Environmental Regulation: A Test of the Race-to-the-Bottom Thesis," *Social Science Quarterly* 87, no. 1 (2006): 174–89. David M. Konisky analyzed data aggregated data from all the states and similarly found that states behave in a way that responds to neighboring states, that is, the states most likely to be economic rivals (but found no pattern of a race to the bottom of environmental laxity across all the states); David M. Konisky, "Regulatory Competition and Environmental Enforcement: Is There a Race to the Bottom?" *American Journal of Political Science* 51, no. 4 (2007): 853–72. Konisky also found that state regulators are keenly aware of the competitive regulatory actions of rival states; David M. Konisky, "Regulator Attitudes and the Environmental Race to the Bottom Argument," *Journal of Public Administration Research and Theory* 18, no. 2 (2007): 321–44.

120. Scheiber, "Federalism and the American Economic Order, 1789–1910," 57–118.

121. J. Clarence Davies III, *The Politics of Pollution* (New York: Pegasus, 1970), 79.

122. Interview with William Ruckleshaus, former Director of the Environmental Protection Agency, January 1993, accessed July 1, 2019, https://archive.epa.gov/epa/aboutepa/william-d-ruckelshaus-oral-history-interview.html.

123. Kirsten H. Engel, "State Environmental Standard-Setting: Is There a Race and Is It to the Bottom," *Hastings Law Journal* 48 (1996): 271–398.

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New York state, Greg Biryla, state director for the National Federation of Independent Business, warned, "This just makes other states that much more attractive for investment."[124] Political scientist David M. Konisky found that state regulators are keenly aware of the competitive regulatory actions of rival states.[125] Other scholars found that interstate competition discourages state efforts to enact significantly more stringent regulations than those of other states, and that some polluting industries relocate part of their production to less polluted areas to avoid stricter regulation.[126]

Notably, some states overcome the drag of interstate economic competition to become national and global leaders in environmental protection. Political scientist William Lowry found that the force of interstate competition is neither a uniform nor an insurmountable in American environmental policy. California and other American states have actively pursued environmental protection policies despite the limitations they impose on short-term profits.[127] Why is California more willing than other states to regulate its environment? Political scientist David Vogel explains that, compared to most states, California gains more than it loses by doing so. California governs an extraordinarily beautiful landscape from the Pacific to the Sierras. Its citizens and some of its businesses have a higher than average stake in protecting that environment. With a huge and diverse economy, grave environmental threats, powerful electoral support for environmentalism, a business sector that often is divided on environmental issues, and recent governors of both parties committed to addressing climate change, interstate economic pressures have often receded before environmental protection initiatives.[128]

Unlike the American states, there is been little evidence that Canadian provinces compete to relax their environmental standards to attract business and private investment.[129] Three features of Canadian institutions greatly reduce these incentives. First, the Canadian federal government, like those in most other federal systems, redistributes revenues to equalize revenues among the provinces. These equalization payments—justified by unequal regional access to revenues from oil and other natural resources—provide a measure of interprovincial fiscal equity that relieves competitive pressures.[130] Second, there are nationwide prohibitions against provincial subsidies to attract investment, preventing a massive provincial bidding war for business relocation.[131] Third, provinces have more power than American states to protect provincial enterprises from economic competition by setting up trade barriers against other provinces. These barriers have helped shield some economic interests from competitors in other provinces, moderating provincial officials' incentives to compete to cut taxes and regulatory burdens.

Canada's Westminster-style federal and provincial parliamentary systems also make it easier (but still difficult) to build cooperation among the provincial and national governments. As leaders of their parties in parliament, the federal prime minister and provincial premiers can negotiate with more authority than American political executives. "Executive federalism" or "federal-provincial diplomacy"—combining federalism and cabinet government—has long been considered the defining characteristic of Canadian intergovernmental relations.[132] Cooperation in

124. Brad Plumer, "Blue States Roll Out Aggressive Climate Strategies. Red States Keep to the Sidelines," *New York Times*, June 21, 2019, accessed June 27, 2019, https://www.nytimes.com/2019/06/21/climate/states-climate-change.html?rref=collection%2Fsectioncollection%2Fclimate&action=click&contentCollecti%E2%80%A6.

125. Konisky, "Regulatory Competition"; and Konisky, "Regulator Attitudes."

126. LeRoy C. Paddock, "The Federal and State Roles in Environmental Enforcement: A Proposal for a More Effective and More Efficient Relationship," *Harvard Environmental Law Review* 14 (1990): 7–44; Randy Becker and Vernon Henderson, "Effects of Air Quality Regulations on Polluting Industries," *Journal of Political Economy* 108, no. 2 (2000): 379–421. See also John A. List, W. Warren McHone, Daniel L. Millimet, "Effects of Air Quality Regulation on the Destination Choice of Relocating Plants," *Oxford Economic Papers* 55, no. 4 (October 2003): 657–78.

127. William R. Lowry, *The Dimensions of Federalism: State Governments and Pollution Control Policies* (Chapel Hill, NC: Duke University Press, 1996).

128. David Vogel, *California Greenin': How the Golden State Became an Environmental Leader* (Princeton, NJ: Princeton University Press, 2019), 12–19.

129. Nancy Olewiler, "Environmental Policy in Canada: Harmonized at the Bottom?" 113–55; Kathryn Harrison, "Are Canadian Provinces Engaged in a Race to the Bottom?" in *Racing to the Bottom? Provincial Interdependence in the Canadian Federation*, ed. Kathryn Harrison (Vancouver: University of British Columbia Press, 2011), 261.

130. Hansjörg Blöchliger and José Maria Pinero Campos, "Tax competition between Sub-Central Governments" (OECD working paper on fiscal federalism no. 13, Paris, OECD, 2011), 24; Robert D. Cairns, "Natural Resources and Canadian Federalism: Decentralization, Recurring Conflict, and Resolution," *Publius: The Journal of Federalism* 22, no. 1 (Winter 1992): 55–70.

131. The 1994 Canadian Agreement on Internal Trade (AIT) banned provinces from providing any kind of subsidy to firms seeking to relocate from another province. Internal Trade Secretariat, Government of Canada, "Agreement on Internal Trade: Consolidated Version," (Winnipeg: Internal Trade Secretariat, 2015), accessed April 25, 2020, https://www.cfta-alec.ca/wp-content/uploads/2017/06/Consolidated-with-14th-Protocol-final-draft.pdf. In 2017, the Canadian Free Trade Agreement (CAFT) superseded the 1994 AIT. "The equalization transfer program and the Code of Conduct on Incentives have helped prevent sub-central tax competition in Canada from spiraling into a race to the bottom;" Wangari Gichiru, Jennifer Hassemer, Corina Maxim, Riamsalio Phetchareun, and Dong Ah Won, "Sub-Central Tax Competition in Canada, the United States, Japan, and South Korea," Working Paper, OECD Network on Fiscal Relations across Levels of Government of the OECD (Paris, Organisation for Economic Co-operation and Development, 2009), ix, 7, accessed April 25, 2020 https://www.oecd.org/tax/federalism/48817035.pdf.

132. David Cameron and Richard Simeon, "Intergovernmental Relations in Canada: The Emergence of Collaborative Federalism," *Publius: The Journal of Federalism* 32, no. 2 (2002): 49. "Environmen-

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Canadian environmental regulation is more evident than in American environmental policy. The relatively small number of units (ten provinces and three sparsely populated territories) reduces the number of negotiating parties, also facilitating cooperation. Of course, better cooperation in itself does not predispose a political system to more stringent environmental protection.[133]

9. CONSERVATION AND THE FRAGMENTATION OF ENVIRONMENTAL GOVERNANCE

The conservation movement in the second half of the nineteenth century exposed the vulnerability of American federalism to dramatically different environmental politics and divergent policies among the American states. The conservation movement challenged the dominant priority of using natural resources for short-term profit, such as increased use and pressure on game, water, and timber resources. Population growth and industrialization caused unprecedented depletion of timber, threats to water supplies, and pressure on stocks of game and fish. In his internationally bestselling book, George Perkins Marsh indicted the menacing lessons of the human destruction of nature. Authors like Henry David Thoreau and landscape artists such as Frederick Edwin Church and Thomas Cole recast nature as a romantic ideal. Professional, conservation, and sporting groups such as the American Forestry Association, the Sierra Club, and the Boone and Crockett Club advocated policies to conserve and to protect nature.[134] Some businesses broke with others to advocate conservation, driven by concerns about pollution, natural resource depletion, and opportunities for tourism.

The impact of the conservation movement foreshadowed the unevenness of state environmental protection. States like California and New York were conservation pioneers. California farmers demanded that their state rein in hydraulic gold mining, a source of flooding and pollution that threatened them financially and personally. After a modest state statute failed to help, farmers went to federal court and won a far-reaching case that established rules on water pollution. California successfully sought a grant of federal land to protect the Yosemite Valley and Mariposa Grove (insufficient management resulted in the 1906 refederalization of the area as the centerpiece of Yosemite National Park).[135] In the East, New York established the first continuous state park at Niagara Falls in 1885. Another coalition of sportspeople, conservationists, and New York commercial interests brought about the designation of Adirondack Forest Reserve in 1885 and the Adirondack State Park within that reserve in 1892.[136]

But while some states took the lead in conservation in this period, others fell behind these leaders and protected the use of their resources for profit. Wisconsin, for example, enacted a statute in 1878 creating a half-million-acre state park in the northern part of the state. However, Wisconsin never implemented this plan effectively, abolished the park designation in 1897, and authorized the sale of the land to lumber interests.[137]

Even the leaders in conservation pursued a uniquely American approach. While New York's efforts in Niagara Falls depended on enlisting private interests to manage the American side of Niagara Falls, Ontario's provincial government took a more direct ownership role in the Niagara River and in the electrical generating potential of the falls.[138]

10. HOW DEEPLY ROOTED INSTITUTIONS AFFECTED RECENT AMERICAN ENVIRONMENTAL POLICY

Together, two long-established American institutions—exceptionally broad American private-property rights and an exceptionally competitive form of federalism—have exercised a powerful structuring presence in American environmental policy since the upsurge of environmental concern fifty years ago. Private property and federalism inconspicuously have shaped the unusual development of environmental support and opposition, reshaping environmental protection from a nearly bipartisan issue in the late 1960s into

tal policy in Canada is one of collaborative federalism," concluded territorial official William R. MacKay in "Canadian Federalism and the Environment: The Literature," *Georgetown International Environmental Law Review* 17, no. 1 (Fall 2004): 38.

133. Kathryn Harrison, "Is Cooperation the Answer? Canadian Environmental Enforcement in Comparative Context," *Journal of Policy Analysis and Management* 14, no. 2 (Spring 1995): 221–44.

134. George Perkins Marsh, *Man and Nature, or Physical Geography as Modified by Human Action* (London: Sampson Low, Son and Marston, 1864); Samuel P. Hays, *Conservation and the Gospel of Efficiency: The Progressive Conservation Movement, 1890–1920* (Cambridge, MA: Harvard University Press, 1959); Thomas R. Cox, Robert S. Maxwell, Phillip Drennon Thomas, Joseph J. Malone, *This Well-Wooded Land: Americans and Their Forests from Colonial Times to the Present* (Lincoln: University of Nebraska Press, 1985); Kimberly K. Smith, *The Conservation Constitution: The Conservation Movement and Constitutional Change, 1870–1930* (Lawrence: University Press of Kansas, 2019), 72–78.

135. Vogel, *California Greenin'*, 22–27, 50–62.

136. Gail E. H. Evans, "Storm over Niagara: A Catalyst in Reshaping Government in the United States and Canada during the Progressive Era," *Natural Resources Journal* 32, no. 1 (Winter 1992): 27–54; Karl Jacoby, *Crimes Against Nature: Squatters, Poachers, Thieves, and the Hidden History of American Conservation* (Berkeley: University of California Press, 2001), 11–17; Philip G. Terrie, *Contested Terrain: A New History of Nature and People in the Adirondacks* (Syracuse, NY: Syracuse University Press, 2008).

137. Ney C. Landrum, *The State Park Movement in America: A Critical Review* (Columbia: University of Missouri Press, 2013), 36–37.

138. Evans, "Storm over Niagara."

https://doi.org/10.1017/S0898588X20000024 Published online by Cambridge University Press

one of the most bitter cleavages separating Democrats and Republicans today.[139]

In the 1970s, Congress enacted very stringent national environmental standards in response to surging popular demands for environmental protection and frustration with the states.[140] Efforts to leverage better voluntary state performance and interstate cooperation had failed by the late 1960s.[141] Federal legislators then conceded that there was no practical alternative to state administration of environmental laws, and they emphasized that that very stringent national standards were necessary to override states' competitive incentives to overlook pollution.[142] Advocates of the Clean Air Act amendments of 1970 acknowledged that interstate competition compelled strong national limitations on pollution:

> Some industries object to national standards because of their belief that State regulations can more easily tailor the situation to local industry needs. But if we do not have national standards, we find what has happened is that States begin to bid against each other to attract polluting industries. A State says, "We will be easier on you if you come into our area." Or the industry will say, "If you enforce this standard against us, we will move our industry into another State." So I say it is not fair to those States who are trying to do something about pollution to allow such lowering of standards to attract polluting industries into other States, so I think the national standard is an excellent approach.[143]

U.S. Representative Harley Staggers (D-WV), the floor manager of the bill, explained that "the Federal Government sets the standards, we tell the States what they must do and what standards they must meet." When others questioned the strictness of these standards, Staggers responded that "this is a very strong bill, as strong as it could be made at the present time" and anticipated "more stringent laws and standards and requirements" in the future.[144]

These laws layered strict national standards atop long accustomed, deeply rooted state management of the privatized environment. State and local governments retained authority over their internal nonfederal landscape and the pollution that originated from it. The states created their own environmental protection agencies to administer these laws. Today, the states administer 90 percent of the EPA's major regulatory programs. The states have issued most environmental permits and undertake a large majority of all environmental enforcement actions.[145]

Some of the states, already environmental leaders before the 1970s, met or surpassed federal policymakers' expectations. Strong public support for environmental protection can overcome opposition to environmental regulations in these states.[146] California implemented statewide policies to deal with air pollution and other environmental problems much earlier than other states and is now a global leader in climate change policy.[147] California has the economic strength and strong incentives to prioritize environmental protection and clean energy. California also has public support for environmental protection; half of Californians believe that climate change would harm them personally, a higher percentage than in any other state except Hawaii.[148] A minority of other states have also acted on climate change. By 2020, fifteen states required greenhouse gas reductions.[149] Ten states have carbon pricing programs that cap emissions but allow trading of pollution rights.

139. James Morton Turner, *The Republican Reversal: Conservatives and the Environment from Nixon to Trump* (Cambridge, MA: Harvard University Press, 2018); David A. Hopkins, *Red Fighting Blue: How Geography and Electoral Rules Polarize American Politics* (Cambridge, UK: Cambridge University Press, 2017).

140. Andrews, *Managing the Environment, Managing Ourselves*, 201–54.

141. *Congressional Record*, June 10, 1970, 116, pt. 14: 19204–19205 and September 21, 1970, 116, pt. 35: 32901; President Richard Nixon, "Special Message to the Congress on Environmental Quality," February 10, 1970, at The American Presidency Project, accessed July 15, 2019, https://www.presidency.ucsb.edu/node/240088.

142. *Congressional Record*, June 10, 1970, 116, pt. 14: 19204–19213 (House debate) and September 21, 1970, 116, pt. 35: 32900–32919 (Senate debate); John P. Dwyer, "The Practice of Federalism Under the Clean Air Act," *Maryland Law Review* 54 (1995): 1195.

143. Representative L. Richardson Preyer (D-NC), *Congressional Record*, June 10, 1970, 116, pt. 14: 19213.

144. Representative Harley Staggers, *Congressional Record*, June 10, 1970, 116, pt. 14: 19204–19205.

145. Neal D. Woods, "Primacy Implementation of Environmental Policy in the U.S. States," *Publius: The Journal of Federalism*, 36, no. 2 (Spring 2006): 259–76; Barry G. Rabe, "Power to the States: The Promise and Pitfalls of Decentralization," in *Environmental Policy: New Directions for the Twenty-First Century*, ed. Norman J. Vig and Michael E. Kraft (Washington, DC: CQ Press, 2006), 35–36; David M. Konisky and Neal D. Woods, "Environmental Policy, Federalism, and the Obama Presidency," *Publius: The Journal of Federalism* 46, no. 3 (Summer 2016): 366–91.

146. Matthew Potoski, "Clean Air Federalism: Do States Race to the Bottom?" *Public Administration Review* 61, no. 3 (2001): 335–42.

147. Vogel, *California Greenin'*; John S. Kiernan, "Greenest States," *Wallet Hub*, April 15, 2019, accessed June 13, 2019, https://wallethub.com/edu/greenest-states/11987/; Regional Greenhouse Gas Initiative, "Welcome," accessed January 13, 2018, http://www.rggi.org/home; Barry G. Rabe, *Statehouse and Greenhouse: The Emerging Politics of American Climate Change Policy* (Washington, DC: Brookings Institution, 2004) and "Contested Federalism and American Climate Policy," *Publius: The Journal of Federalism* 41, no. 3 (Summer 2011): 494–521.

148. Jennifer Marlon, Peter Howe, Matto Mildenberger, Anthony Leiserowitz, and Xinran Wang, *Yale Climate Opinion Maps 2019*, accessed April 25, 2020, https://climatecommunication.yale.edu/visualizations-data/ycom-us/.

149. Center for Climate and Energy Solutions, "Policy Hub: State," accessed January 11, 2020, http://www.c2es.org/us-states-regions#states; National Conference of State Legislators. "Energy," accessed January 11, 2020, http://www.ncsl.org/research/energy.aspx.

https://doi.org/10.1017/S0898588X20000024 Published online by Cambridge University Press

Some of the states have formed regional blocs, such as the Regional Greenhouse Gas Initiative (RGGI), to limit carbon emissions.[150]

Once stringent regulations began to bite private interests, however, opponents began to mobilize to challenge, fragment, and slow these stringent environmental rules. Some state and local officials began to resist this environmental responsibility almost immediately after fully understanding the way powerful constituents would resent the actions necessary to put them into effect. For example, when even politically liberal Massachusetts developed its plan for implementing the Clean Air Act, the state legislature enacted a bill put forward by industry lobbyists that softened the plan. Acutely aware of interstate competition, North Carolina's legislature did the same after one state legislative house passed a bill to prevent state environmental laws from being more stringent than those of any other state.[151] "Political pressure and conflict" in this case flowed "to wherever administrative discretion exists in the regulatory process," as political scientist Walter Rosenbaum observed.[152]

Those interests accustomed to insignificant interference with their control of the environment mobilized against these initiatives and enjoyed success in a number of states.[153] Opposition to stringent environmental rules eventually drew together ideological conservatives, powerful industries (including chemicals, oil, coal, electrical utilities, and construction), developers, small businesses, farmers, and ranchers. Individual corporations upgraded their lobbying efforts. The U.S. Chamber of Commerce, the National Federation of Independent Business, the American Farm Bureau Federation, and trade associations struck back at all levels of government. Well-funded conservative organizations emerged to challenge the premises of regulation, including the Heritage Foundation, the Cato Institute, Citizens for a Sound Economy (precursor to Americans for Prosperity), the American Legislative Exchange Council (ALEC), the State Policy Network, the Manhattan Institute, and the Heartland Institute.[154]

By empowering regional opposition to national control of economic assets, the U.S. Constitution provides opponents of stringent environmental regulation considerable power in regions of states with valuable mineral and fossil fuel resources (such as Wyoming, Oklahoma, and West Virginia), as well as those with agricultural, grazing, and forest resources in the South and the Plains. States have a strong reason to protect existing rules for these activities because these resources benefit state government through taxes, royalties, and economic prosperity. In all, thirty-four state governments materially benefit from severance taxes or fees on the extraction of oil and natural gas. As many as twelve million Americans receive royalties from the extraction of resources from private property.[155]

Shaped by deeply embedded institutions, environmental protection has become regionally polarized. Regions of states with a predominant stake in fossil fuels or that historically oppose federal regulation—with the support of conservative organizations such as ALEC and Americans for Prosperity—became geographical warriors defying environmental rules.[156] Conservative Republican state attorneys general,

150. Regional Greenhouse Gas Initiative, "Welcome."

151. Marc J. Roberts and Susan O. Farrell, "The Political Economy of Implementation: The Clean Air Act and Stationary Sources," in *Approaches Controlling Air Pollution*, ed. Ann Friedlaender (Cambridge, MA: MIT Press, 1978), 158–60; U.S. General Accounting Office, *Assessment of Federal and State Enforcement for Control of Air Pollution from Stationary Sources* (Washington, DC: GPO, 1973).

152. Rosenbaum, *Environmental Politics and Policy*, 196.

153. U.S. Congress, House Committee on Interstate and Foreign Commerce, *Clean Air Amendments of 1970*, House Report 91–1146 (Washington, DC: GPO, 1970); Charles O. Jones, *Clean Air: The Policies and Politics of Pollution Control* (Pittsburgh, PA: University of Pittsburgh Press, 1975), 175–210; Matthew Crenson, *The Un-Politics of Air Pollution: A Study of Non-Decisionmaking in the Cities* (Baltimore, MD: Johns Hopkins University Press, 1971), 35–82; Richard B. Stewart, "Pyramids of Sacrifice? Problems of Federalism in Mandating State Implementation of National Environmental Policy," *Yale Law Review* 86, no. 6 (May 1977): 1196 ff; R. Shep Melnick, *Regulation and the Courts: The Case of the Clean Air Act* (Washington, DC: Brookings Institution, 1983).

154. Lee Drutman, *The Business of America is Lobbying: How Corporations Became Politicized and Politics Became More Corporate* (New York: Oxford University Press, 2015); Jason Stahl, *Right Moves: The Conservative Think Tank in American Political Culture Since 1945* (Chapel Hill: University of North Carolina Press, 2016), 72–73; Peter J. Jacques, Riley E. Dunlap, and Mark Freeman, "The Organisation of Denial: Conservative Think Tanks and Environmental Skepticism," *Environmental Politics* 17, no. 3 (2008): 349–85. See also Jacqueline Vaughn Switzer, *Green Backlash: The History and Politics of the Environmental Opposition in the U.S.* (Boulder, CO: Lynne Rienner, 1997); Judith A. Layzer, *Open for Business: Conservatives' Opposition to Environmental Regulation* (Cambridge, MA: MIT Press, 2012), 31–81.

155. National Conference of State Legislatures, "State Oil and Gas Severance Taxes," accessed January 11, 2020, http://www.ncsl.org/research/energy/oil-and-gas-severance-taxes.aspx; Adele C. Morris, "The Challenge of State Reliance on Revenue from Fossil Fuel Production" (Climate and Energy Economics Discussion Paper, Brookings Institution, Washington, DC, August 9, 2016); Barry G. Rabe, "Racing to the Top, the Bottom, or the Middle of the Pack? The Evolving State Role in Environmental Protection," in *Environmental Policy: New Directions for the Twenty-First Century*, ed. Norman J. Vig and Michael E. Kraft, 9th ed. (Washington, DC: CQ Press, 2015), 33–57; Marie Cusick and Amy Sisk, "Millions Own Gas and Oil Under Their Land. Here's Why Only Some Strike It Rich," *National Public Radio*, March 15, 2018, accessed January 11, 2020, https://www.npr.org/2018/03/15/592890524/millions-own-gas-and-oil-under-their-land-heres-why-only-some-strike-it-rich.

156. J. B. Wogan, "Scott Pruitt, America's Sue-Happy AG," *Governing*, September 2015, accessed January 10, 2016, http://www.governing.com/topics/politics/gov-oklahoma-scott-pruit-feature.html; Timothy Cama, "27 States Challenge Obama Water Rule in Court," *The Hill*, June 30, 2015, accessed March 16, 2019, http://thehill.com/policy/energy-environment/246539-27-states-challenge-obama-water-rule-in-court; Alex Hertel-Fernandez, *State Capture: How Conservative Activists, Big Businesses, and Wealthy Donors Reshaped the American States—and the Nation* (Oxford, UK: Oxford University Press, 2019); Plumer, "Blue States Roll Out Aggressive Climate Strategies."

https://doi.org/10.1017/S0898588X20000024 Published online by Cambridge University Press

such as Scott Pruitt of Oklahoma, worked together to sue the federal government over air pollution, water pollution, and endangered species, using "states' rights" to block federal environmental laws or enforcement within their borders.

American climate change policy became deeply polarized as opponents of environmental regulation helped make these states a bastion of resistance to restrictions on fossil fuels. Barry Rabe, a leading environmental policy scholar, sees "a tale of two climate nations," a division that became wider and wider.[157] Shifts in environmental policy polarization in the presidency and Congress reflect shifts in the state-based coalition of each political party.[158] Opponents took advantage of familiar tactics to slow or kill proposals in the legislative process, or to outspend proponents in initiative elections.

The Obama administration proposed strict federal regulations on electric power plant emissions with the Clean Power Plan, but by early 2016, it had generated more legal activity than any environmental initiative in American history. Twenty-nine states and state agencies had joined these lawsuits; most of these states benefited from oil and gas severance taxes, were almost entirely led by Republican state officials, and were joined by a host of energy and other business groups.[159] All but one of these twenty-nine states (New Jersey) voted for Republican candidate Donald Trump in the 2016 presidential election. Republican U.S. Senate Majority Leader Senator Mitch McConnell (R-KY), publicly urged states to defy this U.S. government regulation.[160] But state officials on the other side of the partisan divide used federalism just as vigorously. Eighteen states and Washington, DC, mostly led by Democratic officials, filed suit in defense of the Clean Power Plan. Several environmental interest groups and cities joined them.[161]

Differences between Canada and the United States show why deeply rooted political institutions are necessary for understanding the shift in American environmental policy. Political pressures in favor of environmental regulation have faced lower hurdles in Canadian federalism. Canadian provinces have a larger set of policy tools, and it is easier to negotiate a measure of provincial and federal government cooperation. Canada sets narrower limits on private control of land. Canadian provinces exercise more control over natural resources on and beneath the soil. Canadian federalism has reduced interprovincial economic competition, weakening the opposition to environmental protection and strengthening interprovincial cooperation.

These institutional factors give those who control natural resources in the United States a federal system they can more easily manipulate for their advantage. The polarization of public opinion on climate change itself does not drive the divergence in action on climate change. In 2016, the Yale Program on Climate Change Communication reported that U.S. state and Canadian provincial public opinion varied on very similar statements about whether humans are mostly the cause of global warming. The national average of Canadians agreeing with this statement, 43 percent, was considerably lower than the U.S. average of 53 percent, yet U.S. policy lags behind Canadian policy. Comparing the two most prominent oil-producing jurisdictions in each country, 53 percent agreed with the statement in Texas but only 28 percent agreed in Alberta. California was the most supportive American state (59 percent), while Quebec, with a quarter of the Canadian population, was nearly as supportive as California (53 percent).[162] About half of Americans who

157. "The split has become much more pronounced in recent years," quoted in Plumer, "Blue States Roll Out Aggressive Climate Strategies."

158. Michael G. Faure and Norman J. Vig, "Conclusion: The Necessary Dialogue," in *Green Giants? Environmental Policies of the United States and the European Union*, ed. Norman J. Vig and Michael Faure (Cambridge, MA: MIT Press, 2004), 347–75. Compare to Hopkins, *Red Fighting Blue*.

159. National Federation of Independent Business, "NFIB's Clean Power Plan Rule Lawsuit Explained," December 8, 2015, accessed March 7, 2019, https://www.nfib.com/content/legal-blog/legal/nfibs-clean-power-plan-rule-lawsuit-explained-72041/.

160. Mitch McConnell, "States Should Reject Obama Mandate for Clean-Power Regulations," *Lexington Herald-Leader*, March 3, 2015, accessed March 16, 2019, http://www.kentucky.com/opinion/op-ed/article44558769.html; Coral Davenport, "McConnell Urges States to Defy U.S. Plan to Cut Greenhouse Gases," *New York Times*, March 4, 2015, accessed March 16, 2019, http://www.nytimes.com/2015/03/05/us/politics/mcconnell-urges-states-to-defy-us-plan-to-cut-greenhouse-gas.html.

161. Jocelyn Durkay, "States' Reactions to EPA Greenhouse Gas Emissions Standards," National Conference of State Legislatures, February 22, 2016, accessed March 16, 2019, http://www.ncsl.org/research/energy/states-reactions-to-proposed-epa-greenhouse-gas-emissions-standards635333237.aspx; "Legal Challenges—Overview & Documents," *E&E News*, accessed March 16, 2019, http://www.eenews.net/interactive/clean_power_plan/fact_sheets/legal; Michael Biesecker, "More Than 200 Members of Congress Are Backing a Court Challenge to President Barack Obama's Plan to Curtail Greenhouse Gas Emissions," *Associated Press*, February 23, 2016, accessed March 2, 2016, http://bigstory.ap.org/article/6e8688d4caea493085e8760610b9cb90/congress-backs-court-challenge-obamas-climate-plan; Elizabeth Daigneau, "Hoping for the Success They Had Against Tobacco, State AGs Unite to Fight Climate Change," *Governing*, October 2016, accessed March 16, 2019, http://www.governing.com/templates/gov_print_article?id=394976891.

162. The statements polled were "Earth is getting warmer mostly because of human activities" (Canada) and "Global warming is caused mostly by human activities" (U.S.). in Matto Mildenberger, Peter Howe, Erick Lachapelle, Jennifer Marlon, Anthony Leiserowitz, and Leah Stokes, *Yale Climate Opinion Maps—Canada, February 15, 2016*, accessed April 25, 2020, https://climatecommunication.yale.edu/visualizations-data/ycom-canada/; and Yale Climate Opinion Maps—U.S. 2016, accessed August 6, 2019, https://climatecommunication.yale.edu/visualizations-data/ycom-us-2016/?est=human&type=value&geo=county.

https://doi.org/10.1017/S0898588X20000024 Published online by Cambridge University Press

identify with the Republican Party support limiting greenhouse gas emissions, while about three-quarters of Canadian Conservatives support such limits.[163]

Institutions are necessary to explain why provinces controlled by Canada's major right-of-center party, the Conservative Party, commit to action to reduce greenhouse gases, while the U.S. Republicans officially deny the existence of the problem.[164] The four most populous provinces—Ontario, Quebec, British Columbia, and Alberta, with more than 80 percent of the Canadian population—all initiated a carbon tax or cap-and-trade system before 2016, when Canada ratified the Paris Climate Agreement. Alberta elected a New Democratic Party majority in the provincial legislature in 2015, and it enacted a carbon tax. The Canadian Liberal government negotiated an implementation plan with provincial leaders, and together these leaders issued a Pan-Canadian Framework on Clean Growth and Climate Change in 2016 (only Saskatchewan declined to sign).[165] This framework agreement provided that provinces would implement a carbon tax, or that a federal carbon tax would be imposed if they did not (some provinces have challenged the constitutionality of the carbon tax in court).[166]

Changes in partisan control of government have brought about striking shifts in environmental and climate policy in Canada as well as the United States.[167] But the geographical and ideological base of the American Republican Party is much more strongly opposed to climate change policy than the Canadian Conservative Party. When Conservatives won back power in Alberta and repealed the provincial carbon tax, they promised to impose regulations on the largest emitters in the province. In the run-up to the 2019 Canadian national elections, the Conservatives acknowledged the fact of human-caused climate change, affirmed a commitment to meeting targets of the Paris Agreement and listed steps they would take to meet those targets.[168] In contrast, the 2016 U.S. Republican Party's national platform clearly stated: "We reject the agendas of both the Kyoto Protocol and the Paris Agreement" and the "United Nations' Intergovernmental Panel on Climate Change is a political mechanism, not an unbiased scientific institution."[169]

Unlike some Canadian provinces, no American state had enacted a carbon tax by 2019. Efforts to enact a carbon tax have been stymied by state legislatures, proponents' divisions, and a well-funded opposition by fossil fuel enterprises. Washington state proponents fashioned a measure based on neighboring British Columbia's carbon tax, but it was defeated in an initiative election. In 2018, national fossil fuel interests helped defeat another Washington state carbon tax initiative, targeting a $32 million campaign on the voters in this one state.[170]

The deeply rooted institutions of broad private-property rights and competitive federalism are necessary to explain the American shift from environmental leader to laggard, but it is important to remember that these structuring factors work in tandem with other more conspicuous factors, most notably political polarization. The large size of the American population and economy greatly complicates political action in the United States. Most environmental problems can be contained within one province in Canada, which has only one major metropolitan area that spans provincial boundaries; in the United States, many such metropolitan areas have intensified interstate conflict and competition. Fewer subnational governments (ten provinces and three territories) simplifies Canadian harmonization, though Quebec, a province with a distinct cultural identity, makes cooperation more difficult. The parliamentary systems at the provincial and federal level focus

163. Pew Research Center, "The U.S. Isn't the Only Nation with Big Partisan Divides on Climate Change," accessed August 6, 2019, http://www.pewresearch.org/fact-tank/2015/11/06/the-u-s-isnt-the-only-nation-with-big-partisan-divides-on-climate-change/.

164. Kathryn Harrison, "The Struggle of Ideas and Self-Interest in Canadian Climate Policy," in *Global Commons, Domestic Decisions: The Comparative Politics of Climate Change*, ed. Kathryn Harrison and Lisa McIntosh Sundstrom (Cambridge, MA: MIT Press, 2010), 175.

165. Government of Canada, *Pan-Canadian Framework on Clean Growth and Climate Change*.

166. Kathryn Harrison, "The Almost-Consensual Pan-Canadian Climate Plan Has Unravelled in Just Two Years: Why Is Meaningful Action on Carbon Pricing So Hard in Canada?" *Policy Options*, July 8, 2019, accessed July 25, 2019, https://policyoptions.irpp.org/magazines/july-2019/the-fleeting-canadian-harmony-on-carbon-pricing/.

167. Kathryn Harrison, "Environmental Policy: Climate Change," in *The United States and Canada: How Two Democracies Differ and How It Matters*, ed. Paul J. Quirk (Oxford, UK: Oxford University Press, 2019), 196–218.

168. Canadian Conservative Party, *A Real Plan to Protect Our Environment* (June 2019), accessed July 23, 2019, https://assets.documentcloud.org/documents/6162205/A-Real-Plan.pdf; John Paul Tasker, "Andrew Scheer Unveils Climate Plan Promising 'Green Technology, Not Taxes,'" *CBC*, June 19, 2019, accessed July 23, 2019, https://www.cbc.ca/news/politics/andrew-scheer-climate-plan-1.5181826. After the national elections of 2019, the conservative government of Alberta submitted an acceptable plan for fees on emissions from large industrial concerns; "Ottawa Accepts Alberta's New $30-per-Tonne Carbon Plan for Large Emitters in 2020," *CBC*, December 9, 2019, accessed January 12, 2020, https://www.cbc.ca/news/canada/calgary/ottawa-accepts-alberta-tier-plan-carbon-pricing-1.5386955.

169. *Republican Platform 2016*, 22, accessed July 24, 2019, https://prod-cdn-static.gop.com/media/documents/DRAFT_12_FINAL%5B1%5D-ben_1468872234.pdf.

170. Janet E. Milne, "Carbon Tax Choices: The Tale of Four States," in *The Green Market Transition: Carbon Taxes, Energy Subsidies and Smart Energy Mixes*, ed. Stefan E. Weishaar, Larry Kreiser, Janet E. Milne, Hope Ashiabor, and Michael Mehling (Cheltenham, UK: Edward Elgar 2017), 3–17; "No On 1631 (Sponsored by Western States Petroleum Assn), 2018," Washington State Public Disclosure Commission, accessed August 18, 2019, https://www.pdc.wa.gov/browse/campaign-explorer/committee?filer_id=NO1631%20507&election_year=2018.

https://doi.org/10.1017/S0898588X20000024 Published online by Cambridge University Press

policy responsibility more clearly than the American separation of powers, although parliamentary government does not preclude "passing the buck" from one level of government to another. Parliamentary government allows for moments of larger-scale policy change in more conservative provinces. For example, the Social Democratic Party won power in Alberta in 2015 and implemented a carbon tax (repealed by its Conservative successor elected in 2019).[171]

11. CONCLUSION

What brought about the striking American environmental policy shift from leader to laggard over the past half-century? The answer must take into account the entwined institutions of American private property and federalism. The populated, arable American environment—most of the apparently valuable country in the early American republic—was organized and conveyed to private owners who would employ their land and natural resources at will. The colonies-turned-states nurtured this private-property regime. Between 1776 and 1787, Congress acceded to state governance of the environment. The Constitution not only cemented these institutional arrangements in place, but also increased states' motivation to compete for exploiting natural resources. For two hundred years, American institutions have strongly fortified the control of those who profit from the American environment, even as the nation transformed from an agricultural nation in the founding era to an urban, industrialized nation today. The environmental regulations in the 1960s and 1970s marked an unprecedented challenge to these broad prerogatives long enjoyed by environmental owners and users and the states that governed them. These owners sparked broad, strong political reactions against restrictions on the right to manage privatized land and natural resources. Institutional differences are necessary to understand why this opposition has proven more successful in the United States than in Canada, a nation very similar to the United States but with different institutional arrangements.

Demands for stronger limitations on the exploitation of the environment will intensify, not subside. But those making these demands cannot simply force stringent regulations into law and expect durable results. Nor can they achieve large-scale, lasting solutions without changing the institutions that underlie political polarization and other symptoms of incessant environmental conflict. Changes in the basics of environmental governance require adaptation of the institutions that structure and sustain these policies. Institutional reforms have to reach the structural incentives that shape American land use, federalism, and environmental policy. Certainly, better strategies for mitigating climate change require more voices and better voices. But to make durable changes in environmental outcomes, reformers must change the institutional battlefield on which environmental policy battles are being fought.

171. Olewiler, "Environmental Policy in Canada"; Kathryn Harrison, *Passing the Buck: Federalism and Canadian Environmental Policy* (Vancouver: University of British Columbia Press, 1996); Michelle Bellefontaine, "Contentious Carbon Tax Bill Passed by Alberta Legislature," *CBC*, June 7, 2016, accessed February 3, 2018, http://www.cbc.ca/news/canada/edmonton/contentious-carbon-tax-bill-passed-by-alberta-legislature-1.3620582.

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