

# WHAT IS NATURAL RESOURCES LAW?

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## INTRODUCTION

Natural resources law is a field with divided loyalties. It has one foot in statutory, administrative law and the other in common law property. Within the ambit of environmental concerns, management of natural resources looms large. It can justifiably claim an important role in any course of study in environmental law. Similarly, any advanced property curriculum ought to consider the myriad forms of rights and allocative schemes in natural resources law. Yet, many practitioners and professors identify themselves as specialists in the field of natural resources, rather than in a natural resources subspecialty of environmental or property law. Indeed, this analysis began as a contribution to a panel discussion sponsored by the natural resources law section, which is separate from the environmental law section, of the Association of American Law Schools.

This article examines where and how we draw the boundaries between natural resources law and other fields, especially environmental law. The spate of new casebooks presents an occasion to reflect on how we define natural resources law, what its distinctive characteristics are, and where the field is heading. This article discusses the approaches of the existing natural resources casebooks, with an eye toward understanding what the teaching materials say about the scope of the field. Casebooks play a constitutive role in most subjects and

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\* Professor, Indiana University School of Law—Bloomington. I am grateful to Michael Blumm both for organizing the AALS panel on the new generation of natural resources law casebooks and for inviting me to participate. Comments from Dale Goble, Shi-Ling Hsu, Sarah Krakoff, and John Leschy challenged and tightened my thinking. Thanks to Lindsay Watkins for administering and interpreting the survey of natural resources law teachers, and to Dan Burns and Mark Rohr for assisting my research. Lara Gose's secretarial support also contributed to this article. In between the time that I initially submitted this manuscript and its publication I developed a conflict of interest: co-authorship of the next edition of one of the principal casebooks discussed herein.

new ones deserve scrutiny as indicators of trends. This is particularly true when the field generates a surge of three new casebooks in a two-year span, some twenty-five years after the last new materials appeared in print.

I prefer to use the term "environmental law" broadly to describe the subject encompassing both pollution control and resource management.<sup>1</sup> But, in deference to the common usage in law school course titles, in this article I will use "environmental law" to mean the topics considered in environmental law classes, which typically focus on pollution control statutes implemented by the Environmental Protection Agency. Nevertheless, the published teaching materials as well as my informal poll show a substantial overlap between natural resources and environmental law classes. Most notably, both courses typically cover environmental impact analysis and endangered species protection.

The new casebooks widen the common ground between the two allied fields. This is good for overcoming the reductionist boundaries of the law in recognition of nature's seamlessness. However, it raises concerns about the continued viability of natural resources law as a separate field. The major question I seek to answer is why natural resources should be taught as its own course. Is it merely an elaboration of environmental law or property? Is its place in the curriculum an advanced seminar expanding on themes already covered in a basic class?

Originally, natural resources law *was* a variation on the property law course. The most striking change in natural resources law in the past half-century has been the rising dominance of administrative implementation. Whereas once mining, logging, and even road-building were merely matters of perfecting the appropriate property rights, today agencies play a crucial role in conditioning resource use. Administrative resolution of conflicting claims to a resource is vastly more important today than judicial determination of property rights. A central lesson for prospective attorneys in natural resources law is the critical importance of effective advocacy before administrative agencies.

For instance, public land rights-of-way that used to be ac-

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1. See, e.g., Robert L. Fischman, *The Problem of Statutory Detail in National Park Establishment Legislation and its Relationship to Pollution Control Law*, 74 DENV. U. L. REV. 779, 784-85 (1997).

quired by use under R.S. 2477<sup>2</sup> are now defined by the terms of administrative permits, subject to several pages of regulations defining the purpose, scope, and conditions of easements.<sup>3</sup> Even the old R.S. 2477 claims that predate the administrative system of permits now suffer the indignity of administrative procedures under the Federal Land Policy & Management Act's recordable disclaimer provision.<sup>4</sup> Burgeoning rulemakings, agency manuals (many more sections of which now go through notice and comment before final promulgation than did in the 1960s and 1970s), and permits mean that students seeking to understand natural resources law must first grapple with administrative law.

In this article, I make the case for the stand-alone course in natural resources law as offering something unique to students because its vitality as a field is fundamentally different in important respects from property or environmental law. Along the way I hope to clarify what constitutes natural resources law and why it is as important as the more commonly taught subject, environmental law. Section I describes the existing casebooks and their pedigree. The books are far more alike in their materials, scope, and approach than they are different. The vast overlap permits useful generalizations. For instance, federalism, basic administrative law, statutory/regulatory interpretation, constitutional takings, and environmental impact analysis are important to natural resources teaching, even though these subjects are also taught in environmental law. Still, issues related to public land management remain at the core of what makes natural resources law distinctive from environmental law, even in the casebooks covering private resources management. Section I also reviews the differences between the two new casebooks and evaluates their respective strengths.

Section II seeks to explain what is distinctive about modern natural resources law that makes it more than just a variation on an environmental law class. It describes four attributes that justify separate pedagogical treatment of natural re-

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2. An Act Granting the Right of Way to Ditch and Canal Owners over the Public Lands, and for Other Purposes, ch. 262, 14 Stat. 251, 253 (1866) (repealed 1976).

3. *E.g.*, Access to Non-Federal Lands, 36 C.F.R. §§ 251.110–.114 (2006).

4. 43 U.S.C. § 1745 (2000); Conveyances, Disclaimers and Correction Documents, 68 Fed. Reg. 494 (Jan. 6, 2003) (codified at 43 C.F.R. pt. 1860).

sources law as an independent course in law schools. First, the *in situ* character of extractive activities that dominate natural resources law raises special problems and generates place-based approaches to governance. Second, the deeper roots of natural resources law present particularly vexing interpretive issues for applying the old statutes, deeds, and doctrines to contemporary conflicts. Third, ecosystem management is central to natural resources law problems. Fourth, despite the now-paramount importance of administrative tools, natural resources law still displays a broader array of property interests that go beyond the variations studied in the first-year property class.

The article concludes with some general musings about line-drawing between law school subjects and about what is essential to natural resources law.

## I. THE NATURAL RESOURCES LAW CASEBOOKS

The emergence of natural resources law as a distinct field of study began with Clyde O. Martz's original 1951 West casebook.<sup>5</sup> It viewed natural resources law from a decidedly private property, allocative perspective. Almost all of the Martz materials concerned acquisition of property interests in water, minerals, and public lands. A few chapters addressed obligations of miners to surface and adjacent landowners, waste prevention in oil/gas development, and reclamation. The bulk of the book examined the definitions of rights, their scope, means of extracting profit, and liabilities related to use.

The subsequent casebook by the University of Wyoming gang led by Frank Trelease explicitly followed ("succeeded") the Martz approach.<sup>6</sup> Though there remain casebooks and courses that hew to this tradition,<sup>7</sup> most natural resources teaching merged into the environmental law revolution of the 1970s. This development spurred what Michael Blumm calls the "sec-

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5. CLYDE O. MARTZ, CASES AND MATERIALS ON THE LAW OF NATURAL RESOURCES (1951).

6. FRANK J. TRELEASE, HAROLD S. BLOOMENTHAL & JOSEPH R. GERAUD, CASES AND MATERIALS ON NATURAL RESOURCES ix (1965). In recognition of the collaboration among all the authors of each casebook, I include all of their names in the citations. In the interest of readability, I dispense with the "et al." when referring to the casebooks in the text.

7. See, e.g., BARLOW BURKE, NATURAL RESOURCES CASES AND MATERIALS (1998).

ond generation" of casebooks that assembled an enormous scope of legal issues into a single schema.<sup>8</sup> The diversity of topics, from regulation of billboards, to energy utilities, to pollution control, made natural resources law less distinct from environmental law. The expansive scope responded to the increased government regulation of natural resource extraction, use, and disposal in order to safeguard public health and ecological values. The second-generation books suggested a congruent legal framework that blurred the line between the fields.<sup>9</sup> This was a development that Martz, in particular, deplored.<sup>10</sup>

The genius of the Coggins and Wilkinson (and, later, Leshy) casebook ("Coggins"), which made its debut in 1981 and is currently on its fifth edition (2002),<sup>11</sup> was to embrace the environmental disputes on the cutting edge of natural resources law but carve out a separate field of study revolving around publicly owned resources.<sup>12</sup> This provided a comfortable margin of difference between the material in environmental law, which focused on the public regulation of private property, and the public natural resources class, which focused on public management and private claims on federal (and, to a lesser degree, state and tribal) property.

To some extent, the public-private divide is illusory.<sup>13</sup> As Professor Joseph Sax observed, the real issue is public control,

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8. JAN LAITOS, *NATURAL RESOURCES LAW* (1985); ARNOLD REITZE, JR., *ENVIRONMENTAL PLANNING: LAW OF LAND AND RESOURCES* (1974); WILLIAM H. RODGERS, JR., *CASES AND MATERIALS ON ENERGY AND NATURAL RESOURCE LAW* (1st ed. 1979); WILLIAM H. RODGERS, JR., *CASES AND MATERIALS ON ENERGY AND NATURAL RESOURCE LAW* (2d ed. 1983). The Rodgers book is the only one, past or present, to use the singular "resource" rather than the plural "resources" in naming the field.

9. A contemporary example of this approach is ERIC PEARSON, *ENVIRONMENTAL AND NATURAL RESOURCES LAW* (2d ed. 2005).

10. Clyde O. Martz, *Natural Resources Law: An Historical Perspective*, in *NATURAL RESOURCES POLICY AND LAW: TRENDS AND DIRECTIONS* 21 (Lawrence J. MacDonnell & Sarah F. Bates eds., 1993) (calling the modern era a period of environmental overreach).

11. GEORGE CAMERON COGGINS, CHARLES F. WILKINSON, & JOHN D. LESHY, *FEDERAL PUBLIC LAND AND RESOURCES LAW* (5th ed. 2002).

12. A related innovation of the Coggins and Wilkinson effort was the categorization of recreation and preservation as distinct resources with their own legal framework, on par with minerals, timber, water, and range. See *id.* chs. 11–12 (recreation and preservation).

13. See Eric T. Freyfogle, *Goodbye to the Public-Private Divide*, 36 ENVTL. L. 7, 15–16, 19 (2006) (describing how private and public rights coexist in a similar way regardless of whether land is under nominal private or public title).

which the government can exert through ownership or through regulation.<sup>14</sup> Many private land uses, such as coastal development, are subject to such intensive regulation that landowners may have less security and exclusivity than public land lease or contract holders, such as miners and loggers. Even Coggins and Wilkinson recognized the permeability of their boundary by including material on private development of submerged lands and regulation of private activities under the Endangered Species Act ("ESA"). Nonetheless, the casebook offered a rule of thumb for what belongs: if it happens on public lands, it is ("public") natural resources law, if it happens elsewhere, it is environmental law.<sup>15</sup>

Over the past fifteen years, however, especially for schools that do not offer separate water law or wildlife law classes, demand has risen for casebooks that treat a wider array of resource management issues on private lands. The two new natural resources casebooks, Klein, Birdsong, and Cheever ("Klein"), and Rasband, Salzman and Squillace ("Rasband"),<sup>16</sup> both attempt to broaden the range of issues considered in the natural resources class. In particular, these casebooks stake claims for natural resources courses not tied to federal public lands.<sup>17</sup> In doing so, both books purport to defy the public-private boundary line between natural resources and environmental law. When both fields deal with regulation of private property for environmental purposes, where shall we draw the line?

The momentum of natural resource management, as it moves toward the administrative-environmental law model, has not changed significantly since the Coggins book first appeared. For instance, the regulatory instability of land and resource management planning in the National Forests now

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14. Joseph L. Sax, *The Claim for Retention of the Public Lands*, in RETHINKING THE FEDERAL LANDS 125, 147 (Sterling Brubaker ed., 1984).

15. Coggins' treatise, which originally tracked the casebook closely, emphasizes this distinction in its title, *Public Natural Resources Law*. The treatise, now co-authored with Professor Robert Glicksman, has grown to encompass far more topics, and sprawls over three volumes. GEORGE C. COGGINS & ROBERT L. GLICKSMAN, PUBLIC NATURAL RESOURCES LAW (1990).

16. CHRISTINE A. KLEIN, FEDERICO CHEEVER, & BRET C. BIRDSONG, NATURAL RESOURCES LAW: A PLACE-BASED BOOK OF PROBLEMS AND CASES (2005); JAMES RASBAND, JAMES SALZMAN & MARK SQUILLACE, NATURAL RESOURCES LAW AND POLICY (2004).

17. See, e.g., KLEIN ET AL., *supra* note 16, at 685-724; RASBAND ET AL., *supra* note 16, at 1238-54.

wanders along a similar convoluted path as the EPA's notoriously torturous rulemaking. Natural resources agencies announce, propose, withdraw, re-propose, or modify their rules with disorienting frequency.<sup>18</sup> Though the "environmentalization" of natural resources law does create a substantial overlap between the introductory environmental law class and the natural resources law class, there are significant differences. These differences continue to justify separate teaching materials, classes, and professional activities for the two fields. The current crop of natural resources casebooks illustrate how this is so. I define this current crop as the two new natural resources law casebooks, Klein and Rasband, along with the current edition of the Coggins casebook.<sup>19</sup>

### A. Commonalities

If environmental law has become "everything but public lands," then the new crop of natural resources casebooks can be said to encompass "everything but pollution control." Rather

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18. The U.S. Forest Service Land and Resources Planning rule was first promulgated in 1979 and revised in 1982. Subsequent efforts to reform the rule follow a convoluted history, including an advanced notice of proposed rulemaking in 1991; proposed rules in 1995 and 1999; a final rule in 2000; suspension of the 2000 rule in 2001; interim rules in 2001, 2002 and 2003; a new proposal in 2002 and a final promulgation in 2005. National Forest System Land Management Planning, 47 Fed. Reg. 43,026 (Sept. 30, 1982); 48 Fed. Reg. 29,122 (June 24, 1983); 48 Fed. Reg. 40,383 (Sept. 7, 1983); 56 Fed. Reg. 6,508 (Feb. 15, 1991); 60 Fed. Reg. 18,886 (1995); 70 Fed. Reg. 1023 (Jan. 5, 2003). This shows some similarity to the EPA administrative odyssey of the hazardous waste identification rule, a comprehensive review of which is still ongoing. See 45 Fed. Reg. 33,066 (May 19, 1980); 57 Fed. Reg. 7628 (Mar. 3, 1992); 64 Fed. Reg. 63,382 (Nov. 19, 1999); 66 Fed. Reg. 27,266 (May 16, 2001). See also *Shell Oil Co. v. EPA*, 950 F.2d 741 (D.C. Cir. 1991) (overturning mixture and derived-from rules on procedural grounds); *American Chemistry Council v. EPA*, 337 F.3d 1060 (D.C. Cir. 2003) (upholding rule). For background on this rulemaking, see Philip S. Comella, *HWIR: A New Era in Hazardous Waste Management?*, 26 ENVTL. L. REP. (Envtl. L. Inst.) 10304 (1996).

19. I am aware of two other books that will join this list. The first, by Jan G. Laitos, Sandra B. Zellmer, Daniel H. Cole and Mary C. Wood, is an expansion of the original Laitos concept of the 1980s. JAN G. LAITOS ET AL., *NATURAL RESOURCES LAW* (2006). The other, still under development by Eric Freyfogle, will be in the property tradition of examining the ways in which we divide up the earth and its products into controlled interests. ERIC T. FREYFOGLE, *NATURAL RESOURCES LAW: PRIVATE RIGHTS AND COLLECTIVE GOVERNANCE* (forthcoming 2007). Also, the past few years have witnessed new interest in legal issues surrounding living resources. See, e.g., DALE D. GOBLE & ERIC T. FREYFOGLE, *WILDLIFE LAW* (2002); JOHN COPELAND NAGLE & J.B. RUHL, *THE LAW OF BIODIVERSITY AND ECOSYSTEM MANAGEMENT* (2002).

than eliminate topics covered by Coggins to make room for private lands topics,<sup>20</sup> the new books condense public resources law in order to add other topics. The new books largely propagate an expansion rather than a significant redefinition of natural resources law. Therefore, the difference between the new books and Coggins is smaller than the difference between Coggins and its predecessors. Also, the similarities between the new books themselves far exceed their differences.

To set the stage for understanding the commonalities among natural resources courses, as currently taught, I conducted an informal survey of around forty natural resources law teachers. The survey indicated that everybody covers public land and wildlife issues (generally including the ESA). It is not surprising that public lands should reside at the core of the current natural resources law class, but the ESA is a bit unexpected because it also receives coverage in many environmental law courses. Some three quarters of the natural resources law teachers include NEPA, another environmental law stalwart, in their natural resources curriculum. Three-quarters also include a unit on water, on minerals/mining, and on at least one of what I call the "phyto-renewables" (grazing, timber, and agriculture).<sup>21</sup>

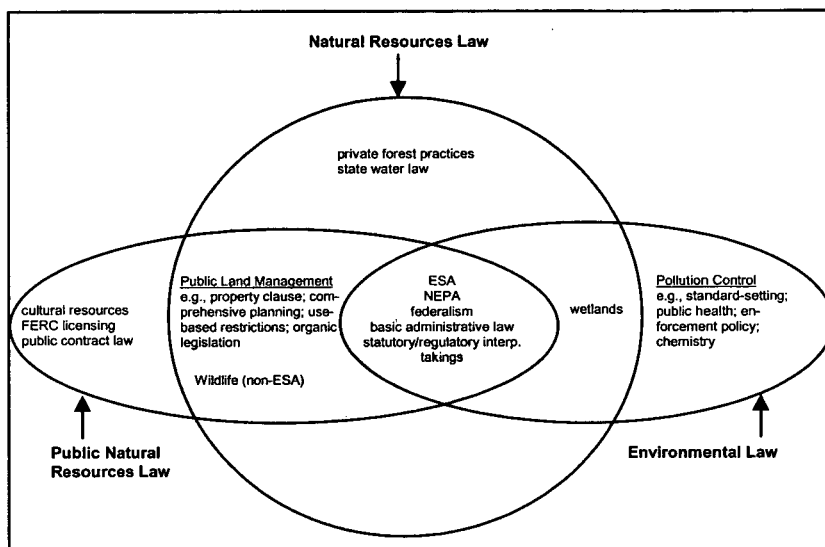
Figure 1 shows three domains representing the three principal models for conceiving the topics discussed in this article. The "Public Natural Resources Law" ellipse represents the content of the Coggins universe. The "Natural Resources Law" ellipse encompasses the commonalities of the two new casebooks. The "Environmental Law" ellipse describes the content of a typical environmental law class.

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20. The important exception to this general rule is preservation of cultural and archeological resources, covered by Coggins, but dropped by the new books. Also, of the current casebooks, only Coggins covers Federal Energy Regulatory Commission licensing of hydropower development and public contract law.

21. A minority of courses include separate units on coastal/marine management and on oil/gas law. The courses including these topics are taught at schools where the resources play an important role in the regional economy.

**Figure 1: *How Current Casebooks Define the Boundaries of the Field***



The overlap between “Public Natural Resources Law” and “Natural Resources Law” is substantial and represents the common, core content identified in my survey. The three contemporary casebooks share only thirteen principal judicial decisions (out of a total of nearly 300 different principal cases).<sup>22</sup> All but four of the decisions are key U.S. Supreme Court cases

22. In addition to the shared judicial decisions, all of the casebooks employ the Interior Board of Land Appeals administrative review of BLM grazing allotments in Comb Wash, Utah as a principal case. *National Wildlife Federation v. Bureau of Land Management*, 140 IBLA 85 (1997). The thirteen shared judicial decisions are *Public Lands Council v. Babbitt*, 529 U.S. 728 (2000); *Ohio Forestry Association v. Sierra Club*, 523 U.S. 726 (1998); *Babbitt v. Sweet Home Chapter of Communities for a Great Oregon*, 515 U.S. 687 (1995); *California Coastal Commission v. Granite Rock*, 480 U.S. 572 (1987); *United States v. Locke*, 471 U.S. 84 (1985); *Kleppe v. New Mexico*, 429 U.S. 873 (1976); *United States v. Fuller*, 409 U.S. 488 (1973); *United States v. Coleman*, 390 U.S. 599 (1968); *Illinois Central Railroad Co. v. Illinois*, 146 U.S. 387 (1892); *Sierra Club v. Marita*, 46 F.3d 606 (7th Cir. 1995); *Sierra Club v. Hodel*, 848 F.2d 1068 (10th Cir. 1988); *Minnesota ex rel. Alexander v. Block*, 660 F.2d 1240 (8th Cir. 1981); *Natural Resources Defense Council v. Hodel*, 624 F. Supp. 1045 (D. Nev. 1985). See Dale Goble's contribution to this symposium for a complete list of the 295 cases. Dale D. Goble, *E-Mail to Rebecca*, 78 U. COLO. L. REV. 695, 708–15 (2007).

and all but two involve federal public land disputes.<sup>23</sup> The dominance of public land cases reflects the central intersection of all the current casebooks.

The Venn diagram in Figure 1 shows that public land management and wildlife conservation are the principal topics that distinguish all natural resources classes from their environmental law brethren. Key issues covered in this large zone of overlap revolve around the hallmarks of organic acts (such as comprehensive resource planning, use-based restrictions on public lands, and the substantive management criteria for public land activities).<sup>24</sup> All of the casebooks have excellent, substantively engaging, and detailed materials on public land management. Each book dedicates a chapter each to focus on water, range, minerals, wildlife, and forests as particular resources of concern. Each book highlights current trends in public resource administration.

Wetlands regulation, private forest use<sup>25</sup> and state water law<sup>26</sup> are the most important topics that both Klein and Rasband add to the sphere of natural resources law. These are topics that do not receive significant attention in Coggins. On the other hand, "Public Natural Resources Law" includes some important topics not substantially covered in the new casebooks: cultural resources, hydropower licensing by the Federal Energy Regulatory Commission ("FERC"), and public contract law. I discuss in greater detail below other topics not part of "Public Natural Resources Law" that received focused attention in only one or the other of the new casebooks.

Figure 1 also illustrates the consensus that pollution control, a core topic for "Environmental Law," is largely outside of the scope of natural resources teaching. However, issues involving wetlands conservation, most of which arise from the Clean Water Act ("CWA"),<sup>27</sup> are an important area of overlap between the new natural resources casebooks and environmental law. This makes some sense because wetlands regula-

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23. The non-public lands cases are *Sweet Home*, 515 U.S. 687, and *Illinois Central*, 146 U.S. 387.

24. Robert L. Fischman, *The National Wildlife Refuge System and the Hallmarks of Modern Organic Legislation*, 29 *ECOLOGY L.Q.* 457 (2002).

25. See, e.g., KLEIN ET AL., *supra* note 16, at 685–724; RASBAND ET AL., *supra* note 16, at 1238–54.

26. See, e.g., KLEIN ET AL., *supra* note 16, at 831–82; RASBAND ET AL., *supra* note 16, at 728–94.

27. 33 U.S.C. § 1344 (2000).

tion more deeply engages with the allocation of ecological services and land use control than any other provision of pollution law.

The central intersection of all three ellipses contains the materials shared by the current casebooks and most environmental law classes. They include the ESA, NEPA, federalism,<sup>28</sup> basic administrative law (both agency procedure and judicial review),<sup>29</sup> statutory/regulatory interpretation, and the constitutional takings doctrine.<sup>30</sup> Despite the ESA's application to both public and private activities, even Coggins contains substantial coverage of the statute in a chapter on "overarching legal doctrines," which it shares with NEPA and other topics.<sup>31</sup> The new casebooks include NEPA in a unit on administrative requirements and the ESA in a wildlife chapter.<sup>32</sup> One odd result revealed by Figure 1 is that compensation for takings is at the core of all curricula, but rescission and restitution against the United States for violating the terms of contracts is out in left field, covered only by "Public Natural Resources Law." Given the ubiquity of mineral leases, timber contracts, and concession agreements, limitations imposed by public contract law on the United States' exercise of its resource administration is actually more important to public land management than takings.<sup>33</sup> The exclusion of public contract law, but not takings cases, from the new natural resources casebooks illustrates the continuing dominance of the property perspective in framing natural resources law.

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28. See, e.g., KLEIN ET AL., *supra* note 16, at 258–92; RASBAND ET AL., *supra* note 16, at 794–886.

29. See, e.g., KLEIN ET AL., *supra* note 16, at 103–254; RASBAND ET AL., *supra* note 16, at 223–33.

30. See, e.g., KLEIN ET AL., *supra* note 16, at 993–1056; RASBAND ET AL., *supra* note 16, at 182–99.

31. COGGINS ET AL., *supra* note 11, at 382–508 (Chapter 5); *id.* at 434–508 (dealing specifically with ESA).

32. KLEIN ET AL., *supra* note 16, at 123–80 (NEPA), 715–824 (ESA); RASBAND ET AL., *supra* note 16, at 253–83 (NEPA), 339–425 (ESA).

33. Compare Mobil Oil Exploration and Producing Southeast, Inc. v. United States, 530 U.S. 604 (2000) (liberally interpreting contract rights in off-shore oil leases) with United States v. Locke, 471 U.S. 84 (1985) (holding that a new statutory requirement, resulting in forfeiture of mineral rights, is not necessarily a compensable taking due, in part, to the conditional nature of the rights acquired from the U.S.) and United States v. Fuller, 409 U.S. 488 (1973) (holding grazing permits from the U.S., notwithstanding market value, do not create a compensable property right).

### B. Differences

Despite the generalizations that characterize natural resources law, there are important variations in how it is defined and presented. Though public land management is at the core of all three books, it is most important (indeed, the central organizing concept) for Coggins, and the least important for Rasband. Conversely, the new casebooks depart from Coggins principally in their inclusion of non-federal resource concerns. In stark contrast to Coggins,<sup>34</sup> both Klein and Rasband address in detail private acquisition and use of state water rights,<sup>35</sup> and private wetland development.<sup>36</sup> Coggins covers principally just water rights on federal land, but does include federal hydro-power licensing.<sup>37</sup> Rasband covers much more private resource acquisition and regulation, with one major exception. The Klein coverage of wetland regulation on private property under the CWA, which has its own chapter,<sup>38</sup> is more extensive than that provided by Rasband (one section of the "water federalism" subchapter).<sup>39</sup> But only Rasband covers law governing private forest management,<sup>40</sup> and private mineral rights and obligations.<sup>41</sup> Though only two topics, they capture an important difference in the tone of the two books.

In general, the strongest distinction between the two new casebooks is that Rasband takes a more comprehensive, encyclopedic teaching approach. It packs more information in each page and chapter than the other casebooks. Rasband offers more policy-making instruction, particularly through economics.<sup>42</sup> With the exception of wetlands, conservation easements, takings, and the public trust doctrine, the Rasband book has more extensive coverage of private and state natural resources law issues. Only Rasband has significant material dealing with international natural resources law.<sup>43</sup> Only Rasband de-

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34. COGGINS ET AL., *supra* note 11, at 510-48.

35. See, e.g., KLEIN ET AL., *supra* note 16, at 831-82; RASBAND ET AL., *supra* note 16, at 728-94.

36. KLEIN ET AL., *supra* note 16, at 931-92; RASBAND ET AL., *supra* note 16, at 820-34.

37. COGGINS ET AL., *supra* note 11, at 510-82.

38. KLEIN ET AL., *supra* note 16, at 931-92.

39. RASBAND ET AL., *supra* note 16, at 820-34.

40. *Id.* at 1246-54.

41. *Id.* at 998-1015, 1031-32.

42. See, e.g., *id.* at 989-92 (discussing economics of minerals).

43. The international materials focus primarily on marine resources and

votes significant attention (indeed, a whole chapter) to marine resource management, an important subject that both deserves more attention than it gets in law school and that will likely experience legislative reform in the coming years.<sup>44</sup> On the other hand, though both new casebooks cover Indian water rights, only Klein devotes significant attention to tribal resources.<sup>45</sup>

The Klein casebook's most distinctive characteristic is its "place-based" approach.<sup>46</sup> To an important extent, all natural resources law is place-based. That is part of the subject's great charm. Nonetheless, Klein does an especially good job of establishing the setting and context for the principal cases.<sup>47</sup> Judicial decisions play a more important role in Klein than they do in Rasband (though they are central to the Rasband pedagogy as well). The Klein authors do a superb job distilling the history and geography of natural resources disputes into attractive morsels to be enjoyed before digesting the main case. This is consistent with Klein's recurring theme of stewardship for distinctive places. More so than Rasband, which does not have a distinctive voice or position, the Klein book promotes understanding natural resources through this particular perspective. In that respect, it is closer in tone to Coggins, which differed from its "second-generation" predecessors in its historically rich account of legal disputes, with attentiveness to conflicts of culture. This local culture perspective is a theme of Wilkinson's work in particular,<sup>48</sup> and his influence is evident in the Klein approach emphasizing storytelling.

The place-based approach is particularly effective where the locus of a dispute recurs. Klein's treatment of standards in the National Forest Management Act ("NFMA")<sup>49</sup> through a series of five cases involving Texas National Forest management

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transboundary water management.

44. RASBAND ET AL., *supra* note 16, at 426–552.

45. KLEIN ET AL., *supra* note 16, at 581–623

46. See *infra* notes 66–69 and accompanying text for a discussion of the *in-situ* attribute of natural resources law.

47. See, e.g., KLEIN ET AL., at 276 (introducing *Sierra Club v. Hodel*, 848 F.2d 1068 (10th Cir. 1988)).

48. See, e.g., CHARLES F. WILKINSON, *FIRE ON THE PLATEAU: CONFLICT AND ENDURANCE IN THE AMERICAN SOUTHWEST* (1999); CHARLES F. WILKINSON, *CROSSING THE NEXT MERIDIAN: LAND, WATER, AND THE FUTURE OF THE WEST* (1992); Charles F. Wilkinson, *Law and the American West: The Search for an Ethic of Place*, 59 U. COLO. L. REV. 401 (1988).

49. 16 U.S.C. §§ 1600-14 (2000).

is an excellent suite of materials that cover the substance of the law while providing depth in its application to a particular place, and the limits of litigation as a tool of advocacy.<sup>50</sup> Klein works harder to make excerpted case material the centerpiece for discussion. Rasband's notes more often require students to bring other information to bear on questions posed, which veer off into more directions. Rasband is a richer source for students to find research projects.

Klein will appeal more to teachers seeking deeper discussion of fewer topics. It makes particularly good use of judicial decisions as vehicles for learning the law. Rasband will appeal more to teachers seeking broader coverage and more descriptive text about the structure and content of the law. Rasband serves as a better reference textbook. With its richer exploration of economics and other policy-forming disciplines, Rasband also better suits a technocratic course.

## II. WHAT IS DISTINCTIVE ABOUT MODERN NATURAL RESOURCES LAW

In his 1981 introduction to a symposium on trends in natural resources law, Professor David Getches described four rationales for offering a natural resources law course.<sup>51</sup> First, the subject brings together doctrines from diverse fields, such as constitutional law, administrative law, property, regulated industries, and federal courts. Second, it applies fundamental legal skills, such as statutory interpretation and analytical reasoning. Third, it embraces a wide range of social and ethical concerns. And, fourth, it requires students to understand the relevance of non-legal disciplines such as economics and geoscience.

While Getches' justifications for a natural resources law course remain compelling today, they fail to differentiate natural resources law from many other subjects, especially environmental law. This section proposes an alternative quartet of reasons that better distinguish natural resources law from environmental law. It focuses on four characteristics of natural resources law that provide unique, or at least best-suited, opportunities for teaching students the deeper structure of and

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50. KLEIN ET AL., *supra* note 16, at 363-80.

51. David Getches, *Preface: On Natural Resources as an Area of the Law*, 53 U. COLO. L. REV. 195, 202 (1981).

trends in important areas of law.

The issues of statutory interpretation, administrative procedure, and judicial review of agency action have always been a part of the environmental law course because it entered the curriculum after it transitioned from its common law foundation to a public law footing. As natural resources law has steadily slid into the administrative law pool, it has become less distinctive. Mining law decisions, for example, depend as much on interpretations of the APA,<sup>52</sup> *Chevron*,<sup>53</sup> and other administrative law principles as does air pollution law. Why should we treat regulation of mining any differently from regulation of chemical manufacturing? Why teach natural resources as a separate field? The following subsections suggest, with prompting from the current casebooks, four answers to this question.

#### A. *Extraction Versus Processing and Disposal*

Perhaps the most obvious difference between a natural resources law class and an environmental law class concerns the subjects of the disputes. Natural resources law focuses mostly on extraction and primary production of goods and services. It is about the stuff of consumption. In contrast, environmental law focuses on secondary processing, transportation, manufacturing, and disposal. It is more about the unwanted side effects of consumption.

Paradoxically, the source most attentive to this distinction between the fields is the one that made the greatest attempt to integrate them. In its second major treatise on environmental law, the Environmental Law Institute ("ELI") adopted a "resources to recovery" approach.<sup>54</sup> Rather than examining environmental issues along the lines of media, resource types, or implementation tools, the treatise carved up the environmental law domain by activity, such as harvesting (including recreation, agriculture, and forestry),<sup>55</sup> energy (including hydroelec-

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52. The Administrative Procedure Act, 5 U.S.C. §§ 551–59, 701–06.

53. *Chevron U.S.A., Inc. v. Natural Res. Def. Council, Inc.*, 467 U.S. 837 (1984).

54. SUSTAINABLE ENVIRONMENTAL LAW: INTEGRATING NATURAL RESOURCE AND POLLUTION ABATEMENT LAW FROM RESOURCES TO RECOVERY VII (Celia Campbell-Mohn et al. eds., 1993).

55. *Id.* at §§ 5.1–9.6.

tric power, coal, and petroleum),<sup>56</sup> and feedstocks (including metals and chemicals).<sup>57</sup> For each activity, the casebook dealt with the entire life cycle of materials, from extraction, through manufacturing, and into disposal. For instance, the chapter on timber began with laws dealing with harvesting, then moved on to pulp and paper production, and concluded with recycling and disposal.<sup>58</sup>

The conventional natural resources course, as exemplified by the current casebooks, focuses on the extraction phase that the ELI treatise sought to incorporate into the rest of environmental law. However, even ELI treated extraction as a discrete set of issues organized into its own subchapter for each activity. Extraction deals with particular, separable, recurrent legal issues: zoning areas for or designating areas prohibiting certain extractions, allocating the extractable goods, and controlling the extraction process itself.<sup>59</sup> Though the term "extraction" has the ring of the pre-environmental, Martz approach, it includes recreation and preservation uses as well.

Two attributes are important in understanding why extraction generally highlights different issues from the processing/disposal concerns at the heart of the conventional environmental law class. First, natural resources are largely fodder for transformation, and their value is principally utilitarian in what they will serve in their next incarnation. The renowned musician and labor activist, Utah Phillips, tells a story that captures the natural resources value-in-use perspective. He attended a public school assembly of over two thousand students:

[A]long the side of the stage was the suit-and-tie crowd sitting there from the school district and the principals, teachers, and the main speaker following me from the Chamber of Commerce. Something inside of me snapped. And I got to the microphone, I looked out on the sea of faces, and I said something to the effect of: "You're about to be told one more time that you're America's most valuable natural resource. Have you seen what they do to valuable natural resources? . . . Don't ever let them call you a valuable natural resource. They're going to strip mine your soul. They're going to clear-cut your best thoughts for the sake of profit,

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56. *Id.* at §§ 10.1–15.6.

57. *Id.* at §§ 16.1–17.6.

58. *Id.* at § 9.2.

59. *Id.* at § 2.2.

unless you learn to resist . . . !

Well, I was picked up bodily and carried to the door hurling epithets over my shoulder, something to the effect of "Make a break for it kids! Flee to the wilderness!"<sup>60</sup>

Phillips' story is based on the widespread understanding that we treat resources in a purely utilitarian (and often wasteful) manner. There is some interesting theory but little resource management law based on the type of intrinsic valuation we assign to humans in other areas of law.<sup>61</sup> We may ask of an endangered fly, "what is it good for?" in natural resources policy, but we don't accept the same question as a basis for justifying the value of people ("what good are you?").<sup>62</sup>

Natural resources law is dominated by this "resource-ist," utilitarian approach rather than by a naturalist intrinsic value approach. Indeed, the "natural" in "natural resources" law may be optional. The Coggins casebook dropped the word in its title, *Public Lands and Resources Law*. The decision to exclude "natural" may simply serve to make a long title more concise, and to define the subject a bit more broadly by including cultural and archeological resources. It originally served to emphasize the "public" interest determinations that dominate the modern era, in contrast to the Martz, private property approach. Interestingly, Professor Coggins used "natural" in the more elegant title of his related treatise, *Public Natural Resources Law*. Similar semantic maneuvers mean something different. When the Republican Party took control of the U.S. House of Representatives in 1995, the first act of the newly installed chairman of the House Committee on Natural Re-

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60. UTAH PHILLIPS, *THE MOSCOW HOLD* (Red House Records 1999).

61. Phillips' final admonition to head to the wilderness averts to the most prominent exception to this general rule. Of all the statutes considered in natural resources law, the Wilderness Act comes closest to intrinsic valuation. 16 U.S.C. §§ 1131-36 (2000). Exceptions also abound on the environmental law side of teaching, where cost-benefit analysis both monetizes and discounts the value of (statistical, not identified) people. Lisa Heinzerling, *The Rights of Statistical People*, 24 HARV. ENVTL. L. REV. 189 (2000); LISA HEINZERLING & FRANK ACKERMAN, *PRICING THE PRICELESS: COST BENEFIT ANALYSIS OF ENVIRONMENTAL PROTECTION* (2002).

62. J. Baird Callicott, *Should Endangered Species Have Standing?* (unpublished manuscript, on file with author) (attributing to biologist Edwin P. Pister the rhetorical riposte).

sources was to remove the word "Natural" from the title of his committee, in an attempt to remove any taint of intrinsic valuation from the committee's business.<sup>63</sup> For Committee Chair Don Young, "natural" connoted the "nonsense upon stilts"<sup>64</sup> of natural law and the preservationist strain of conservation personified by John Muir.

The second significant attribute of the extractive character of natural resources disputes is that they generally involve problems *in situ*. Unlike factories, roads, or even landfills, there is little choice about where to locate a mine, a scenic trail, or a fishery. As mining companies are wont to say about minerals, natural resources are where we find them. In that respect, natural resources law gets at land use much more directly than does environmental law. Control of soil disturbance, management of habitat, and conservation of traditional patterns of land use are among the most difficult problems the law faces. Because private land use control is the last outpost of near-exclusive state/local control, there are a host of special federalism issues and approaches that arise as a result.

Though federalism is a staple of environmental law, its manifestation in natural resources law offers a different, broader approach to the inducements that spur states to align their activities with federal goals. In environmental law, cooperative federalism is narrowly circumscribed around state permitting and standard setting overseen by the federal government to assure compliance with national minimum criteria. Natural resources law employs a wider array of cooperative tools, including place-based collaboration, state favoritism in federal process, and federal deference to state process.<sup>65</sup>

Place-based collaboration, in particular, is an outgrowth of the *in situ* attribute of natural resources problems. A place-based collaboration tailors decision-making about the environment to a specific region. Rather than impose a uniform model

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63. See *House Committees of the 104<sup>th</sup> Congress*, N.Y. TIMES, Dec. 8, 1994, at B21. When the Democrats won back control of Congress in 2007 they reinstated the "natural" in the committee name. Jonathan Weisman, *New Faces in House, Old Names for Panels*, WASH. POST, Jan. 5, 2007, at A15.

64. JEREMY BENTHAM, RIGHTS, REPRESENTATION, AND REFORM: NONSENSE UPON STILTS AND OTHER WRITINGS ON THE FRENCH REVOLUTION (Philip Schofield et al. eds., 2002).

65. I explore these distinctive forms of natural resources law cooperative federalism in Robert L. Fischman, *Cooperative Federalism and Natural Resources Law*, 14 N.Y.U. ENVTL. L.J. 179 (2005).

for interaction, place-based collaborations grow from the particular circumstances of the locus and nature of a dispute.<sup>66</sup> The chief strength of this approach is that it brings a wide range of stakeholders and regulatory jurisdictions together to engage in holistic management. Place-based collaborations are one of the most popular current approaches to cooperative federalism in natural resources law. They soften the command-and-control requirements that typically bind parties in environmental law; instead, they employ more flexibility to create a watershed-, jurisdiction-, or habitat-specific approach. Place-based collaboration also helps satisfy many of the criteria for ecosystem management.<sup>67</sup> A favorite example was the Cal-Fed Bay-Delta program to manage fish and other resources in the Sacramento River Delta, until the effort collapsed in 2005.<sup>68</sup> But place-based collaborations risk local capture and may frustrate coordinated management of public lands systems. One widely debated example involves the board Congress created to operate the Valles Caldera National Preserve.<sup>69</sup>

The state procedural tools of natural resources federalism are more an outgrowth of the traditional state interest in property that remains close to the pith of modern natural resources law. State favoritism in federal process is a coordinating tool that reserves an enhanced role for states in federal environmental decision making. Though it does not guarantee that the state view will prevail,<sup>70</sup> federal agency decision-makers have a responsibility at least to document their consideration of the state's view and to explain why it did not prevail. The

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66. DANIEL KEMMIS, *THIS SOVEREIGN LAND: A NEW VISION FOR GOVERNING THE WEST* (2001).

67. ROBERT B. KEITER, *KEEPING FAITH WITH NATURE: ECOSYSTEMS, DEMOCRACY, AND AMERICA'S PUBLIC LANDS* 244-46 (2003).

68. Jody Freeman & Daniel A. Farber, *Modular Environmental Regulation*, 54 DUKE L.J. 795 (2005); CAL-FED BAY-DELTA PROGRAM, PROGRAMMATIC RECORD OF DECISION 1 (2000), available at <http://calwater.ca.gov/Archives/GeneralArchive/rod/ROD8-28-00.pdf>.

69. 16 U.S.C. § 698v et seq. (2000). See U.S. GOVERNMENT ACCOUNTABILITY OFFICE, VALLES CALDERA: TRUST HAS MADE SOME PROGRESS, BUT NEEDS TO DO MORE TO MEET STATUTORY GOALS (GAO-06-98) 2005; Laura Paskus, *Trouble on the Valles Caldera*, HIGH COUNTRY NEWS, Nov. 28, 2005.

70. Recent examples of states' failure to persuade federal resource managers, despite the states' heightened role, include the Forest Service management plan for the Sierra Nevada forests and the Bureau of Land Management oil and gas leasing decision for the Otero Mesa. J.M. McCord, *State Sues Over Sierra Forest Plan*, HIGH COUNTRY NEWS, Feb. 21, 2005, at 6; Laura Paskus, *Whose Rules Rule on Otero Mesa?*, HIGH COUNTRY NEWS, Mar. 7, 2005, at 12.

state's direct avenue to assert its interests often is not open to other stakeholders in the federal decision. The organic acts for the national forest,<sup>71</sup> national wildlife refuge,<sup>72</sup> and Bureau of Land Management ("BLM")<sup>73</sup> land systems all employ this tool in their comprehensive planning mandates. For instance, the BLM must coordinate with state and local governments in the development of land use plans "to the extent consistent with the laws governing the administration of the public lands."<sup>74</sup>

Federal deference to state process is created when legislation specifies that a state policy, standard, or plan, if adopted in accordance with certain procedures, will be employed by the federal government in its own national decisions. While procedural favoritism gives states an advantage over other stakeholders in asserting their interests in federal decision making, this third category, federal deference, provides greater assurance that the federal government will actually comply with the state position. The best statutory example of this approach to cooperative federalism is the Coastal Zone Management Act's ("CZMA") consistency criterion.<sup>75</sup> But it also pops up in public land management. For example federal public lands routinely embrace state hunting regulations as a default rule; even the refuge system regards state-permitted takes as per se appropriate for refuges.<sup>76</sup>

Professor Holly Doremus captures the essence of *in situ* problems as special.<sup>77</sup> Though Doremus attributes the preoccupation with protecting special places and special things to environmental law generally, it dominates the material of natural resources law far more than pollution control law. Doremus' main point is that, despite the success of legal strategies aimed at the special, a new focus on the ordinary will be necessary to achieve ecologic sustainability. Her distinction reveals the relative competitive advantages that can separate environmental law from natural resources law teaching. Natu-

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71. 16 U.S.C. § 530 (2000).

72. 16 U.S.C. §§ 668dd(a)(3)(C), (a)(3)(E), (b)(4) (2000).

73. 43 U.S.C. § 1712(c) (2000).

74. *Id.*

75. 16 U.S.C. § 1456(c) (2000).

76. U.S. FISH & WILDLIFE SERV., U.S. FISH AND WILDLIFE SERVICE MANUAL, 603 FW 1, at § 1.3(B), available at <http://www.fws.gov/policy/603fw1.html> (last visited Jan. 12, 2007).

77. Holly Doremus, *The Special Importance of Ordinary Places*, 23 ENVIRONS 3-17 (2000).

ral resources law is best at highlighting the problems of special places, from the Arctic National Wildlife Refuge, to roadless areas in national forests, or to coastal wetlands.<sup>78</sup> Even the special “things,” notably rare species, are comfortably at the center of the natural resources universe. In contrast, environmental law is best at highlighting the challenges of the ordinary ambient environment and run-of-the-mill business activity. From national ambient air quality standards to technology based controls on the electroplating industry, ordinary concerns dominate the environmental law class. Uniform rules better serve ordinary problems, where special protection requires more tailored standards.

Certainly, there are exceptions to these generalizations. In environmental law, hazardous waste site clean-ups and designation of outstanding national resource waters present the *in situ* problems of special places. Nonetheless, in terms of overall focus and emphasis, the distinction between extraction and processing/disposal tends to track the division between special and ordinary concerns in highlighting some issues that are best suited for coverage in a natural resources law class.

### *B. Interpretive Techniques*

Professor Dan Tarlock has observed that environmental law possesses a lush canopy but shallow roots.<sup>79</sup> In contrast, old statutes deeply influence contemporary natural resources law. Important examples include the R.S. 2477 law of 1866 authorizing the disposition of rights-of-way,<sup>80</sup> the 1885 Unlawful Inclosures Act limiting obstructions to public land access,<sup>81</sup> and the 1872 general mining law.<sup>82</sup> In Charles Wilkinson’s phrase, these “lords of yesterday” present peculiar problems of statu-

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78. To some extent, this grows out of natural resources’ roots in property law; the specific performance rule for property contracts derives from a notion that each parcel of land is unique. E. ALLEN FARNSWORTH, FARNSWORTH ON CONTRACTS § 12.6 (3d ed. 2004); 8A THOMPSON ON REAL PROPERTY § 4479 (1963); THE AMERICAN LAW OF REAL PROPERTY § 20.06[2][c] (Arthur R. Gaudio ed., 1991).

79. A. Dan Tarlock, *Environmental Law, But Not Environmental Protection*, in NATURAL RESOURCES POLICY AND LAW: TRENDS AND DIRECTIONS (Lawrence J. MacDonnell & Sarah F. Bates eds., 1993).

80. An Act Granting the Right of Way to Ditch and Canal Owners over the Public Lands, and for Other Purposes, ch. 262, 14 Stat. 251, 253 (1866) (repealed 1976).

81. 43 U.S.C. §§ 1061–66, ch. 149, 23 Stat. 321 (1885).

82. 30 U.S.C. §§ 21–42, ch. 85, 17 Stat. 91 (1872).

tory interpretation.<sup>83</sup>

For instance, natural resources law emphasizes how courts interpret old statutes in light of new circumstances. Some decisions, exemplified by *Union Oil v. Smith*,<sup>84</sup> interpreting the 1872 general mining law, employ great flexibility in modifying seemingly strict statutory language to fit social policy or long-standing practice. *Union Oil* recognized that, as a practical matter, exploration precedes discovery of a valuable mineral deposit, and that some physical occupation is necessary and protected for exploration. Therefore, the Court recognized that some rights of exclusive possession may be asserted against private claim-jumpers notwithstanding the literal terms of the 1872 statute, which prohibit location of a mining claim until discovery.<sup>85</sup> Other decisions, exemplified by the *Monongahela* ruling interpreting the 1897 organic act for the Forest Service, hold fast to strict textualism, despite its harsh consequences.<sup>86</sup> The *Monongahela* decision suspended a substantial part of the Forest Service's longstanding logging program because it accommodated modern clear-cutting practices, such as marking boundaries of sale areas rather than each individual tree, at odds with the literal terms of the 1897 organic act.<sup>87</sup> The juxtaposition of two interpretive approaches to statutes based on antiquated resource management methods is a much better fit for natural resources law than environmental law.

The problem of modernizing old statutes is seldom at the center of environmental law disputes. Therefore, it provides a justification for a separate natural resources course. In addition, the natural resources curriculum offers students a range of materials other than statutes and regulations that present their own special interpretive problems. Old patents, or deeds, present similar problems for determining how resources that were not valued at the time of the transfer should be treated today.<sup>88</sup> The difference between the modes of interpreting fed-

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83. WILKINSON, FIRE ON THE PLATEAU, *supra* note 48, at 17; Charles F. Wilkinson, *The Field of Public Land Law: Connecting Threads and Future Directions*, 1 PUB. LAND L. REV. 1 (1980).

84. 249 U.S. 337 (1919).

85. 30 U.S.C. § 23 (2000).

86. *Izaak Walton League v. Butz (Monongahela)* 522 F.2d 945 (4th Cir. 1975).

87. *E.g.*, An Act Making Appropriations for Sundry Civil Expenses of the Government for the Fiscal Year Ending June Thirtieth, Eighteen Hundred and Ninety-Eight, and for Other Purposes, ch. 2, 30 Stat. 34 (1897).

88. *E.g.*, *Amoco Production Co. v. Southern Ute Indian Tribe*, 526 U.S. 865 (1999) (determining that Congress did not reserve coalbed methane gas, consid-

eral property grants illustrated in *Union Pacific Railroad* and *Leo Sheep* nicely illustrates this recurrent issue for students.<sup>89</sup> Justice Rehnquist's heroic account of the public interest served by the railroad land grants in *Leo Sheep* is a particularly good example of the role that historical storytelling plays in framing a dispute.<sup>90</sup>

The new casebooks, which incorporate water law, offer another teaching opportunity not commonly encountered in environmental law. Water law involves property rights that change more noticeably over the span of several generations than do rights in land. The evolution of use-limiting principles from the natural flow doctrine, to the reasonable use test, to the prior appropriation system shows students property rules adjusting to socio-economic developments over the course of just a century. Some of the most interesting issues in water law require students to question how and when law should revise property limitations, such as what constitutes waste and beneficial use.<sup>91</sup> Moreover, water law presents an excellent opportunity to examine the friction between legislative/administrative systems (i.e., water use permits) and property/judicial systems (i.e., tort suits for unreasonable interference with a reasonable water use) that are not commonly matched so evenly in environmental law.<sup>92</sup>

The maturity of natural resources law provides a depth to discussions that is not as pervasive in an environmental law class. It illustrates how even bedrock common law principles respond to socio-economic developments. Most importantly, it

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ered a waste product of coal mining in the early twentieth century but a valuable fuel resource today, along with the coal it explicitly reserved in the 1909 and 1910 Coal Lands Acts); *United States v. Union Oil Co. of California*, 549 F.2d 1271 (9th Cir. 1977), *cert. denied* 435 U.S. 911 (1978) (holding that federal reservation of mineral resources in the 1916 Stock-Raising Homestead Act include subterranean steam notwithstanding Congress' lack of awareness of geothermal power).

89. *Leo Sheep Co. v. United States*, 440 U.S. 668 (1979) (canon of construction to advance the public purpose of the grant); *United States v. Union Pacific R.R. Co.*, 353 U.S. 112 (1957) (canon of construction favoring the United States).

90. *Leo Sheep*, 440 U.S. at 669-77. On the importance of historical storytelling to the lawyer's role in shaping meaning through advocacy, see JAMES BOYD WHITE, *THE LEGAL IMAGINATION: STUDIES IN THE NATURE OF LEGAL THOUGHT AND EXPRESSION* 878-89 (1973).

91. *E.g.*, *Imperial Irrigation Dist. v. California State Water Res. Control Bd.*, 275 Cal. Rptr. 250 (1990), *cert. denied*, 502 U.S. 857 (1991).

92. *E.g.*, *Franco-American Charolaise, Ltd. v. Oklahoma Water Res. Bd.*, 855 P.2d 568 (Okla. 1993); *Harloff v. City of Sarasota*, 757 So.2d 1324 (Fla. Dist. Ct. App. 1991).

challenges mechanistic models of interpretation that cannot account for the dramatically different circumstances under which Congress and other institutions made key resource management decisions.

Another interpretive tool, economic analysis, seeks to understand law in terms of incentives for behavior and efficiency of results. However, natural resources economics differs significantly from environmental economics in the way it treats changes in resource value over time, or "path-dependence."<sup>93</sup> Path-dependence relates the way decisions made in earlier time periods shape the options for later time periods. Most environmental economics examines a snapshot of values in a single time period, such as the costs and benefits of lowering an ambient air quality standard. While environmental economics discounts future costs/benefits, it does not typically evaluate how a decision made today will affect the range of opportunities in the future. Determining "optimal" pollution levels is not sensitive to information about the future. In contrast, natural resource economic analysis models the abundance of a resource as a function of abundance during earlier time periods. Deciding on a production schedule for minerals, fish, timber, or water requires an evaluation of the optimal time for extracting a particular quantity of resources. It requires information about future prices and available amounts of the resource. Particularly with water and biological resources that may grow over time, "optimal" extraction requires serious projection of future trends.

The economic interpretation of legal choice, therefore, offers another difference between the natural resources and the environmental law courses. Professor Holly Doremus nicely captures the same analytical attributes that drive the economic approaches when she writes that "the need to anticipate and respond to environmental change makes natural resource management intrinsically more information-intensive than pollution control, where the health effects that are of primary concern are not constantly changing."<sup>94</sup> This distinction is of special importance because one of the chief environmental law challenges of our generation, abating the carbon loading of the

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93. I am indebted to Professor Shi-Ling Hsu for contributing this insight about the difference between environmental and natural resources economics.

94. Holly Doremus, *Data Gaps in Natural Resource Management: Sniffing for Leaks Along the Information Pipeline*, 82 IND. L.J. (forthcoming 2007).

atmosphere causing global climate change, is most insightfully analyzed from the path-dependent perspective of natural resource economics.

*C. The Asymmetric Convergence Toward Ecosystem Management*

Over the past thirty-five years, both environmental law and natural resources law have struggled to broaden their scopes to encompass ecological concerns. This parallel effort has narrowed the gap between the fields as they converge, albeit at different rates, toward an ecosystem management perspective. Ecosystem management has legal as well as social and natural scientific dimensions.<sup>95</sup> It is a framework both for understanding the biology of what makes ecosystems function in a healthy fashion and for crafting socio-economic incentives. Key elements of ecosystem management include the maintenance of ecological integrity, collaborative and cooperative decision making, and adaptive management to continually adjust to the unexpected.<sup>96</sup>

Though environmental law is preoccupied mostly with public health threats, there has always been a place for nature protection. All environmental law casebooks deal with NEPA and the challenge of predicting impacts that are the result of complex interactions between humans and nature. A good example of this challenge is determining the indirect ecological impacts from induced land development resulting from a proposed action, such as approving a ski resort.<sup>97</sup> Many environmental law courses also address the problem of extinction and aquatic diversity. Natural resources damage valuation and land use control occasionally appear in environmental law curricula. All of these topics touch on aspects of ecosystem management without necessarily penetrating its essence.

In 1990, the EPA's Science Advisory Board recommended that the EPA reorder its priorities to "attach as much impor-

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95. See generally Symposium, *Ecosystem Management: New Departure for Land and Water*, 24 *ECOLOGY L.Q.* 619 (1997).

96. R. Edward Grumbine, *Reflections on "What is Ecosystem Management?"*, 11 *CONSERVATION BIOLOGY* 41, 44-46 (1997); ROBERT B. KEITER, *KEEPING FAITH WITH NATURE: ECOSYSTEMS, DEMOCRACY, AND AMERICA'S PUBLIC LANDS* 244-48 (2003).

97. See, e.g., *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332 (1989).

tance to reducing ecological risk [such as habitat degradation] as it does to reducing human health risk.”<sup>98</sup> Since that time, there has been a steady, slow movement toward greater consideration of ecological values. For instance, the EPA now considers ecological effects in its review of environmental impact statements under the CAA,<sup>99</sup> and of state water quality standards.<sup>100</sup> Despite the frustrating lack of a standard procedure for evaluating harm to natural systems, in 1998 the EPA published guidelines for ecological risk assessment after thirty years of study.<sup>101</sup> Though the pesticide program notably lags behind in concern for adverse ecological impacts,<sup>102</sup> the attitude at the EPA and in environmental law has progressed from a narrow public health focus to a broader ecological outlook. But environmental law still has far to go in adopting the system-wide approaches needed in order to “grow up” and achieve its mission.<sup>103</sup>

The one core pollution control statutory program that is the equal of any natural resources management example in experience with applied ecology is section 404 of the CWA,<sup>104</sup> which regulates the filling of wetlands. It has much to offer in applying concepts of ecosystem function and service, and habi-

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98. SCI. ADVISORY BD., U.S. EPA, REDUCING RISK: SETTING PRIORITIES AND STRATEGIES FOR ENVIRONMENTAL PROTECTION 6 (1990). See generally Robert L. Fischman, *Biological Diversity and Environmental Protection: Authorities to Reduce Risk*, 22 ENVTL. L. 435 (1992).

99. See, e.g., U.S. ENVTL. PROT. AGENCY, CONSIDERING ECOLOGICAL PROCESSES IN ENVIRONMENTAL IMPACT ASSESSMENTS (1999); Robert L. Fischman, *The EPA's NEPA Duties and Ecosystem Services*, 20 STANFORD ENVTL. L.J. 497 (2001).

100. See e.g., U.S. EPA, STRATEGY FOR WATER QUALITY STANDARDS AND CRITERIA: SETTING PRIORITIES TO STRENGTHEN THE FOUNDATION FOR PROTECTING AND RESTORING THE NATION'S WATERS 10–11 (2003), available at [www.epa.gov/waterscience/standards/strategy/final.pdf](http://www.epa.gov/waterscience/standards/strategy/final.pdf); Robert L. Fischman, *Biological Diversity and Environmental Protection: Authorities to Reduce Risk*, 22 ENVTL. L. 435, 444–58 (1992).

101. EPA Guidelines for Ecological Risk Assessment, 63 Fed. Reg. 26,846 (May 14, 1998) (codified at 40 CFR pt. 52); Wendy Wagner, *The “Bad Science” Fiction: Reclaiming the Debate Over the Role of Science in Public Health and Environmental Regulation*, 66 L. & CONTEMP. PROBS. 63, 91 (2003).

102. See, e.g., *Washington Toxics Coalition v. EPA*, 413 F.3d 1024 (9th Cir. 2005). See also Holly Doremus, *Science Plays Defense: Natural Resources Management in the Bush Administration*, 32 ECOL. L. Q. 249, 285–86 (2005) (criticizing the EPA pesticide program for its resistance to full consideration of ecological risks).

103. See Carol Rose, *Environmental Law Grows Up (More or Less), and What Science Can Do to Help*, 9 LEWIS & CLARK L. REV. 273, 287 (2005); .

104. 33 U.S.C. § 1344 (2000).

tat restoration. It is no surprise, then, that both new natural resources casebooks, in claiming a larger scope of topics, tackle some aspects of the 404 program. Ecological issues are crucial to understanding the jurisdictional basis for federal assertion of authority over wetland-disturbing activity<sup>105</sup> and the permit process which demands an evaluation of the effects of a discharge on the aquatic ecosystem.<sup>106</sup>

In general, though, natural resources law has more deeply engaged with ecosystem management. Its experience suggests different approaches from those employed by environmental law. Natural resources law has a closer relationship with ecology than does pollution control law. Because it has been far more involved in managing living systems, natural resources law also has a much firmer grounding in the social dimension of ecosystem management.

Natural resources law has grappled with the science side of ecosystem management, particularly in administering public property. The best example of this is the Forest Service's struggle to implement the diversity provision of the NFMA. The litigation over the viability of northern spotted owl populations in the Pacific Northwest forests led the Forest Service to conduct several seminal iterations of landscape-level planning that helped lay the foundation for ecosystem management.<sup>107</sup>

In addition to administrative initiatives, natural resources law also offers many examples of courts struggling to evaluate an agency's interpretation of ecological science. For instance, *Sierra Club v. Marita*<sup>108</sup> is one of only two non-U.S. Supreme Court cases common to all three current natural resources casebooks. In that case the Sierra Club challenged the 1986

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105. See 33 C.F.R. § 328.3(b) (2006); *Rapanos v. United States*, 126 S. Ct. 2208 (2006); *Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers*, 531 U.S. 159 (2001).

106. See 40 C.F.R. § 230.10(d) (2006).

107. Bernard T. Bormann et al., *Adaptive Management of Forest Ecosystems: Did Some Rubber Hit the Road?*, 57 *BIOSCIENCE* 186 (2007). The best documentation and evaluation of the spotted owl controversy is STEVEN L. YAFFEE, *THE WISDOM OF THE SPOTTED OWL: POLICY LESSONS FOR A NEW CENTURY* (1994). The key Forest Service ecosystem management programs are INTERAGENCY SCIENTIFIC COMMITTEE TO ADDRESS THE CONSERVATION OF THE NORTHERN SPOTTED OWL, *A CONSERVATION STRATEGY FOR THE NORTHERN SPOTTED OWL* (1990) ("The Thomas Report"); and FOREST ECOSYSTEM MANAGEMENT ASSESSMENT TEAM, *FOREST ECOSYSTEM MANAGEMENT: AN ECOLOGICAL, ECONOMIC, AND SOCIAL ASSESSMENT* (1993) ("The FEMAT Report").

108. 46 F.3d 606 (7th Cir. 1995).

plans for the Nicolet and Chequamegon national forests because they did not include "diversity maintenance areas" ("DMAs") protecting large blocks of un-fragmented habitat and other prescriptions called for by the emerging field of conservation biology. The *Marita* court dismissed the challenge as good science but not science that Forest Service must apply. The court's decision is a peerless vehicle for teaching the difference between research science and applied science, deference to agency assertions of expertise, the emergence of new conservation ideas, the complexities of employing useful ecological indicators, and the "science charade"<sup>109</sup> of justifying policy preference in the name of science.

The seldom-taught postscript to *Marita* illustrates the close connection between expert agency implementation and developments in science. By the 1990s, conservation biologists had become well established in academia, and even in the Forest Service. As a result, the Forest Service began to respond to the insights of these scientists even before the *Marita* litigation concluded. In 1990, the Chief directed the Wisconsin national forests to establish a committee of experts to address biodiversity concerns. The result was a series of meetings culminating in a 1994 report recommending that the Nicolet and Chequamegon be managed, in part, for protecting biological diversity on an ecosystem scale. In 2004, the Forest Service adopted a new plan for the combined Nicolet and Chequamegon. This plan was guided by the same LRMP rule as the 1986 plans but it purports to provide "management direction which will increase the amount of large forest patches over the long term." Though it falls short of establishing DMAs, it does contain many references to conservation biology principles.

Implementing ecological standards in natural resources law requires agencies to grapple with difficult questions about the meaning of nature protection. Students encounter substantive disputes over dualism and the relevance of historic landscapes in studying the standards of "ecological sustainability" from the 2000 Forest Service planning rule,<sup>110</sup> and the "biological integrity, diversity and environmental health" standard in

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109. Wendy Wagner, *The Science Charade in Toxic Risk Regulation*, 95 COLUMBIA L. REV. 1613 (1995).

110. U.S. Department of Agriculture Forest Service, National Forest System Land Resources management Planning Final Rule, 65 Fed. Reg. 67514 (Nov. 9, 2000).

the refuge system organic legislation.<sup>111</sup> The biology of disequilibrium and irreversible changes in climate prompt students to reconsider their instincts about restoration and disturbance.<sup>112</sup>

The cooperative foundations for ecosystem management are likewise better represented in natural resources law than environmental law, as I discussed above in the context of the *in situ* character of extraction.<sup>113</sup> Most descriptions of ecosystem management feature place-based collaboration, which is a prominent manifestation of natural resources federalism. The widespread treatment of the Quincy Library Group experiment in grassroots, regional natural resources governance is a good illustration of the prominent role that diverse management frameworks now play in natural resources law teaching.<sup>114</sup>

Finally, natural resources law's obsession with comprehensive, land-use planning has pushed it further into experimentation with the adaptive management element of ecosystem management. It is principally the organic legislation for the federal public land systems that promotes natural resources planning. These organic acts offer a different model of law-making from the media-based statutes that shape most of (the ossified rules of) environmental law.<sup>115</sup> Organic law provides a charter to orchestrate individual units into a system of lands/waters in order to achieve a coordinated goal. For instance, though each national wildlife refuge was established for a particular reason, organic legislation seeks to align all refuges "to sustain and, where appropriate, restore and enhance, healthy populations" of animals and plants using "modern scientific resource programs."<sup>116</sup> One of the five hallmarks of organic legislation is comprehensive planning for each unit of a public land system.<sup>117</sup> The planning process is particularly important because it translates broad requirements (e.g., system

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111. 16 U.S.C. § 668dd(a)(4)(B) (2000).

112. See DONALD WORSTER, *NATURE'S ECONOMY: A HISTORY OF ECOLOGICAL IDEAS* (2d ed. 1994); DANIEL BOTKIN, *DISCORDANT HARMONIES: A NEW ECOLOGY FOR THE TWENTY-FIRST CENTURY* (1990); Symposium on Ecology and the Law, 60 CHI-KENT L. REV. 845-985 (1994).

113. See *supra* notes 54-78 and accompanying text.

114. See e.g., RASBAND ET AL. *supra* note 16, at 56-58; KLEIN ET AL. *supra* note 16, at 357-362.

115. See Thomas McGarity, *Some Thoughts on "Deossifying" the Rulemaking Process*, 41 DUKE L.J. 1385 (1992).

116. 16 U.S.C. § 668ee(4) (2000).

117. Robert L. Fischman, *The National Wildlife Refuge System and the Hallmarks of Modern Organic Legislation*, 29 ECOLOGY L. Q. 457 (2002).

mission, uses and criteria) into site-specific measures and prescriptions through public participation. Students taking natural resources law, even if they study only one of the public land organic statutes, get a firm grounding in the issues of planning, including the pitfalls of comprehensive rationality and the need for perpetual readjustment. This is the heart of adaptive management. For instance, the planning process for the national wildlife refuges does not end when a plan is adopted. It continues into a phase of implementation and evaluation.<sup>118</sup> Each step of plan implementation, under adaptive management, is an experiment requiring review and adjustment.<sup>119</sup>

#### *D. The Property Palette*

The statutes of the 1970s and the Coggins public land management approach of the 1980s recast natural resources law as an administrative endeavor. But the field retained a dazzling array of property interests that go beyond the variations on the fee simple absolute that are the heart of a property law class. This is the property law foundation of natural resources law that continues to provide an important contrast with environmental law.

Natural resource law's coverage of the property interests incident to mining under the 1872 General Mining Law neatly illustrates peculiar forms of property that delight and enlighten students. The formula for the state-created and federally recognized *pedis possessio* right to prospect is as close to true sweat equity as anything in American property law. The *pedis possessio* limitation of being enforceable against a fellow prospector but not against the federal government also illustrates nicely the conventional legal view of property as not the thing itself but the ability to assert a claim against someone else.<sup>120</sup> The unpatented mineral right perfected under the general mining law is a Fifth-Amendment-protected form of property notwithstanding the absence of a deed. It is the apogee of the Lockean vision of property in federal law, and provides concrete examples of both the strengths and weaknesses of this so-

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118. U.S. FISH AND WILDLIFE SERVICE, *supra* note 76, at § 3.4C.

119. ROBERT L. FISCHMAN, *THE NATIONAL WILDLIFE REFUGES: COORDINATING A CONSERVATION SYSTEM THROUGH LAW* 108 (2003).

120. See C.B. Macpherson, *The Meaning of Property*, in *PROPERTY: MAINSTREAM AND CRITICAL POSITIONS* 3 (C.B. Macpherson ed., 1978).

cial vision. It also illustrates the importance of myth (both of Locke's un-propertyed, pre-colonial America, and of the rugged-individualist miner) in sustaining the rights of ownership.

The new casebooks swing the pendulum back toward the 1950s and 1960s property approach in providing material on private resource disposal. Though Martz's selection of cases on public lands is completely outside of the current canon of public natural resources law, his material on water law remains recognizable.<sup>121</sup> In both new books, state water law plays a prominent role in expanding the property palette that students study after their first year. Though some of the water material, such as perfecting a prior appropriative right, duplicates the Lockean lessons of federal mining law, other aspects of water law, such as inter-basin transfers, raise problems not evident in mining law. The problems of water transfers illustrate the non-fungibility of many water interests and serve as a basis for considering the limitations of the "bundle of sticks" image of property.<sup>122</sup> The pervasive permit systems that overlay water rights offer an alternative model of administrative-judicial interaction to those glimpsed in environmental law. Moreover, the variant expectations of water users provides students with a basis for adjusting their notions of how flexible a property regime can be and yet still provide social stability.<sup>123</sup>

Rasband probes further into the property universe through its coverage of private mineral right acquisition and transfer. Also, Rasband's chapter on marine resources provides a discussion of fishery management tools, including individual transferable quotas. The property-based regime for managing commercial, living, migratory resources presents special challenges (such as determining the stock and optimal harvest levels) that generally elude coverage in both environmental law and property classes.

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121. Such seminal cases as *California-Oregon Power Co. v. Beaver Portland Cement Co.*, 295 U.S. 142 (1935); *Martin v. Waddell's Lessee*, 41 U.S. 367 (1842); *Gerlach Live Stock Co. v. United States*, 102 Ct. Cl. 392 (1944); *Lux v. Haggin*, 10 P. 674 (Cal. 1886); and *Coffin v. Left Hand Ditch Co.*, 6 Colo. 443 (1882), feature in Martz and most water law casebooks today. Between the two new natural resources casebooks, each of these decisions (except *Lux*) makes at least one appearance.

122. See Robert J. Goldstein, *Green Wood in the Bundle of Sticks*, 25 B.C. ENVTL. AFF. L. REV. 347, 385-386 (1997-1998).

123. See Joseph L. Sax, *The Constitution, Property Rights, and the Future of Water Law*, 61 U. COLO. L. REV. 257 (1990); Joseph L. Sax, *The Limits of Private Rights in Public Waters*, 19 ENVTL. L. 473 (1989).

## CONCLUSION: BOUNDARY VARIATIONS IN NATURAL RESOURCES LAW

Most schools consider environmental law a foundational class and natural resources law an advanced or enrichment offering. Is there a sound pedagogical reason for maintaining a separate natural resources class other than as a course of selected topics too minor to receive substantive treatment in an introductory class?

This article offers reasons for saying yes. Natural resources law is more than merely a class of advanced topics in environmental or property law. Though the current casebooks vary, all help students understand key issues related to extraction, interpretation, ecosystem management, and property that are peripheral to the typical environmental law curriculum. While affirming the centrality of public land management to natural resources law, the new casebooks restore some of the private, allocative material that Coggins had pushed aside twenty-five years ago. This is the major difference between the new crop of casebooks and the Coggins canon.

Is non-public resources law necessary to understanding the essential characteristics that distinguish natural resources law? Not really, though state water law does help substantially in illustrating the spectrum of the property palette. On the other hand, we do need the public resources component to provide the pedagogical fodder for highlighting most of the distinctive lessons of natural resources law.

In particular, the emerging principles of ecosystem management are difficult to teach without drawing upon the materials of public land law. The public resources are natural capital for generating goods and service. But they are also places for experimenting with new social models of use and control. For instance, practicing adaptive management or employing compatibility with conservation as a land use standard on the national wildlife refuges establishes a track record of what these sustainability criteria mean, on the ground (or, in the water). If workable, these tools may come to be the models for broader law reform applicable to private land decision-making. Perhaps future historians will see in public natural resources law the leading edge of fundamental change in private property rights.

The renewed attention from a new crop of casebooks is a welcome development for a field that has thrived in the shadows of environmental law for the past thirty-five years. Though the new books do not mark as significant a shift in focus as the 1981 Coggins text, they do revise the boundaries of natural resources law. They are likely to rejuvenate teaching this important subject.

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