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Keeping an Eye on the Golden Snitch: Implications of the Interdisciplinary Approach in the Fourth Generation of Natural Resources Law Casebooks

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KEEPING AN EYE ON THE GOLDEN SNITCH: IMPLICATIONS OF THE INTERDISCIPLINARY APPROACH IN THE FOURTH GENERATION OF NATURAL RESOURCES LAW CASEBOOKS

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INTRODUCTION

In some respects, we are a long way, jurisprudentially and pedagogically, from the hermetic case method approach first espoused by Professor Christopher Columbus Langdell.[1] Although casebooks remain a staple of most law school classes, they have evolved from assemblages of appellate court opinions into legal textbooks that incorporate diverse materials, many of them from other disciplines.[2] As this trend makes clear, the field of natural resources law is not the only one for which serious comprehension of other disciplines is, or should be, required. Nonetheless, many in the field feel that natural resources law is especially, if not uniquely, intertwined with other disciplines. Eric Pearson observes that the latest natural resource challenge, global warming, "demonstrates the unavoidable dependency of environmental and natural resource law in its policy formulations and remedy selections in particular, on independent information from the physical sciences."[3] This "unavoidable dependency" on information from other disciplines (including, but not limited to, the physical sciences) creates an obligation in us as teachers to equip our students

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1. *See* Steve Sheppard, *Casebooks, Commentaries, and Curmudgeons: An Introductory History of Law in the Lecture Hall*, 82 IOWA L. REV. 547, 596–608 (1997) (describing Langdell's case method approach).

2. *Id.* at 594–96.

3. ERIC PEARSON, TEACHER'S MANUAL FOR ENVIRONMENTAL AND NATURAL RESOURCES LAW 4 (2005).

with at least minimal fluency in some of these fields, or even less ambitiously, with the ability to discern when such an unavoidable dependency exists.

All of the "fourth-generation"[4] natural resources law casebooks that I was able to peruse reflect a similar assumption about the interdisciplinary nature of the field. Each casebook incorporates insights and materials from other disciplines, albeit in varying degrees and with a diversity of methods. Pearson's 2005 edition is the most traditional in approach, but even Pearson frames his book with a chapter incorporating some of the greatest hits in interdisciplinary natural resources law material.[5] The casebook by Jan Laitos, Sandi B. Zellmer, Mary Wood, and Daniel Cole leans heavily on interdisciplinary sources, starting off with lengthy introductory chapters on economics[6] and biodiversity.[7] Christine Klein, Frederico Cheever, and Bret Birdsong have written a "place-based" book, and their approach is inherently interdisciplinary, viewing each natural resource law theme through the holistic lens of particular geographies.[8] Finally, James Rasband, James Salzman and Mark Squillace's casebook is arguably the most interdisciplinary of the fourth generation books, in that approaches, data, and theories from other disciplines are both thoroughly introduced and woven throughout the chapters on substantive law.[9]

Reviewing the casebooks and thinking about the extent to which they incorporate material from other disciplines has, perhaps unfortunately, put me in a reflective mood about the field. Just as I hoped and suspected, the fourth-generation casebooks are much more interdisciplinary than their predecessors.[10] Yet, as I will return to towards the end of this re-

4. *See* Michael Blumm & David H. Becker, *From Martz to the Twenty-First Century: A Half-Century of Natural Resources Law Casebooks and Pedagogy* 78 U. COLO. L. REV. 647 (2007). Blumm and Becker usefully divide the natural resources law casebooks into four generations, with the latest wave of publications falling into the last generation. *Id.* at 655–56.

5. *See* ERIC PEARSON, ENVIRONMENTAL AND NATURAL RESOURCES LAW 1–14 (2005).

6. JAN G. LAITOS, SANDI B. ZELLMER, MARY C. WOOD & DANIEL H. COLE, CASES AND MATERIALS ON NATURAL RESOURCES LAW 2–70 (2006).

7. *Id.* at 71–130.

8. CHRISTINE A. KLEIN, FREDERICO CHEEVER, & BRET C. BIRDSONG, NATURAL RESOURCES LAW: A PLACE-BASED BOOK OF PROBLEMS AND CASES (2005).

9. JAMES RASBAND, JAMES SALZMAN & MARK SQUILLACE, NATURAL RESOURCES LAW AND POLICY (2004).

10. *See generally* Blumm & Becker, *supra* note 4 (discussing content of previous generations of casebooks).

view, the phenomenon of the increasing interdisciplinarity of our field put me in mind of Quidditch, the fictitious game played by Harry Potter and his Hogwarts schoolmates in J.K. Rowling's fabulously successful *Harry Potter* series.[11] Briefly, in the imaginary game of Quidditch, there are actually two games going on at once. The main game proceeds like a combination of soccer and rugby in mid-air. Two teams, with all members mounted on flying broomsticks, attempt to get the "quaffle," a sort of flying soccer ball, into the other team's goal. Each goal results in twenty points for the scoring team. While attempting to score, players have to watch out for another type of flying ball, "bludgers," which zoom about and can be hurled defensively at the players to knock them off course (or even off-broomstick.) Meanwhile, an entirely separate layer of the game occurs simultaneously. Two players, called "seekers," hover above the fray, on the watch for a third flying ball known as the "Golden Snitch." Unlike the other balls, it has little wings and zips about of its own accord, unpropelled by the Quidditch players. The only way to end a game of Quidditch is for one of the seekers to catch the Golden Snitch. The scoring in the main game can go on for hours, days, weeks, or indefinitely until the snitch is finally caught. The team whose seeker catches the snitch gets 150 points.

That is enough about Quidditch for now. The main point to grasp is that there is a slow, accretive, goal-by-goal game going on, while at the same time there is a separate game happening, and this separate game of "who will catch the snitch" is only tangentially related to the main game, and yet it is the only way to end it. For the readers who require more of a thematic road-map than this, here's a hint: Eric Pearson, in the quotation above, emphasizes the unavoidable interdisciplinary nature of natural resources law in the context of global climate change.

I. WHY AND HOW THE FOURTH-GENERATION CASEBOOKS INCORPORATE MATERIAL FROM OTHER DISCIPLINES

Each of the fourth-generation casebooks that I reviewed has a satisfying amount of material from other disciplines.

11. *See* J.K. ROWLING, HARRY POTTER AND THE SORCERER'S STONE 166–70 (1999) (describing the fictitious game of Quidditch).

Why satisfying? Why, in other words, is it important for future natural resources lawyers to understand anything other than the workings of the law itself?

First, from an academic perspective, the myth of law's independent development faded long ago.[12] In the 1920s and 1930s, the legal realists, several of whom were ensconced in executive agencies, urged both academics and judges to turn away from formalism's "transcendental nonsense"[13] and towards understandings of how law operated in the world. Few of the realists themselves engaged in empirical or other forms of interdisciplinary research.[14] But the law and society movement, which cohered in the 1960s, took the realists' insights a step further, employing methods and conclusions from other disciplines in order to illuminate the causes, effects, and contextualized nature of legal decision making.[15] In addition, several of the critical movements in legal academia (strands of which intertwine with the law and society movement) analyze law and legal culture with intellectual vocabulary common to (or developed by) other disciplines, such as sociology, anthropology, political philosophy and literary theory.[16] So even if some of our students will practice law in ways that are fairly traditional, in the sense that they are not consciously incorporating methods from other disciplines, it is incumbent on us as professors to teach about law (its nature, genesis, and effects) in ways that accord with broader understandings. Doing so may, at the very least, awaken our students to the fact that they do not ply their trade in a social or political vacuum, and that it behooves them as human beings, and even as lawyers, to understand the situated nature of their profession.

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12. *See* Stewart Macaulay, *The New Versus the Old Legal Realism, "Things Ain't What They Used to Be,"* 2005 WIS. L. REV. 365, 367–68 (describing an early experiment in interdisciplinary approaches to law that flourished at the University of Wisconsin from roughly 1907–1915).

13. *See* Felix S. Cohen. *Transcendental Nonsense*, 35 COLUM. L. REV. 809 (1935).

14. There are some notable exceptions, including Karl Llewllyn's famous study of the Cheyenne legal system. *See* KARL N. LLEWELLYN & E. ADAMSON HOEBEL, THE CHEYENNE WAY: CONFLICT AND CASE LAW IN PRIMITIVE JURISPRUDENCE (1941); *see also* Macauley, *supra* note 12, at 376–77 (discussing other realist empirical work).

15. *See* Lawrence M. Friedman, *The Law and Society Movement*, 38 STAN. L. REV. 763, 763 (1986); *see generally* RICHARD ABEL, THE LAW AND SOCIETY READER (1995).

16. *See generally* ABEL, *supra* note 15.

Second, many natural resource law academics and practitioners would argue that the realist and law and society observations are especially salient to our field. The recurring problem in natural resources law of how to divide up scarce resources requires us to turn to ethical and economic considerations, scientific realities, and the limitations of legal boundaries, both figuratively and literally. In addition, the highly statutory and administrative nature of much of natural resources law makes the field particularly, though not uniquely, amenable to realist and law and society insights, in that the myth of the common law's independent development never had a very strong hold.[17] It is not surprising, therefore, that as teachers we are constantly urging our students to take classes in other departments: "Go learn about the science of climate change; take that class in geography about G.I.S. mapping; enroll in the groundwater hydrology class; be sure not to miss Professor So-and-So's environmental philosophy class," we say. Of course most of our students won't listen to us.[18] We must rely instead on the extent to which our casebook-drafting colleagues have made it possible for us to force these materials onto our students in the course of a law class. Yet it is not merely this practical benefit that we gain by having interdisciplinary materials included in the casebook itself. Even if many

17. I acknowledge that this point is debatable, and requires further development. Intuitively, however, the relatively recent rise of the environmental and natural resources regulatory state, as well as its predominately administrative and legislative features, make it more amenable to infiltration by other disciplines and less susceptible to earlier formalist conceptions. Furthermore, the relatively late arrival of non-Indians to the American West meant that even the common law of western resources developed in a much more self-consciously realist way than traditional property law. Decisions about the prior appropriation doctrine, for example, exude deference to law as developed in the mining camps rather than law as a brooding omnipresence. *See* CHARLES F. WILKINSON, CROSSING THE NEXT MERIDIAN: LAND, WATER AND THE FUTURE OF THE WEST 231–35 (1992) (describing the development of western water law in the informal settings of the mining camps); *see also* Coffin v. Left Hand Ditch Co., 6 Colo. 443 (1882).

18. I must add, however, that happily, many of our students at the University of Colorado do listen to us. We have the good fortune of having an excellent environmental studies department at the University of Colorado, as well as top flight science programs. There is a joint degree program with environmental studies, as well as a certificate program in environment, society and policy. *See* Dual Degree Programs, http://www.colorado.edu/law/programs/dual degree.htm (last visited Apr. 10, 2007); Environmental Studies Program, http://envs.colorado. edu/about/ (last visited Apr. 10, 2007); Graduate Certificate on Environment, Policy, and Society, http://www.colorado.edu/EnvironmentalPolicyCertificate/ (last visited Apr. 10, 2007).

of our students heeded our advice, they might continue to compartmentalize the information learned in classes across campus, missing the point that, while law in many ways still follows its own path, law also constitutes and derives from the worlds they are learning about elsewhere. Getting students to think seriously about this is sufficiently challenging without the additional conceptual obstacle of having the material from other disciplines physically separate from the book about the law.

For these interrelated reasons, an important hallmark of the fourth-generation casebooks is that all of them are considerably more interdisciplinary than their predecessors, and I now turn specifically to the ways in which that is so.

A. *Eric Pearson's* Environmental and Natural Resources Law[19]

Eric Pearson's revision of his casebook, *Environmental and Natural Resources Law*, is a broad survey not only of the traditional natural resources subjects, but also of the environmental (or pollution) curriculum. This is a lot of legal material for one book so it is not surprising that there is far less "extra" material in Pearson's book than in the other fourth-generation books.

Yet Pearson does start off with a "theory and perspectives" chapter, which incorporates some of the greatest hits in interdisciplinary material.[20] These include an excerpt from Aldo Leopold's *Land Ethic*[21] (still the best early articulation of the need for and bases of a conservation ethic); Ronald Coase's *The Problem of Social Cost*[22] (although with law and economics' dominance, one could query whether insights from economics are fair to consider "interdisciplinary" anymore); Garrett Hardin's *Tragedy of the Commons*[23] (it is interesting to note that this now-classic piece on commons problems first appeared in a science journal and was about a natural resource dilemma—

19. PEARSON, *supra* note 5.

20. *Id.* at 1–14.

21. *Id.* at 5–6 (excerpting ALDO LEOPOLD, A SAND COUNTY ALMANAC: AND SKETCHES HERE AND THERE 203–04 (Oxford Univ. Press 1968) (1949)).

22. *Id.* at 6–7 (excerpting Ronald H. Coase, *The Problem of Social Cost*, 3 J.L. & ECON. 1 (1960)).

23. *Id.* at 7–11 (excerpting Garrett Hardin, *The Tragedy of the Commons*, 83 SCIENCE, 1234, 1234–38 (1968)).

not overgrazing, but over-population); Al Gore's *Earth in the Balance*,[24] on the challenge of global climate change, and in particular on the dilemma of waiting for "sound science"; and Gregg Easterbrook, a journalist, on the absence of a serious anthropogenic challenge to global environmental health.[25] In addition, building on the legacy of the Coggins, Wilkinson, and Leshy casebook,[26] Pearson includes the *de rigeur* historical information about acquisition, disposition, and retention of the federal public domain at the beginning of the public lands chapter.[27] Otherwise, Pearson's book is fairly traditional in its approach, but it is grounded as an initial matter in ethics, economics, and science.

B. Jan G. Laitos, Sandi B. Zellmer, Mary C. Wood, and Daniel H. Cole, Cases and Materials on Natural Resources Law[28]

The Laitos casebook has, literally, a very thick interdisciplinary approach. The first chapter is titled "Economics and Natural Resources Law," and comprises seventy pages of material that provide students with an introduction to the basic principles of law and economics as well as their application to natural resource issues.[29] Given the ubiquity of law and economics approaches in legal scholarship and policy realms, it is beyond debate that our students must gain fluency in the vocabulary and basic workings of the theory. The Laitos chapter provides a clear and succinct overview, and many students will likely find it useful in their other courses as well.

Professors who want their students to acquire fluency in the vocabulary, but also to maintain a critical perspective about the extent to which law and economics (and rational choice approaches generally), have colonized legal thought will need to supplement this chapter, however. There are only a handful of references that challenge core law and economics as-

24. *Id.* at 12–13 (excerpting AL GORE, EARTH IN THE BALANCE: ECOLOGY AND THE HUMAN SPIRIT 29–30, 40 (1992)).

25. *Id.* at 13–14 (excerpting GREGG EASTERBROOK, A MOMENT ON THE EARTH xvii–xviii (1991)).

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

27. PEARSON, *supra* note 5, at 197–206.

28. LAITOS ET AL., *supra* note 6.

29. *Id.* at 2–70.

sumptions, and even these references are somewhat quickly marginalized.[30] The authors presumably wanted to provide a straight-on description of law and economics theory, leaving different frameworks for decision making to other chapters, including the one immediately following on biodiversity. The risk of this approach, depending on one's intellectual orientation and pedagogical goals, is that students will prioritize the material and accept it as a template for policy making without the full range of perspectives necessary to put law and economics in its place. To balance this tendency, professors may want to assign portions of Frank Ackerman and Lisa Heinzerling's book critiquing cost-benefit analysis,[31] Michael Taylor's recantation of rational choice theory,[32] or other similar weighty antidotes.

The second chapter of the Laitos casebook is titled "Biodiversity and the Sustainability of Ecosystems."[33] Much of this chapter describes the science (including ecology, conservation biology, ecosystem studies, and population studies) supporting concerns about biodiversity preservation. There is a section entitled "A World in Peril: Are Ecosystem Management and Sound Science the Answer,"[34] with subsections on ecosystem management and sound science. As the first chapter did for law and economics, this chapter clearly presents the core concepts and vocabulary necessary for law students to obtain at least minimal fluency in the background scientific approaches relevant to natural resources law. In addition, the biodiversity chapter introduces students to the complexities inherent in meshing scientific knowledge with law and policy. The authors deftly summarize the problems of scientific uncertainty,[35] the politicization of the term "sound science,"[36] and the obstacles to

30. *See id.* at 8–9 (describing very briefly the critiques of the rationality assumption), 49–50 (including one short paragraph on "non-efficiency-related government interventions," such as equity), 59 (providing a very short description of the incommensurability critique of cost benefit analysis, and quickly countering that critique).

31. FRANK ACKERMAN AND LISA HEINZERLING, PRICELESS: ON KNOWING THE PRICE OF EVERYTHING AND THE VALUE OF NOTHING (2004). The book is mentioned and summarized very briefly in LAITOS ET AL., *supra* note 6, at 59.

32. MICHAEL TAYLOR, RATIONALITY AND THE IDEOLOGY OF DISCONNECTION (2006).

33. LAITOS ET AL., *supra* note 6, 71–130.

34. *Id.* at 111.

35. *Id.* at 90–98.

36. *Id.* at 115–27.

implementing legal regimes that are consistent with scientific consensus.[37]

Several of the individual resource chapters maintain the interdisciplinary focus. For example, as in Pearson's book, the public lands chapter includes the now-required history section,[38] and the water chapter contains a section on the physical characteristics of water.[39] In addition, many of the notes, questions, and problems throughout the casebook appear designed to encourage students to draw on economic, scientific, and ethical considerations rather than simply to refine or regurgitate a legal conclusion.

On the whole, Laitos, Zellmer, Wood, and Cole go far to include, in accessible and interesting ways, relevant information and methodologies from disciplines that intertwine with natural resources law. For some professors, the "set-aside" approach of having the first two chapters devoted to economics and biodiversity may work less well than having such material woven throughout the individual resource chapters. For many, however, this approach will likely be welcome as a way to immerse students initially in the vocabulary and concepts from these areas, which can then be deployed throughout the subsequent chapters of the book. If there is a significant gap, it is in the absence of a thorough discussion of ethical and moral frameworks. The moral basis for biodiversity preservation is introduced at the end of Chapter 2 to highlight the need for a background framework of values as a prerequisite to adopting any meaningful legal regime for preserving biodiversity on a broad scale.[40] Despite the strong indication that all of the science will be for naught in the absence of an underlying value orientation, the authors devote barely three pages to the topic.[41] Of course, each casebook cannot do everything, and the authors might counter that ethics and values orientations are implicit in and surfaced by many of the natural resource problems and dilemmas presented throughout the book. Professors concerned with about the fairly uncritical presentation of the law and economics materials, however, might prefer a more ex-

37. *Id.* at 111–15.
38. *Id.* at 310–36.
39. *Id.* at 1073–78.
40. *Id.* at 127.
41. *Id.* at 127–30.

plicit and in-depth treatment of values, morality, and our corresponding cognitive responses.

C. *Christine A. Klein, Frederico Cheever & Bret C. Birdsong,* Natural Resources Law: A Place-Based Book of Problems and Cases.[42]

The theme of the Klein book, which is to approach natural resources problems as rooted in particular places, is inherently interdisciplinary. To understand a place requires a sense of its physical characteristics, its demographics, its aesthetics, and its values. The fields of geography, economics, history, and geology all lurk close to the surface. Even when another discipline is not formally invoked in the way that scientific theories or empirical studies might be, work from other fields (including journalism and literature) is called on to enrich the description of a particular natural resource dispute. Setting the tone in the introductory chapter, Klein and her co-authors include excerpts from Aldo Leopold[43] and E.O. Wilson[44] to frame the discussion of how to define conservation, and rely on prose and fiction writer Barbara Kingsolver[45] for an evocative description of the emotional attachment to place.

The substantive chapters take a similar approach. For example, "Private Lands: Conservation Transactions," begins with a journalistic description of the dilemma that ranching families face as they try to keep their land intact for future generations,[46] and then bolsters that description with reference to the work of geographers who have documented the phenomenon of suburbanization and loss of open space.[47] Even chapters that cover more traditional objects of resources law, such as Chapter 5 on forests, begin with historical descriptions and present problems that ask students to internalize different ethical orientations.[48]

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42. KLEIN ET AL., *supra* note 8.

43. *Id.* at 13–14 (quoting ALDO LEOPOLD, ESSAYS ON CONSERVATION FROM ROUND RIVER (1953)).

44. *Id.* at 16 (excerpting E.O. Wilson, *The Conservation Ethic, in* BIOPHELIA: THE HUMAN BOND WITH OTHER SPECIES, 119–140 (1984)).

45. *Id.* at 24–27 (excerpting Barbara Kingsolver, *The Memory Place, in* HIGH TIDE IN TUCSON: ESSAYS FROM NOW OR NEVER 170–180 (1995)).

46. *Id.* at 687–92.

47. *Id.*

48. *Id.* at 370.

The Klein book is, in general, interdisciplinary in a more humanistic way than the Laitos text is. It spends less time on economics and hard science (although it does include some of this material), and more time on aesthetic, ethical, and cultural understandings of resource problems. The Klein text is therefore less overtly didactic in its incorporation of material and approaches from other disciplines. This has its advantages and disadvantages from a teaching perspective. Professors who are concerned that their students lack basic concepts and information from, in particular, economics and science may prefer the Laitos approach. Those who want to focus on deploying a variety of frameworks and understandings to natural resource problems may prefer the Klein approach.

D. James Rasband, James Salzman, and Mark Squillace, Natural Resources Law and Policy[49]

The Rasband casebook is arguably the most interdisciplinary of the ones I reviewed. The approaches, data, and theories from other disciplines are both thoroughly introduced and woven throughout all of the chapters on substantive law. In the introduction, different ethical orientations (biocentricism, anthropocentrism, and intergenerational equity) are included in order to encourage students to think clearly and precisely about why data alone fails to bring consensus to a natural resources problem.[50] The next section of the introductory chapter expands the values discussion to include insights from economic theory.[51]

To provide an example from the substantive legal chapters, the chapter on wildlife and biodiversity begins with a very helpful primer on evolution and biodiversity, including statistical methods used to count species, and then a survey of the justifications for preserving biodiversity.[52] Here, as throughout the casebook, the authors are careful to note controversies (such as whether there is an extinction crisis or not), and also careful to include a balanced assessment of the scientific data to date. Nearly the first twenty pages of the wildlife chapter are taken with these discussions before there is any "hard" dis-

49. RASBAND ET AL., *supra* note 9.
50. *Id.* at 11–35.
51. *Id.* at 35–43.
52. *Id.* at 310–34.

cussion of the law, and this approach fairly represents that taken in many of the other chapters of the book.[53] My only criticism of this approach is that it may prove difficult to assign and digest in a typical law class, with time limits ranging from fifty to seventy-five minutes. Yet this points less to a flaw in the authors' approach and more to the macro problem of how to incorporate other fields of study into the legal curriculum. The alternative of presenting a further truncated version of the science of biodiversity would likely be worse than coping with the problem of time and volume.

For professors attempting to choose between Laitos, Klein, and Rasband, there will likely be many factors in addition to the particular angles addressed here. I can confidently and honestly say (and not just because our field is a small one and I know several of the authors of these casebooks) that if the incorporation of information and methodologies from other disciplines is a paramount concern, each book in its distinct way can deliver.

II. CATCHING THE GOLDEN SNITCH, OR HOW WILL THE INTERDISCIPLINARY STORY END?

The fourth-generation casebooks take seriously the fact that natural resources law is embedded in and often determined by other disciplines, including history, science, economics, geography, and ethics, among others. If casebooks in some sense present "the law," then we can definitively conclude that the law of natural resources is a plural enterprise.

Why, to return to the apparent non-sequitur in the introduction, does this positive development make me think about the imaginary game of Quidditch? Natural resource casebooks are more interdisciplinary because the field to which they refer, and to which they are introducing students, is interdisciplinary. Laws about species protection, to pluck just one example, are based on knowledge from conservation and wildlife biology, geography, and other sciences, and informed by ethical orientations towards other species. Indeed, the "heroes" behind several of the great shifts in natural resource laws were people from other disciplines (geologists such as John Wesley Powell,

53. *See, e.g.*, *id.* at 558–74, 1142–58.

biologists such as Rachel Carson, and foresters/silviculturalists such as Gifford Pinchot).[54]

Still, knowledge from other disciplines can take us only so far. As many have noted, it requires a cultural shift to pass laws that redistribute duties and responsibilities in ways that are sometimes necessary to address natural resource problems.[55] Knowledge, whether from science or other disciplines, may be a necessary cause in a cultural shift, but it is rarely sufficient. And to complicate things further, if scientific knowledge is the predominant means by which we know anything at all about a potentially significant threat to our current regime for organizing and allocating natural resources, we confront the problem of the scientific method (rarely one hundred percent certain), and the accompanying scientific personality (usually unwilling to go out on a limb to change policy).[56]

I am talking here, in case it is not already obvious, about the mother of all natural resource challenges, global climate change. Of the four casebooks I reviewed, only the Pearson text has a section on climate change in the substantive law of air pollution.[57] The Rasband text refers to climate change in the introductory materials, but does not cover it in any greater detail.[58] Likewise, the Laitos text addresses it only in passing.[59] The Klein text does not cover climate change at all. I do not mention this in a critical fashion. There are valid reasons

54. Sarah Krakoff, *Arnold Schwarzenegger and Our Common Future*, 53 BUFF. L. REV. 925, 936–48 (2005) (describing these and other conservation heroes).

55. *See, e.g.*, Daniel A. Farber, *Politics and Procedure in Environmental Law*, 8 J.L. ECON. & ORG. 59, 66 (1992).

56. *See generally* Daniel Sarewitz & Roger Pielke, Jr., *Breaking the Global Warming Gridlock*, ATLANTIC MONTHLY, Jul. 2000 (describing the difficulty, in the climate change context, of making scientists carry a policy banner).

57. PEARSON, *supra* note 5, at 463–68.

58. *See infra* note 60 and accompanying text.

59. *See* LAITOS ET AL., *supra* note 6, at 209. Here the authors quote the Worldwatch Institute on the causes of biodiversity loss, which include global warming: "[I]f we are going to reverse biodiversity loss, dampen the effects of global warming, and eliminate the scourge of persistent poverty, we need to reinvent ourselves—as individuals, as societies, as corporations, and as governments." *Id.* at 209 (quoting Worldwatch Institute, State of the World 2003, http://www.worldwatch.org/pubs/sow/2003/ (last visited Aug. 6, 2003)). The quote is used, however, in a discussion of the National Environmental Policy Act's broad statutory goals, and includes no direct discussion of global warming. *See id.* at 208–10. Similarly, the casebook discusses *Department of Transportation v. Public Citizen*, 541 U.S. 752 (2004), a case with significant climate change implications, but those implications are not part of the analysis of the case. *See id.* at 266–72.

for excluding global climate change in casebooks about American natural resources law, including the relative dearth of hard domestic law, and the arguable cross-over nature of the topic (is it natural resource law or environmental law?) Quite *a propos* of my eventual point, however, is the placement of the topic in the Rasband text. In that casebook, climate change is discussed in a section entitled "Scientific Uncertainty," in which the authors briefly mention the difficulties of enacting policies in the face of partial information:

> [U]ncertainties over the magnitude of environmental problems, their causes, and future impacts bedevil law and policy. What we would like to know as policy makers rarely approaches our actual knowledge. But if we do not understand well the current situation, then how can we predict the future impacts of our laws and policies? In the context of climate change, for example, the detailed mechanisms of global warming are still only partly understood.[60]

As it stands today, a vast scientific consensus has emerged about the extent of human contributions to global warming,[61] as well as many of the current and future effects.[62] (Uncertainties remain, but they are about the magnitude of effects, the strength of positive feedback loops, and the local and regional scale of changes, not about whether humans are causing global warming.)[63] Yet by the time we assimilate this knowledge so that we can adopt the appropriate policy instruments to respond . . . well, by then the Golden Snitch may have already been caught. Game over. Climate change, the phenomenon, may well have determined our fate while we were preoccupied with dodging bludgers and scoring one twenty-point goal at a time (that is, slowly incorporating other disciplines in order to respond with appropriate policies and laws about climate change).[64]

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60. RASBAND ET AL., *supra* note 9, at 43.

61. *See* INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, CLIMATE CHANGE 2007: THE PHYSICAL SCIENCE BASIS, SUMMARY FOR POLICY MAKERS 3, *available at* http://www.ipcc.ch/SPM2feb07.pdf. (stating that there is "very high confidence that the globally averaged net effect of human activities since 1750 has been one of warming") (citation omitted).

62. *See id.* at 5–10 (describing effects such as melting glaciers, rising sea levels, longer droughts, and so forth).

63. *See generally id.*

64. Prominent climate scientists have raised this problem of "the tipping

The real beauty of the Quidditch metaphor, however, is that it has a different resonance than the shop-worn cliché signifying futility: "rearranging deck chairs on the Titanic." It is not pointless to expend so much energy scoring one goal at a time while we wait for our seeker to catch the Golden Snitch, because we, unlike the Titanic, may *not* sink.[65] Maybe no one will catch the Golden Snitch. Maybe the game will just have to be played out, one slow, drawn out goal at a time. And maybe interdisciplinary approaches will, in their slow accretive way, ensure that the game is well played and that the "best team" wins. Here, that means that the collective "team" of scientists, ethicists, policy makers, and legal professionals will assemble enough information in time to guide us in making effective policy choices to address a potentially enormous threat to our natural resource heritage, and to the lives we have constructed around that heritage. So despite my somewhat gloomy thoughts about whether we will align our priorities swiftly enough about global warming in light of what we know from other disciplines, interdisciplinarity must, and will, go on. Because regardless of the game's outcome, we have no choice but to keep playing, do we?

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point," meaning that if we do not take dramatic action to reduce greenhouse gas emissions within the next decade, we will be unable to reverse a course of increasingly severe and dramatic effects from global warming. *See, e.g.*, Jim Hansen, *The Threat to the Planet*, N.Y. REVIEW OF BOOKS, Jul. 13, 2006, at 14, 16.

65. Indeed, one problem scientists and others have faced when communicating about the dangers of global warming is that people expect, and to some extent seem to want, the language of imminent catastrophe. This is evident, for example, in one of Justice Scalia's questions during an oral argument in a pending case involving global warming: "When? I mean, when is the predicted cataclysm?" Massachusetts v. EPA, No. 05-1120, Oral Argument Transcript at 5, 75 U.S.L.W. 3311, 2006 WL 3431932 (Nov. 29, 2006).

More likely, however, is the scenario of slow, yet ultimately dramatic and irreparable change. This is "catastrophic" when viewed in geologic time, but most of us do not perceive catastrophe from such a vast time horizon. *See* R.T. Pierrehumbert, *Climate Change: A Catastrophe in Slow Motion*, 6 CHI. J. INT'L. L. 573 (2006).

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