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The Pardy-Ruhl Dialogue on Ecosystem Management, Part IV: Narrowing and Sharpening the Questions

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I. INTRODUCTION

The back and forth of serious scholarly dialogue is difficult to capture in the printed pages of law journals, even in symposium issues in which commentaries on principal papers are included. Hence I have enjoyed the unusual opportunity the PACE ENVIRONMENTAL LAW REVIEW has provided Professor Bruce Pardy and me to engage in a spirited debate over the contours of ecosystem management ("EM"). Professor Pardy published an intriguing discourse on EM in this journal several years ago.[1] I responded with a series of objections.[2] Professor Pardy in turn replied in *Ecosystem Management in Question: A Reply to Ruhl*[3] by identifying common ground and emphasizing old and new differences. In this fourth installment of the dialogue, I will attempt to distill what appears to be the intractable gap between us, with the purpose of inviting other scholars and practitioners of environmental law to weigh in. Before delving into our disagreements, however, I should add that one incidental but not unimportant benefit of this

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1. *See* Bruce Pardy, *Changing Nature: The Myth of the Inevitability of Ecosystem Management*, 20 PACE ENVTL. L. REV. 675 (2003) [hereinafter Pardy, *Changing Nature*].

2. *See* J.B. Ruhl, *The Myth of What Is Inevitable Under Ecosystem Management: A Response to Pardy*, 21 PACE ENVTL. L. REV. 315 (2004).

3. Bruce Pardy, *Ecosystem Management in Question: A Reply to Ruhl*, 23 PACE ENVTL. L. REV. 209 (2005) [hereinafter Pardy, *Ecosystem Management in Question*].

dialogue has been that Professor Pardy and I have gotten to know each other outside the pages of the law review and—I think I can speak for him—agree that this is a positive and productive way to explore the topic, even if ultimately we will have to agree to disagree.

II. REPLY

Professor Pardy identifies a few issues upon which, I concur, we agree: "(1) that environmental protection in its broad sense is important and should be ecosystem-based; (2) that ecosystem mismanagement is undesirable; (3) that government has a role in environmental protection; and (4) that he [meaning I] and other advocates of EM believe that EM is inevitable."[4] That easy part is now behind us. As for disagreements, they strike me as boiling down to three related themes Pardy develops in *Ecosystem Management in Question*:

1. Pardy portrays EM as "anathema to a rule- or precedent-based system of law."[5]
2. Pardy argues that an ecosystem-based legal system using "natural/unnatural" as its core decision making criterion will be more likely than EM to avoid ecosystem degradation.[6]
3. Pardy argues that EM is more susceptible to "arbitrary environmental decisions" promoting utilitarian goals than would be a system "governed by general rules."[7]

A. On the Nature of Management and Rules

Pardy describes EM as "a particular kind of process in which decision-makers have broad discretion to weigh conflicting priorities to craft appropriate results one situation at a time to fit specific facts about the system under consideration."[8] He then leaps to the conclusion that, because of these features, "EM is anathema to a rule- or precedent-based system of law."[9] I find this ironic because his description of the decision-making process of EM is on point, but it would also be on point as both a description of much of the rule-based statutory regime of environmental law as imple-

4. *Id.* at 210.
5. *Id.* at 212.
6. *Id.* at 213-14.
7. *Id.* at 214-17.
8. *Id.* at 212.
9. *Id.*

mented and precedent-based common law in general. Could not both of these institutions also be described as involving decision-makers with broad discretion to weigh conflicting priorities, one situation at a time, in order to craft appropriate results to fit specific facts about the system under consideration?

The flaw in Pardy's reasoning is that he believes that EM, unlike statutory regimes administered by agencies and common law regimes administered by courts, is "not based on general rules, . . . but is instead indeterminate and ad hoc."[10] I cannot avoid making the observation that truckloads of law review articles have been written about how statutory and common law regimes, notwithstanding (or perhaps because of) their "general rules," produce indeterminate and ad hoc results.[11] My quarrel with Pardy, however, is over his description of EM as not being based on general rules. On this point, Pardy is gravely mistaken.

In the first place, let us be clear about one thing: EM is not the invention of lawyers. EM arose as a management theory and technique employed by scientists and resource management professionals.[12] EM is almost universally embraced in those disciplines,[13] and I get the impression that these professionals believe they are following "general rules." Their general rules, of course, are the rules of science—the scientific method and its protocols of hypothesis generation, experimentation, data analysis, peer review, publication, and verification.[14] To the extent EM finds the scientific method at its core, therefore, it follows general rules.

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10. *Id.*

11. Citations for this proposition are legion. For example, the search "indeterminacy & da(last 5 years)" in the Westlaw TP-ALL database yielded over 2400 documents. *See, e.g.*, Tom Stacy, *Cleaning Up the Eighth Amendment Mess*, 14 WM. & MARY BILL OF RTS. J. 475 (2005); Mark R. Kravitz, *The Vanishing Trial: A Problem in Need of a Solution*, 79 CONN. B.J. 1, 14 (2005); Michael C. Dorf, *Legal Indeterminancy and Institutional Design*, 78 N.Y.U. LAW REV. 875 (2003).

12. For thorough histories of the scientific origins of the emergence of ecologically-oriented statutes and the development of ecosystem management law in general, see RICHARD O. BROOKS, ROSS JONES, & ROSS A. VIRGINIA, LAW AND ECOLOGY: THE RISE OF THE ECOSYSTEM REGIME (2002); JOHN COPELAND NAGLE & J.B. RUHL, THE LAW OF BIODIVERSITY AND ECOSYSTEM MANAGEMENT 361-409 (2d ed. 2006).

13. *See generally* Norman L. Christensen et al., *The Report of the Ecological Society of America Committee on the Scientific Basis for Ecosystem Management*, 6 ECOLOGICAL APPLICATIONS 665 (1996).

14. Holly Doremus provides a concise summary of the scientific method:

> Procedurally, science is a formalized system for gathering and evaluating information about the world. Its essential steps are observation, communication, informed criticism, and response. A scientist gathers data through observation or experimental manipulation. She then communicates those data, together with an explanation of the methods used to

Perhaps only legal rules matter to Pardy. I agree that EM cannot simply be about letting the scientists run wild. EM cannot continuously avoid the ubiquitous need in environmental protection law to make policy judgments based on less than complete scientific information, or even based on a wealth of scientific information but in contexts in which trade-offs force choices.[15] Here, however, Pardy sets up a straw man by suggesting that an advocate of EM must also necessarily advocate against using rules for making such policy judgments, as if an EM statute must be limited to saying just "perform ecosystem management." I know of no advocate of EM that has proposed this approach. Rather, EM is to be practiced within a set of criteria established through authorizing statutes and regulations, such as requirements to "maintain and enhance wetland functions within a watershed" or to "promote recovery of endangered species." I assume Pardy would not object to such statutory directives. To suggest that using them means we are not engaged in EM is no less than a mischaracterization of EM.

The reality is that Pardy's fixation on "general rules" misses the point of an ecosystem-based approach entirely. The real question is whether the decision-making approach can respond to the dynamic features of ecosystems and the threats to them. Simply having general rules does not guarantee that such rules are necessarily right for the critical challenges of an ecosystem-based approach to environmental protection. I wonder what set of general ecosystem-based rules Pardy would propose for dealing with invasive species or the effects of climate change, for example. The sheer complexity of such problems and their resistance to command-and-control rules has led many EM advocates to incorporate "adaptive management" ("AM") techniques as the "general rules" of policy implementation.[16] AM is a methodology that relies on

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> gather them, to the community of scientists in her field. The scientific community reviews and critiques the work, commenting in ways that may inspire the original scientist and others to seek additional data or alternative explanations.

Holly Doremus, *Listing Decisions Under the Endangered Species Act: Why Better Science Isn't Always Better Policy*, 75 WASH. U. L.Q. 1029, 1057 (1997).

15. Uncertainty and trade-offs plague environmental policy. *See generally* Daniel A. Farber, *Probabilities Behaving Badly: Complexity Theory and Environmental Uncertainty*, 37 U.C. DAVIS L. REV. 145 (2003).

16. There is broad consensus today among resource managers and academics that adaptive management is the only practical way to implement ecosystem management policy. *See* Ronald D. Brunner & Tim W. Clark, *A Practice-Based Approach to Ecosystem Management*, 11 CONSERVATION BIOLOGY 48 (1997); Anne E. Heissenbuttel,

building models of ecosystem dynamics and then using rigorous testing, monitoring, and evaluation of policy implementations to provide the feedback necessary to promote long-term ecosystem integrity.[17] Of course, the central purpose of this application of AM is to promote the goal of EM. This leads to the next issue—what are we trying to manage?

Ecosystem Management—Principles for Practical Application, 6 ECOLOGICAL APPLICATIONS 730, 730 (1996); Paul L. Ringold et al., *Adaptive Monitoring Design for Ecosystem Management*, 6 ECOLOGICAL APPLICATIONS 745, 745-46 (1996). Indeed, the Ecological Society of America's comprehensive study of ecosystem management treats the use of adaptive management methods as a given. *See* Norman L. Christensen et al., *The Report of the Ecological Society of America Committee on the Scientific Basis for Ecosystem Management*, 6 ECOLOGICAL APPLICATIONS 665 *passim* (1996).

17. *See generally* ADAPTIVE ENVIRONMENTAL ASSESSMENT AND MANAGEMENT (C.S. Holling ed., 1978). It is universally agreed that adaptive management theory traces its origins to Holling's influential work. *See, e.g.*, Kai N. Lee & Jody Lawrence, *Adaptive Management: Learning from the Columbia River Basin Fish and Wildlife Program*, 16 ENVTL. L. 431, 442 n.45 (1986) (tracing the term "adaptive management" to Holling's book). The biologist Simon Levin recently defined adaptive management concisely as "maintaining flexibility in management structures and adjusting rules and regimes on the basis of monitoring and other sources of new data." SIMON A. LEVIN, FRAGILE DOMINION 200 (1999); *see also* Simon A. Levin, *Towards a Science of Ecological Management*, 3 CONSERVATION ECOLOGY 6, A3 (1999), *available at* http://www.consecol.org/vol3/iss2/art6 (discussing Holling's arguments). A more detailed description is found in a recent report by the National Academy of Science's research arm, the National Research Council, in its investigation of the Missouri River ecosystem:

> The concept of adaptive management promotes the notion that management policies should be flexible and should incorporate new information as it becomes available. New management actions should build upon the results of previous experiments in an iterative process. It stresses the continuous use of scientific information and monitoring to help organizations and policies change appropriately to achieve specific environmental and social objectives.

COMM. ON MO. RIVER ECOSYSTEM SCI., WATER SCI. & TECH. BD., DIV. ON EARTH & LIFE STUDIES, NAT'L RESEARCH COUNCIL, THE MISSOURI RIVER ECOSYSTEM: EXPLORING THE PROSPECTS FOR RECOVERY 18–19 (2002), *available at* http://books.nap.edu/books/0309083141/html. More recently, the National Research Council, at the request of several federal agencies, convened a committee of scientists to explore how adaptive management might be used to improve resource agency decision making in the Klamath River Basin, which straddles southern Oregon and northern California. The Committee outlined eight steps of adaptive management: (1) definition of the problem, (2) determination of goals and objectives for management of ecosystems, (3) determination of the ecosystem baseline, (4) development of conceptual models, (5) selection of future restoration actions, (6) implementation of management actions, (7) monitoring and ecosystem response, and (8) evaluation of restoration efforts and proposals for remedial actions. *See* COMM. ON ENDANGERED & THREATENED FISHES IN THE KLAMATH RIVER BASIN, BD. ON ENVTL. STUDIES & TOXICOLOGY, DIV. ON EARTH & LIFE STUDIES, NAT'L RESEARCH COUNCIL, ENDANGERED AND THREATENED FISHES IN THE KLAMATH RIVER BASIN: CAUSES OF DECLINE AND STRATEGIES FOR RECOVERY 333-35 (2004), *available at* http://www.nap.edu/books/0309090970/html. In the interests of full disclosure, I was a member of the so-called "Klamath Committee."

B. On the Nature of Natural and Unnatural

Pardy condemns EM as relying on an anthropocentric "desirable/undesirable" dichotomy, which he proposed replacing in his "general rules" regime with a purportedly ecocentric "natural/unnatural" dichotomy.[18] He concedes that "the enterprise of defining the line between 'natural' and 'unnatural' is difficult," but this will be better than "the discretionary and politically laden judgment calls between 'desirable' and 'undesirable.'"[19]

My first reaction is that Pardy has simply given different labels to "desirable" and "undesirable." In essence, he has decided that "natural" is desirable and "unnatural" is undesirable. Pardy observes that a forest does not care what kind of forest it is.[20] True enough, but a forest also does not know whether it is natural or unnatural. Is a forest ecosystem that has been disrupted by an invasive species natural or unnatural according to Pardy's proposal? Only Pardy can say—i.e., only humans can define what is natural and unnatural. Thus, Pardy's natural/unnatural dichotomy is every bit as anthropocentric as anything advocates of EM have proposed.

Pardy claims to have escaped this problem by "articulat[ing] a meaning for 'natural' based upon the economic analogy of a perfectly competitive marketplace,"[21] as if this supplies some sort of objective, non-normative reference point. I must point out that, whereas ecosystems actually exist, perfectly competitive marketplaces exist only in theory. Much of neoclassical economics is devoted to identifying reasons why perfectly competitive markets do not exist, and much of ecological economics is devoted to explaining why, given that perfectly competitive markets do not exist, the markets we do have perform poorly for purposes of maintaining sustainable ecosystems.[22]

In any event, Pardy uses neoclassical economic theory to analogize between "disproportionate influence" behavior in the marketplace and cases of "disproportionate influence" behavior by humans interfering in ecosystems.[23] The problem is that economists do not agree in theory, much less in application, about the

18. Pardy, *Ecosystem Management in Question*, *supra* note 3, at 213-14.
19. *Id.* at 214.
20. *Id.* at 213.
21. *Id.* at 214.
22. *See generally* HERMAN E. DALY & JOSHUA FARLEY, ECOLOGICAL ECONOMICS: PRINCIPLES AND APPLICATIONS (2004).
23. Pardy, *Changing Nature*, *supra* note 1, at 682-85.

normative effects of "disproportionate influence" in the market because one first has to agree on what is *desirable* in the marketplace—e.g., consumer welfare, productive capacity, distributional equity, etc.[24] Likewise, one also has to agree that "naturalness" (or something else) is desirable, define what it is, figure out a way to measure it, and agree when it has been disproportionately influenced before one can even begin to test for Pardy's "disproportionate influence" criterion for ecosystem-based decisions. This does not strike me as an inquiry free of "discretionary and politically laden judgment."[25]

In short, naturalness is a human conception. We can disagree over what it means. We can also disagree over when it ever existed, over how far we are from it, and over what would have to be done to move any particular ecosystem closer to it. As such, Pardy's natural/unnatural dichotomy cannot deliver an objective, non-anthropocentric benchmark that will save ecosystem-based environmental protection law from "the discretionary and politically laden judgment calls between 'desirable' and 'undesirable.'"[26] This leads to the final theme—if discretion is inevitable under both Pardy's and my approaches, which approach uses discretion more effectively?

C. On the Nature of Discretion

I detect throughout Pardy's *Ecosystem Management in Question* that what really motivates his assault on EM is a deep fear of discretion. The word or its derivative appears eleven times in his nine-page article (and never in a nice way). He characterizes EM as depending on a "professional elite" wielding "its own technical or political judgment" and capable of making "arbitrary environmental decisions" with little accountability.[27] He believes, I assume, that his regime of "general rules" and "natural/unnatural" dichotomies is immune from such defects.

I have many concerns with his depiction of our two approaches in this regard. First, how does Pardy measure discretion, as he must to claim what he does? Is there a discretion meter? The text of a statute is no reliable guide—more than one

24. *See* DALY & FARLEY, *supra* note 22, at 37-50.

25. Pardy, *Ecosystem Management in Question*, *supra* note 3, at 214.

26. *Id.*

27. *Id.* at 217.

court has interpreted "shall" to mean "may."[28] So it remains unclear how Pardy is distinguishing between our two proposed approaches on the basis of the *quantity* of discretion.

More importantly, how does Pardy propose that ecosystem-based decisions—which frequently involve incomplete scientific information and trade-offs, not only between ecological and economic interests, but also between ecological and ecological interests—are going to be made without the exercise of discretion? If he is suggesting that there is some set of general rules which, with the aid of his natural/unnatural dichotomy, will decide every future ecosystem-based decision without requiring anyone to exercise discretion, then he is suffering from a severe case of legal formalism.

If, on the other hand, he concedes that discretion is inherent in the process, but it is the "professional elite" *quality* of discretion that concerns him about EM, to whom would he delegate the discretion? Will legislatures decide, for example, whether to grant each wetland development permit? Will judges decide? Will voters decide? In fact, Pardy gives us a taste of how his system would work in this regard in his proposal, prepared outside of this dialogue, for an "Ecological Sustainability Act."[29] The core of the statute would be "ecological sustainability," which he defines as "the absence of permanent change caused by human impact in an ecosystem of any size within which the impact is found."[30] Through a system of civil and criminal liability with judicially imposed remedies, the statute would punish anyone causing "permanent change" unless such change would not be permanent in a "larger encompassing ecosystem," is designed to restore the ecosystem back to pre-permanent change conditions, or meets other exceptions based on human health.[31]

While his proposal includes many intriguing features and his discussion of ecosystem-based decisions contains valuable insights, Pardy does not solve the defects that he alleges plague EM. His proposal uses general rules only in the most basic sense, and it is brimming with indeterminate terms judges would have dis-

28. *See generally* 82 C.J.S. Statutes § 368 (2007); 3 SUTHERLAND STATUTORY CONSTRUCTION § 57:3 (6th ed. 2006).

29. *See* Bruce Pardy, *In Search of the Holy Grail of Environmental Law: A Rule to Solve the Problem*, 1 MCGILL INT'L J. OF SUSTAINABLE DEV. & POL'Y 29 (2005) [hereinafter Pardy, *In Search of the Holy Grail*].

30. *Id.* at 53.

31. *Id.*

cretion to interpret.[32] Moreover, his proposal introduces new problems not associated with EM. As a liability-based system, Pardy's proposal is retrospective rather than prospective.[33] It imposes the burden of proof on the plaintiff to prove permanent change.[34] In short, his proposal faces all the transaction costs and other foibles of litigation-based solutions.[35] Finally, and ironically, it is also grounded in the same default principle that guides EM—"that permanent change to ecosystems caused by human society should be prevented."[36] This is what leads me to conclude that Pardy's primary quarrel with EM isn't over "general rules" or what is "desirable/undesirable" but, instead, is merely over who has the discretion to decide how it is implemented.

I agree (and have said many times) that the way in which discretion is distributed and exercised in an EM approach is different from the statutory regime and common law approaches, and that it will rely heavily on administrative exercise of professional judgment.[37] However, I cannot agree that an EM approach has "more" discretion or a higher potential for arbitrary exercise of discretion. More than a few people are rather dissatisfied with the way discretion has been exercised in numerous statutory environmental law regimes, and not just by agencies but by judges as well.[38] Similarly, although I am an avid promoter of the common law in environmental contexts,[39] I also recognize that it has substantial limitations, not the least of which is the nature of judicial discretion. While democratic values are claimed to be near and dear to environmentalism, I know of few serious proposals to put all ecosystem-based decisions to a popular vote. I am afraid, Professor Pardy, that discretion is inherent in any ecosystem-based decision making regime, and neither you nor I have solved the

32. Statutory regimes, whether rule or liability based, cannot avoid the need for judicial interpretation. *See* CASS R. SUNSTEIN, AFTER THE RIGHTS REVOLUTION: RECONCEIVING THE REGULATORY STATE 111-59 (1990).

33. *See id.* at 55-57 (proposing only liability-based remedies).

34. *See id.* at 55.

35. *See* DANIEL H. COLE, POLLUTION AND PROPERTY: COMPARING OWNERSHIP INSTITUTIONS FOR ENVIRONMENTAL PROTECTION 100-04 (2002).

36. Pardy, *In Search of the Holy Grail*, *supra* note 29, at 57.

37. *See, e.g.*, J.B. Ruhl, *Regulation by Adaptive Management—Is It Possible?*, 7 MINN. J. L. SCI. & TECH. 21 (2005).

38. For a comparison of the advantages and disadvantages of statutory and common law regimes, see Keith N. Hylton, *When Should We Prefer Tort Law to Environmental Regulation?*, 41 WASHBURN L.J. 515 (2002).

39. *See, e.g.*, J.B. Ruhl, *Toward a Common Law of Ecosystem Services*, 18 ST. THOMAS L. REV. 1 (2005).

puzzle of how to have it but ensure that it is never exercised arbitrarily.

III. CONCLUSION

I have to confess that I remain more than a little bit puzzled by Pardy's opposition to EM. Although we agree on much about the nature of and need for ecosystem-based approaches to environmental law, he goes out of his way to portray EM as an idea devised by a power-hungry scientific elite aligned with dark political interests in order to serve their purely utilitarian goals without any measure of accountability. Ironically, one other strident opponent of ecosystem management, Allan Fitzsimmons, condemns it as an idea formulated by a power-hungry scientific elite aligned with dark political interests in order to serve their purely *environmental* goals without any measure of accountability.[40] EM must be doing something right if it can attract condemnation from both ends of the spectrum!

I believe the difference between Pardy and myself boils down to conceptions of the appropriate distribution of discretion in decision-making. Pardy wants to cling to the old command-and-control system of statutes and rules, although that system has failed to advance an ecosystem-based approach. It's not working, largely, because the way in which it channels discretion will never produce an ecosystem-based approach. More of the same won't change what's wrong with the "general rules" command-and-control system in this sense.

So let it go, Professor Pardy. Move on. Give EM a chance.

40. *See* ALLAN K. FITZSIMMONS, DEFENDING ILLUSIONS: FEDERAL PROTECTION OF ECOSYSTEMS (1999).