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EARTH AND OTHER ETHICS: THE INSTITUTIONAL ISSUES

A. DAN TARLOCK*

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I. INTRODUCTION: FROM *GENESIS* TO *EARTH AND OTHER ETHICS*

Environmental law is a product of a rich but inconclusive debate about the proper balance between the human exploitation of natural

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resources and the preservation of relatively undisturbed ecosystems.¹ The subject has matured rapidly in the past twenty years in both the United States and throughout the world. Laws regulating a wide range of activities that threaten to strain the carrying capacity of air and watersheds and land bases have been put in place. All these laws rest on the widespread acceptance of the premise that we should do more to protect natural environments from stress than we have done in the past. There are, of course, utilitarian reasons for doing this, but there is also increasing acceptance of the idea that what we characterize as the environment has value beyond individual human uses of it. But, despite the substantial legislative and regulatory activity in the past twenty years,² we still lack an adequate theory of environmental protection or "environmentalism."

This lack of consensus about the meaning of environmentalism is not simply an abstract issue. As a society, we continue to face an endless series of hard questions at the levels of both abstract theory and implementation which we have tended to gloss over. Complex as our current environmental laws are, they represent an incomplete response to the moral and scientific lessons of ecology. Problems continue to be subdivided into discrete units, so that holistic solutions are precluded or deterred and aesthetic values are slighted.³ The long-

1. [T]he "environmental perspective" is deeply embedded in the social and political fabric of our existence. It has become a penetrating and pervasive feature of our daily lives, influencing our judgments, our moral positions, our systems of belief, and our everyday conduct. But, as with all fundamental social issues, the environmental perspective offers neither reconciliation nor peaceful resolution, but rather a set of tantalising contradictions or divergent patterns of belief and action which constantly defy solution yet persistently invite a striving for mediation.

T. O'RIORDAN, ENVIRONMENTALISM at vi (1976).

2. E.g., Toxic Substances Control Act, Pub. L. No. 94-469, 90 Stat. 2003 (1976) (codified as amended at 15 U.S.C.A. §§ 2601-2654 (1982 & West Supp. 1988)); Federal Water Pollution Control Act Amendments of 1972, Pub. L. No. 92-500, 86 Stat. 816 (codified as amended at 33 U.S.C.A. §§ 1251-1387 (1986 & West Supp. 1988)); Marine Protection, Research, and Sanctuaries Act of 1972, Pub. L. No. 92-532, 86 Stat. 1052 (codified as amended at 33 U.S.C.A. §§ 1401-1445 (1986 & West Supp. 1988)); National Environmental Policy Act of 1969, Pub. L. No. 91-190, 83 Stat. 852 (1970) (codified as amended at 42 U.S.C. §§ 4321-4370a (1982 & Supp. II 1984)); Resource Conservation and Recovery Act of 1976, Pub. L. No. 94-580, 90 Stat. 2795 (codified as amended at 42 U.S.C. §§ 6901-6991i (1982 & Supp. IV 1986)); Clean Air Amendments of 1970, Pub. L. No. 91-604, 84 Stat. 1676 (codified as amended at 42 U.S.C. §§ 7403-7642 (1982 & Supp. IV 1986)); Comprehensive Environmental Response, Compensation, and Liability Act of 1980, Pub. L. No. 96-510, 94 Stat. 2767 (codified as amended at 42 U.S.C. §§ 9601-9675 (1982 & Supp. IV 1986)); Emergency Planning and Community Right-to-Know Act of 1986, Pub. L. No. 99-499, §§ 300-330, 100 Stat. 1613, 1728-1758 (codified at 42 U.S.C. §§ 11001-11050 (Supp. IV 1986)).

3. See Guruswamy, *Integrating Thought Ways: Re-Opening of the Environmental Mind?*, 1989 Wis. L. Rev. — (forthcoming).

term damage issues that many resource-use conflicts raise are particularly difficult to address. For example, the protection of habitat diversity often depends on the fortuitous presence of a listed threatened or endangered species. Additionally, we are just beginning to come to grips with the consequences of our unintentional alteration of the global climate.

Two reasons account for our continuing reluctance to develop an operational theory of environmentalism. First, we continue to rely on technology and the progressive conservation-era legacy of scientific management to achieve environmental quality.⁴ This continued reliance, expressed in the bureaucratic, regulatory state that we have created, has deflected attention away from the more radical implications of the moral and scientific foundations of environmentalism. Our major legal and political institutions continue to assume that most problems are subject to technological solutions within the framework of existing political and private institutions⁵ because the only rights at stake are those of the human users of the environment. The grip of the Greco-Christian arrogance, reinforced by the Enlightenment, that "[s]ince everything on earth is for man's use, he is at liberty to modify it as he will,"⁶ has great staying power.

Second, there is a widespread public perception, at least among "experts," that the major theoretical justifications for environmental regulation are in place and the question is merely one of implementation. After an initial flurry of interest in the philosophical basis of environmentalism in the 1960s and early 1970s, most lawyers and legislatures have considered the problem solved by the spate of environmental legislation put in place in the 1970s.⁷ The fact that

4. See R. NELSON, *THE MAKING OF FEDERAL COAL POLICY* (1983) for an insightful analysis of the impact of the progressive ideology of resource management on current natural resources policy formulation.

5. Technological optimism was challenged in the neo-Malthusian work by D.H. MEADOWS, D.L. MEADOWS, J. RANDERS & W. BEHRENS, *THE LIMITS TO GROWTH* (1st ed. 1972), but the argument that there were finite limits to growth was rejected by a wide variety of experts. This rejection may have been premature because it ignores a number of long-range problems of environmental degradation and it overestimates the ability of existing institutions to respond to them. The unhappy fact is that political systems can only respond to short-term problems. Thus, technological optimism

works well enough, in fact it is exemplary, in the case of conventional problems (that is, problems that do not threaten latent, irreversible, and possibly catastrophic effects). It can hardly be recommended, however, in the unconventional settings . . . where false technological steps become ever more capable of teaching lessons that are uninteresting only because they tell us too much, and too late.

Krier & Gillette, *The Un-Easy Case for Technological Optimism*, 84 MICH. L. REV. 405, 428 (1985).

6. J. PASSMORE, *MAN'S RESPONSIBILITY FOR NATURE* 17 (1974).

7. See *supra* note 2.

the legislation was maintained by Congress during the 1980s against the intense opposition of the Reagan administration has reinforced this perception. Existing environmental legislation appears to solve the deeper questions of environmentalism by making the prevention of cancer or harmful genetic mutation risks serve as proxies for all environmental harm. In this view, regulation of the environment thus fits, without major modification, into the existing common-law framework of the protection of bodily integrity.⁸

The assumption that reducing all issues to a few proxies solved the problem of the ethical foundation of environmentalism is, however, illusory. Many of our laws rest on insufficiently articulated scientific and ethical foundations, and not all problems, especially the protection of biodiversity, can be reduced to the issue of health-risk minimization or elimination.⁹ As environmental issues become harder, and as we begin to realize that we have underestimated the magnitude of environmental problems, there has been a renewed interest in the philosophical basis of environmentalism. One example among the many recent serious books on environmental philosophy¹⁰ is Professor Christopher Stone's provocative *Earth and Other Ethics: The Case for Moral Pluralism*,¹¹ which is the occasion for this symposium.

Earth and Other Ethics is not strictly about environmentalism, because its broader focus is on the enhancement of the legal position of all nontraditional entities—such as native tribes, animals, future generations, and robots. In any given case, this objective may conflict with the promotion of environmental values. For example, much has been made of the respect of Native Americans for nature, but sometimes the protection of tribal cultural traditions will conflict with the enhancement of environmental values.¹² The principal thrust

8. The major hurdle that the courts had to overcome was the recognition that risk creation was a legitimate substitute for cause in fact as a basis for responsibility. Risk creation was first accepted as a basis for the regulation of hazardous substances. See F. ANDERSON, D. MANDELKER & A.D. TARLOCK, ENVIRONMENTAL PROTECTION: LAW AND POLICY 482-515 (1983). Courts are now expressing a reluctance, similar to that of earlier courts, to recognize risk exposure as a basis for tort liability. See, e.g., *Sterling v. Velsicol Chem. Corp.*, 855 F.2d 1188, 1204-05 (6th Cir. 1988); *Ayers v. Township of Jackson*, 106 N.J. 557, 577-79, 525 A.2d 287, 297-98 (1987).

9. The complexities of the justifications for preserving biodiversity are explored in NATIONAL ACADEMY OF SCIENCES, BIODIVERSITY (E. Wilson ed. 1988).

10. E.g., W. GRANBERG-MICHAELSON, A WORLDLY SPIRITUALITY: THE CALL TO REDEEM LIFE ON EARTH (1984); J. HART, THE SPIRIT OF THE EARTH: A THEOLOGY OF THE LAW (1984); P. TAYLOR, RESPECT FOR NATURE (1986).

11. A preliminary version of the book, with slightly more legal analysis, was published as Stone, *Should Trees Have Standing? Revisited: How Far Will Law and Morals Reach? A Pluralist Perspective*, 59 S. CAL. L. REV. 1 (1985).

12. See Schwarz, *Indian Rights and Environmental Ethics: Changing Perspectives, and A Modest Proposal*, 9 ENVTL. ETHICS 291 (1987).

of the book, however, is consistent with modern philosophical inquiries into environmentalism which explore the extension of "interests" beyond the human community. *Earth and Other Ethics* is thus a welcome and serious addition to the environmental literature.

In brief, Professor Stone argues that legal *interests*, but not necessarily *rights*, should be extended to nonhumans. He identifies moral monism, the search for "a single coherent and complete set of principles capable of governing all moral quandaries,"¹³ as a major philosophical barrier to a properly expanded analysis of environmental issues and to the protection of entities *qua* entities. In its place, he would substitute the idea of moral pluralism,¹⁴ with different rules for different classes of nonpersons. To Professor Stone, this unconventional approach has major advantages over existing attempts to develop a coherent theory of environmentalism, many of which suffer the weaknesses of romantic search for the transcendental.¹⁵ By extending the moral universe to both living and nonliving things,¹⁶ Professor Stone argues that we can break out of the rigid, universal rules that govern relations among persons and substitute "a richer range of governance variables than is afforded by canvassing the familiar substantive rules that have emerged in the traditional Person-oriented debates."¹⁷

Many works find multiple value systems empty of any ethical content or at least a hopeless quandary,¹⁸ but *Earth and Other Ethics*

13. C. STONE, *EARTH AND OTHER ETHICS: THE CASE FOR MORAL PLURALISM* 116 (1987). Professor Stone traces the tendency of moral philosophy towards monism to the classic scientific search for the unifying theory. *Id.* at 125-31.

14. *Id.* at 132-52.

15. One can read in the environmental literature pleas that one must seek wisdom beyond the scientific and rational. Proponents of ecosophy, derived in part from Sophia, the feminine Greek word for wisdom, argue that "[t]he Western world, if it is to regain . . . [a] lost androgyne consciousness, must reopen its eyes to an entirely different way of perceiving the environment." Davis, *Ecosophy: The Seduction of Sophia?*, 8 ENVTL. ETHICS 151, 161-62 (1986). To embrace ecosophy, which

involves both a renunciation of the primordial bond with nature and the honesty of perception found in primitive or pagan epistemologies . . . as an epistemological equal is to rekindle the dying embers of feminine fire within each of us To become spiritually whole, the masculine must embrace the feminine in an androgyne act of empathy and love.

Id.

16. Compare P. TAYLOR, *RESPECT FOR NATURE* (1986), which seeks to build on a theory of environmental ethics by extending the idea of respect for human life and dignity to respect for all living creatures.

17. C. STONE, *supra* note 13, at 148.

18. Professor Stone recognizes that pluralism and relativism are cousins. The case against relativism is powerful. See A. BLOOM, *THE CLOSING OF THE AMERICAN MIND* (1987). Professor Stone, however, offers three possible benefits of pluralism: (1) pluralism may engender consensus; (2) not all problems require the application of multiple value systems; and (3) in many instances, all systems will yield the same answer. C. STONE, *supra* note 13, at 247-50.

finds the possibility of less universal rules a great opportunity because it permits the development of a sliding scale of moral values for nonpersons. Initially, this approach avoids the formidable problems which more hard-core environmental philosophers have encountered in trying to articulate an ethic based on the function of an entity, living and nonliving, in an ecosystem.¹⁹ To claim a more reasonable middle ground, Professor Stone borrows the idea that moral considerability, as opposed to rights, should be extended from self-interested humans to nonhumans.²⁰ This weaker theory of environmentalism still retains the core theory of modern environmental philosophy that nonhumans have a legal personality. However, Professor Stone hopes that this more modest extension of interests that are worthy of *some* legal recognition will more effectively constrain mischievous human intervention compared to the present legal system. As with theories of nonhuman rights, system function becomes a substitute for life or sentience, which philosophers have identified as the minimum conditions for intrinsic value.²¹ Professor Stone formally avoids the problem of absolute rights, although the recognition of *any* nonhuman interests will be a radical extension of existing theories of rights.

For this reason, *Earth and Other Ethics* represents a sharp break with the conventional thinking about environmental protection, although perhaps not with popular sentiment.²² Existing approaches to environmental regulation assume that many problems of environmental quality are not susceptible to a reduction to simple right-duty relations because they cannot be assimilated into the Roman-law notion that the function of the law is to protect persons and property from injury.²³ In place of right-duty relationships, we have substituted processes to assess the level of environmental damage. These processes, such as environmental impact assessment or "hard-look" judicial review, assume that there are no a priori correct solutions.²⁴

19. The classic papers articulating such an ethic are reprinted in *ETHICS AND THE ENVIRONMENT* (D. Scherer & T. Attig eds. 1983). See especially Rolston, *Is There an Ecological Ethic?*, *id.* at 41; Scherer, *Anthropocentrism, Atomism, and Environmental Ethics*, *id.* at 73.

20. The seminal article is Goodpaster, *On Being Morally Considerable*, in *ETHICS AND THE ENVIRONMENT*, *supra* note 19, at 30.

21. Feinberg, *The Rights of Animals and Unborn Generations*, in *PHILOSOPHY AND THE ENVIRONMENTAL CRISIS* 43 (W. Blackstone ed. 1974).

22. See generally F. ANDERSON, D. MANDELKER & A.D. TARLOCK, *supra* note 8.

23. R. STEWART & J. KRIER, *ENVIRONMENTAL LAW AND POLICY* 293 (2d ed. 1978).

24. The prevailing assumption was recently well captured by an environmental activist who compared environmentalism to the civil rights movement of the 1960s: Environment as an issue has no such [moral] clarity Environment is in fact marbled with nuance, a green world of troubling greys. It perplexes theologians, confounds philosophers, annoys economists, inspires biologists,

The mainstream debate has been reduced to whether markets or regulation is the best process to achieve the desired ends.²⁵ Our commitment to processes rather than rights and duties is reinforced by ecology and welfare economics, both of which have dominated environmental policy analysis.

Both ecology and welfare economics define themselves as sciences—but ones from which a person may deduce not only positive statements but also prescriptive statements. This assumption, which is not always articulated clearly by policy analysts, flies in the face of the rigid separation of fact from value maintained by philosophers.²⁶ However, the reliance on ecology and (to a lesser extent) welfare economics as sources of policy norms reflects the valuable insights that science can provide us regarding the ultimate ethical choices posed by environmental conflicts. Welfare economics has played a dominant role in policy analysis, because its inherent simplifying assumptions give it great power to illuminate hard choices. All problems are reduced to a benefit-cost analysis that is, in theory, capable of calculation by objective criteria.²⁷ *Earth and Other Ethics* challenges the dominance of welfare economics theory in policy analysis, by reemphasizing the moral considerations that are excluded by welfare economics in the name of science. In one example, the forbidden fruit of cardinal preference rankings is reintroduced into policy analysis.²⁸

bends the literary scientific and vice versa. Except for the truly remote—East Coast urban-beat journalists, for example—environment is not an issue at all, but a faith, a view of the world.

Snow, *The Mighty Oak, the Blue Man and the Zipper on My Pants*, NORTHERN LIGHTS, April 1988, at 7, 9.

25. Compare Latin, *Ideal Versus Real Regulatory Efficiency: Implementation of Uniform Standards and "Fine-Tuning" Regulatory Reforms*, 37 STAN. L. REV. 1267 (1985) (proposing that uniform standards would provide numerous advantages) with Ackerman & Stewart, *Reforming Environmental Law*, 37 STAN. L. REV. 1333 (1985) (advocating a more individualized approach to regulation).

26. Brown, *Ethics, Science, and Environmental Regulation*, 9 ENVTL. ETHICS 331, 333-35 (1987).

27. See, e.g., M. FREEMAN, R. HAVEMAN & A. KNEESE, *THE ECONOMICS OF ENVIRONMENTAL POLICY* 80-95 (1973). A leading and sophisticated practitioner of the art of benefit-cost analysis has written that for "such matters as nuclear radiation and toxic materials . . . clever methods of quantifying damages (that is, negative benefits) have to be evolved." A. KNEESE, *MEASURING THE BENEFITS OF CLEAN AIR AND WATER* 4-5 (1984).

28. Cardinal utility, which is derived from classic utilitarianism, is an ultimate notion. Welfare economics moved away from this concept because it was too soft and substituted the relative concept of ordinal, or comparative, utility as the measure of consumer satisfaction. See P. SAMUELSON, *FOUNDATIONS OF ECONOMIC ANALYSIS* 90-91 (1983). For a contemporary discussion of the relationship between preferences revealed by willingness to pay and personal welfare, see T. SCITOVSKY, *THE JOYLESS ECONOMY* (1976) and Sagoff, *Some Problems with Environmental Economics*, 10

There are powerful and practical reasons for the rejection of a right-duty approach in favor of open-ended processes. It is both a strength and weakness of *Earth and Other Ethics* that Professor Stone, good lawyer that he is, is acutely aware of these problems. Early in the book, Professor Stone addresses the dilemma between the reach of technology's possible mischief, both temporally and spatially, and the broadening of the base of those with rights to be free from its adverse consequences. He states:

[T]he potential universe of our obligees—the very number of persons whom we know our actions do or could affect—seems simply to overwhelm us with the impracticality of extending throughout the world the familiar moral demands that evolved to adjust relations among contiguous Persons. Can we really subscribe to a morality that impels our being responsible to *everyone* in the same way?²⁹

This is the right question. *Earth and Other Ethics* poses it in an elegant and learned way, and attempts to provide answers to this very real dilemma.

Professor Stone has written an insightful book, but such an unconventional argument carries a heavy burden of justification. The burden is higher for lawyers because ethical speculation, no matter how engaging (as Professor Stone's is), must be made operational. The core idea of rights and duties (or at least consideration) for nonpersons, rooted in the supposed moral lessons of ecology, has taken root only indirectly in the law due to the very real and formidable problems of reducing environmental conflicts to conventional right-duty relationships that are capable of recognition by and protection in the judicial system. Professor Stone invites us to see beyond the confines of the Greco-Christian tradition of man's relationship to nature and, as with much of modern legal scholarship, to imagine a different order.³⁰

Mind stretching is always useful, especially in law; but in the end such speculation, even that as agile as Professor Stone's, must hold out the promise of advancing our understanding of the desired objective—in this case, environmental protection. By this standard, *Earth and Other Ethics* only partially succeeds because it is incomplete. As Professor Stone concedes, the book is only a general

ENVTL. ETHICS 55, 57-58 (1988). Professor Stone advocates that hard questions be resolved by working "toward some sort of lexical ordering of planes in accordance with general moral importance" based on intuition. C. STONE, *supra* note 13, at 251-52.

29. C. STONE, *supra* note 13, at 30.

30. He writes that "[m]oral planes can be conceived, like novels, as providing a sort of 'literature' for the development and play of . . . image-conjuring imagination. Some such sort of literature is particularly valuable when we are considering our relations with Nonpersons and Things." *Id.* at 245.

approach which "deflected some of the toughest questions,"³¹ such as the crucial problem of identifying the institutions that will be necessary to define and protect Professor Stone's expanded calculus of legally cognizable interests. This question is critical for two reasons—one "micro" and one "macro." The "micro" reason is, that courts are not well suited to the approach that Professor Stone advocates.³² Judges are bound largely by the parties as they define themselves, and are circumscribed by a long tradition of self-restraint in their ability to articulate new interests. The "macro" reason is that it is unclear whether creation of new legal interests is the correct approach to environmentalism. Interest creation takes conflicts as given, rather than asking how the conflict can be avoided or reduced. Still, *Earth and Other Ethics* gives us a better understanding of the relationship between processes and outcomes, and asks with renewed intensity whether existing institutions are asking the right questions. As Professor Stone reminds us, "[W]hen I counsel searching for right answers regarding our treatment of trees and species, it is not because I believe that those right answers exist mind-independent. . . . [W]hen we are committing to causes and to obligations, it is a way of life we are embracing."³³

To understand *Earth and Other Ethics*, it is first necessary to review in some detail the reasons for the rejection of the idea that nonpersons should have rights simply because they are members of the biotic community. Professor Stone's theory of moral pluralism attempts to find a middle ground between established theories of environmental analysis, which seek to characterize all issues as a human benefit-cost analysis, and the assertion of a priori rights that consistently trump benefit-cost calculations. Part II of this Article traces the reasons for the rejection of environmental rights, and argues the following: that (1) the implications of conventional environmental theory were rejected as impracticable; (2) ecology failed to provide a hoped-for middle ground; and (3) we quickly turned to the protection of health risks, namely cancer, as a politically attractive proxy for environmental quality generally. Part III of this Article reviews the principal argument of *Earth and Other Ethics*. Here I argue that in final analysis, Professor Stone's moral pluralism is simply a more sophisticated restatement of the benefits of existing policy analysis, and ultimately gives insufficient attention to the politics of choice. Part IV sketches the institutional implications of Professor Stone's argument.

31. *Id.* at 241.

32. See Komesar, *Taking Institutions Seriously: Introduction to a Strategy for Constitutional Analysis*, 51 U. CHI. L. REV. 366 (1984).

33. C. STONE, *supra* note 13, at 258.

II. ENVIRONMENTAL RIGHTS AND DUTIES: A SAND COUNTY ALMANAC REVISITED

A. *Environmental Law Before There Was Any*

Environmental law developed as a largely emotional response to the deep public perception that there were immediate threats to the quality of life resulting from the abuse of our air, water, and soil life-support systems. It was not the product of a long political campaign, or of a coherent ideology.³⁴ Lawyers had to create law out of whole cloth because legal doctrines that protected environmental quality were almost nonexistent. The common-law doctrines put forth by lawyers were vaguely grounded in a holistic vision of ecology put forth by some scientists and given a moral spin by Aldo Leopold in his classic book, *A Sand County Almanac*,³⁵ as well as in the welfare-economics concept that external costs must be minimized. The moral vision of social organization implicit in ecology was a profound challenge to the view of nature that had evolved from Hellenistic-Christian thought and the Enlightenment, and we are just coming to grips with the deeper implications of Aldo Leopold's vision. *Earth and Other Ethics* can only be understood in the context of *A Sand County Almanac*.

Leopold challenged both the core idea of individualism that is expressed through private property, and the corollary that rights were the exclusive attribute of man. Because our entire system of rights is premised on the assumption that only man imparts value to something, lawyers initially read Leopold (and ecologists generally) as making an argument for limits on man's activities rather than as a source of nonhuman rights.³⁶ Under the lens of environmentalism, whole areas of the legal system—administrative law, constitutional law, property, and torts—were examined and found lacking.

34. See S. HAYS, *BEAUTY, HEALTH, AND PERMANENCE: ENVIRONMENTAL POLITICS IN THE UNITED STATES, 1955-1985* (1987) for the most complete history of the environmental movement. Professor Hays argues that "[t]he search for environmental quality was an integral part of the rising standard for living" after World War II. *Id.* at 34. In the mid-1960s, ecology's "perspective was adopted and adapted by environmentalists in their views as what kinds of scientific knowledge and technologies should be advanced." *Id.* at 256-57.

35. A. LEOPOLD, *A SAND COUNTY ALMANAC* (1949). *COMPANION TO A SAND COUNTY ALMANAC: INTERPRETIVE AND CRITICAL ESSAYS* (J. Baird Callicott ed. 1987) [hereinafter *COMPANION TO A SAND COUNTY ALMANAC*] is a useful guide for the perplexed.

36. Meyers, *An Introduction to Environmental Thought: Some Sources and Some Criticisms*, 50 *IND. L.J.* 426 (1975) remains the most thoughtful exploration of this reading of Leopold.

B. Why We Rejected Rights for Rivers, Rocks, and Roots

To fill the gap between perceived environmental problems and the lack of legal response, lawyers tried to create new rights. There were ambitious attempts to use both the common law and the Constitution to create new environmental quality rights.³⁷ Appeals for new legal rights usually rest on an appeal to a sympathetic tradition,³⁸ but there was little basis in western civilization to which advocates of the environment could appeal.³⁹ In addition to this overarching problem, the efforts to create new legal rights failed for at least four related reasons: (1) environmental rights did not fit within the paradigm of constitutional rights; (2) common-law theories lacked an ethical or scientific consensus to specify consistent outcomes in advance of controversy; (3) the imputation of rights to nonpersons lacked an adequate philosophical basis and carried the unacceptable premise that civilizations self-destruct; and (4) welfare economics counseled that each controversy should have a different outcome. The problems will now be discussed in greater detail.

37. See Hanks & Hanks, *The Right to a Habitable Environment*, in *THE RIGHTS OF AMERICANS* 146 (N. Dorsen ed. 1970); Klipsch, *Aspects of a Constitutional Right to a Habitable Environment: Towards an Environmental Due Process*, 49 *IND. L.J.* 203 (1974).

38. Justice Frankfurter grounded due process protection in "the conception of human rights enshrined in history and the basic constitutional documents of English-speaking peoples." *Wolf v. Colorado*, 338 U.S. 25, 28 (1949). The Supreme Court in *Wolf* refused to recognize a federal exclusionary rule for illegally obtained evidence. *Id.* at 33. The Supreme Court subsequently overruled *Wolf*, but its analysis of the source of most rights remains true. See *Mapp v. Ohio*, 367 U.S. 643, 656-57, 660 (1961). The conventional view of rights is that they represent relatively permanent commitments to community moral values. See Haskell, *Curious Persistence of Rights Talk in the "Age of Interpretation,"* 74 *J. AM. HIST.* 984 (1987). This view vastly underestimates the struggle of marginal groups in society to gain full constitutional status or rights. See Hartog, *The Constitution of Aspiration and "The Rights that Belong to Us All,"* 74 *J. AM. HIST.* 1013 (1987). However, new groups seeking recognition often appeal to the higher tradition of the Constitution as opposed to the practice of constitutional interpretation. This perspective may be useful to nontraditional groups such as Native American tribes—who can claim a constitutional basis for tribal autonomy—but it is less helpful for most environmental claims. The higher tradition of environmental consciousness has some historical roots, but by and large it must be created rather than simply recognized.

39. The classic articulation of this position, White, *The Historical Roots of our Ecologic Crisis*, 155 *SCIENCE* 1203 (1967), is being challenged by newer scholars. See R. ATTFIELD, *THE ETHICS OF ENVIRONMENTAL CONCERN* (1983). But the core idea that Christianity rejected "the discovery of God through attunement to fellow creatures" because it "smacked of pantheism: an idolatrous identification of God with nature," holds true. McDaniel, *Christian Spirituality as Openness to Fellow Creatures*, 8 *ENVTL. ETHICS* 33, 35 (1986).

1. Lack of an Adequate Constitutional Theory of Environmental Rights

A right to environmental protection is difficult to ground in the Constitution. Neither the text nor the history of the Constitution supports the recognition of a constitutional right to a decent environment, assuming that this is how the right should be defined. Textual or historical support is not, of course, fatal to the recognition of a constitutional right. Rights may be inferred from the values inherent in the enumerated constitutional rights or from the structure of the Constitution, but environmental claims are not suitable for this elevation. There were suggestions that a right to environmental protection could be grounded in personal dignity analogous to privacy,⁴⁰ or that environmental protection is an expanded first amendment right to self-fulfillment through the preservation of ecological diversity.⁴¹ However, this claimed right runs counter to the purposes for which constitutional rights are recognized. There are two severe limitations to the recognition of a constitutional right to a decent environment: one is a structural limitation, and the other is a function of the lack of an adequate source of standards. A primary reason for the creation of constitutional rights that are not firmly grounded in text or tradition is the protection of isolated minorities that are at risk from oppression by majority power.⁴² Environmentalism has been consistently analyzed as the opposite of minority oppression by the majority: the problem is one of majority will being frustrated by powerful minority opposition.⁴³ A constitutional right to a decent environment is unnecessary to provide access to the political process or to prevent the majority from consistently ignoring the interests of the minority.⁴⁴ The success of the environmental movement in en-

40. See *supra* note 37.

41. Stewart, *The Development of Administrative and Quasi-Constitutional Law in Judicial Review of Environmental Decisionmaking: Lessons from the Clean Air Act*, 62 IOWA L. REV. 713, 750-56 (1977).

42. See J. ELY, *DEMOCRACY AND DISTRUST* (1980). Professor Ely's analysis is derived from the famous footnote in *United States v. Carolene Prods. Co.*, 304 U.S. 144 (1938): "[P]rejudice against discrete and insular minorities may be a special condition, which tends seriously to curtail the operation of those political processes ordinarily to be relied upon to protect minorities, and [so] may call for a correspondingly more searching judicial inquiry." *Id.* at 152 n.4. A leading academic environmental and constitutional scholar has attempted to recast the theory of constitutional protection of likely victims of discrimination to include diffuse majorities, women, anonymous minorities, and the poor, but he does not include environmentalists in the class of those at risk from the functioning of the political process. See Ackerman, *Beyond Carolene Products*, 98 HARV. L. REV. 713 (1985).

43. See generally S. HAYS, *supra* note 34.

44. "We need rights, as a distinct element of political theory, only when some decision that injures some people nevertheless finds *prima facie* justification

acting legislation in the 1970s and holding almost all of the legislative gains against a hostile administration in the 1980s demonstrates that there are no systematic barriers of access to the political process that must be removed by courts. It is perverse logic to say that minorities cause discriminatory legislation, but it is partially true with respect to environmental problems.⁴⁵ Our environmental problems are largely the product of a technological culture in which we all participate to some degree. Thus, the solution must come through political processes, messy as they are.

Even when one overcomes this structural objection and argues that the right to environmental protection is fundamental, there is another and equally compelling reason for the refusal to accord these claims a constitutional status. There are no clear criteria to assign fault to those alleged violators of the right. The principles put forth to support the constitutional right do not provide courts with the content they need to apply them in well-defined cases. Further, any proposed remedy would likely be financially and politically difficult to implement. All rights are costly to protect, and the boundaries are always fuzzy; but the problems of environmental constitutional rights are sufficiently different from the creation of rights based on general textual principles.⁴⁶ For example, the most appealing candidate for a constitutional environmental right is nondegradation, but this right does not lend itself to judicial articulation.⁴⁷ The problem is political in the best sense of the word. The concept is no more vague than any other constitutional norm such as free speech, but it is both difficult and unreasonable to ask the judiciary to make it operational.⁴⁸ One difficulty is created by the need to balance legit-

in the claim that it will make the community as a whole better off on some plausible account of where the community's general welfare lies." Dworkin, *Rights as Trumps*, in THEORIES OF RIGHTS 153, 166 (J. Waldron ed. 1984).

45. But see Slawson, *The Right to Protection from Air Pollution*, 59 S. CAL. L. REV. 667, 751-52 (1986) (noting that in the case of air pollution the same people may be both polluters and pollution victims).

46. Cf. Anderson, Public Law Versus Public Rights: The Constitution and Strategies for Environmental Protection (paper prepared for the Ninth International Smithsonian Symposium: Constitutional Roots, Rights, and Responsibilities). Professor Anderson has recently reexamined the case against a constitutional right to some level of environmental quality and concludes "when individual interests in safety, health, and life are separated from more generalized harms to natural ecosystems, the case for fundamental constitutional protection improves markedly." *Id.* at 24.

47. Professor Stone takes up this problem in part while discussing the Gaia (the Greek goddess of the Earth) hypothesis, which posits that Mother Earth is tougher than we think. See Weston, *Forms of Gaian Ethics*, 9 ENVTL. ETHICS 217 (1987). Professor Stone finds it difficult to define a single standard to apply to all actions that impinge upon natural systems. See C. STONE, *supra* note 13, at 220-26.

48. See Hines, *A Decade of Nondegradation Policy in Congress and the Courts: The Erratic Pursuit of Clean Air and Clean Water*, 62 IOWA L. REV. 643 (1977).

imate interests in environmental conflicts. For example, both the Clean Air Act⁴⁹ and Clean Water Act⁵⁰ recognize the idea of non-degradation, but properly make elaborate distinctions among the resources protected and the level of protection.⁵¹

2. Lack of Standards for Common-Law Rights

Similar problems have prevented the extension of nonconstitutional common-law rights to environmental quality beyond modestly expanded protection of persons and property. The lack of consistent rules⁵² to resolve environmental disputes has precluded the development of a theory of environmental rights and focused the development of the law in the direction of procedures for the evaluation of environmental injury, with some vague idea of the exercise of environmentally enlightened discretion by administrative agencies.

The attempt to fashion a theory of common-law environmental rights from the public trust doctrine illustrates the limitations of the rights approach to most resource-use conflicts. Early in the environmental movement, Professor Joseph Sax saw the majoritarian problem of recognizing a constitutional right to a decent environment and tried to avoid it by using the public trust doctrine to create nonconstitutional rights.⁵³ The public trust is a curious doctrine that expresses three ideas, one grounded in Roman law and the other two resulting from Anglo-American common law.⁵⁴ The first is that public waters, generally defined as navigable waters, are subject to a public servitude for navigation, commerce, and, later, fisheries.⁵⁵ The second idea is that the public owns the beds of submerged waters.⁵⁶ The third idea is that the sovereign must use these submerged lands only for trust purposes.⁵⁷

Environmental lawyers used the third aspect of the public trust doctrine to make the following arguments: (1) Legislative and ad-

49. 42 U.S.C. §§ 7401-7642 (1982 & Supp. IV 1986).

50. 33 U.S.C.A. §§ 1251-1387 (1986 & West Supp. 1988).

51. See *supra* notes 49-50.

52. Rules require consistent applications; in contrast, a principle "states a reason that argues in one direction, but does not necessitate a particular decision." R. DWORKIN, *TAKING RIGHTS SERIOUSLY* 26 (1977).

53. See J. SAX, *DEFENDING THE ENVIRONMENT: A STRATEGY FOR CITIZEN ACTION* (1971); Sax, *The Public Trust Doctrine in Natural Resource Law: Effective Judicial Intervention*, 68 MICH. L. REV. 471 (1970).

54. For a lucid recent survey of the origins of the public trust doctrine and its current application, see Lazarus, *Changing Conceptions of Property and Sovereignty in Natural Resources: Questioning the Public Trust Doctrine*, 71 IOWA L. REV. 631, 633-56 (1986).

55. See *id.* at 636-37, 647.

56. See *id.* at 637-40, 647.

57. See *Illinois Cent. R.R. v. Illinois*, 146 U.S. 387 (1892); C. MEYERS, *WATER RESOURCE MANAGEMENT* 485-502 (3d ed. 1988).

ministrative decisions that authorized nonenvironmentally sensitive uses of any public resource were subject to heightened judicial scrutiny; and (2) courts should recognize pre-existing but long-ignored public rights in common property resources. Laws such as the National Environmental Policy Act of 1969⁵⁸ (NEPA) and the Clean Water Act⁵⁹ addressed many of Professor Sax's immediate concerns, but the public trust doctrine continues to be urged as a means of rectifying all manner of past environmental mistakes.⁶⁰ A few courts even have extended the doctrine beyond the protection of the public interest in submerged lands: a significant California Supreme Court opinion has held that the public trust doctrine permits the retroactive reallocation of vested water rights in navigable waters if the use of the water impairs trust values.⁶¹ In general, however, such decisions are neither fair nor likely to be an effective source of environmental rights. The main problem with the public trust doctrine is that it contains no ranking of resource uses and therefore works best when it confirms limited, long-standing public rights.⁶²

An on-going resource conflict in Nevada exemplifies how the lack of standards renders application of the doctrine difficult, if not impossible. Pyramid Lake, northeast of Reno, is a source of water for both the endangered qui-ui trout (valued by an Indian tribe) and the Newlands reclamation project, the first project developed under the Reclamation Act of 1902.⁶³ The project feeds a wetlands area which is a major winter home to several endangered bird species, such as the peregrine falcon and the bald eagle, and is a feeding stop on the Pacific flyway.⁶⁴ Almost a century of diversions from the Truckee River, which feeds the lake, have lowered the lake by

58. 42 U.S.C. §§ 4321-4370a (1982 & Supp. II 1984).

59. 33 U.S.C.A. §§ 1251-1387 (1986 & West Supp. 1988).

60. See Johnson, *The Emerging Recognition of a Public Interest in Water: Water Quality Control by the Public Trust Doctrine*, in *WATER AND THE AMERICAN WEST: ESSAYS IN HONOR OF RAPHAEL J. MOSES* 127 (D. Getches ed. 1988).

61. *National Audubon Soc'y v. Superior Court*, 33 Cal. 3d 419, 189 Cal. Rptr. 346, 658 P.2d 709 (1983), cert. denied sub nom. *City of Los Angeles Dep't of Water & Power v. National Audubon Soc'y*, 464 U.S. 977 (1983). The California Supreme Court "conclude[d] that the public trust doctrine . . . protects navigable waters from harm caused by diversion of nonnavigable tributaries." *Id.* at 437, 189 Cal. Rptr. at 357, 658 P.2d at 721. The duty to consider interests that are protected under the public trust doctrine, however, is a *statutory* duty in California. *Id.* at 444, 189 Cal. Rptr. at 363, 658 P.2d at 726. See CAL. WATER CODE § 1243.5 (West 1971).

62. See Sax, *Liberating the Public Trust Doctrine from Its Historical Shackles*, 14 U.C. DAVIS L. REV. 185 (1980).

63. Act of June 17, 1902, ch. 1093, 32 Stat. 388 (codified as amended in scattered sections of 43 U.S.C. §§ 372-498 (1982 & Supp. IV 1986)).

64. Gruson, *The Dilemma: Save a Fish or a Wetland?*, N.Y. Times, Apr. 26, 1988, at C1, col. 2.

eighty feet.⁶⁵ Shallow shoals have formed which block the migration of the trout to their upstream spawning grounds.⁶⁶

The immediate environmental problem arose when the United States Supreme Court refused to reopen a prior adjudication made to protect the stability of irrigation rights, but suggested that the Bureau of Reclamation had a duty to protect the trout.⁶⁷ The Bureau would protect the trout by raising the level of the lake through a reduction of irrigation diversions in the amount of 42,000 acre-feet.⁶⁸ This would reduce "the trickle of life-sustaining water flowing into the wetlands of the Stillwater Wildlife Management Area."⁶⁹

One unfortunate consequence of this decision is that concentrations of toxic pollutants increase as irrigation run-off is reduced. As a result, "great blue herons that feed in the marsh fall dead out of the sky. And biologists find American white pelicans with grotesque deformities, such as cinnamon-bun-shaped bills."⁷⁰ The public trust doctrine neither contains principles for the necessary ecological triage⁷¹ nor possesses the ability to mandate the institutional adjustment that is necessary to remedy this tragedy.

3. Problems in Going from Science to Ethics

The standard objection to environmental rights—that there are no consistent principles inherent in the concept of the protection of environmental quality—is a powerful one, but a contrary argument persists today. In the late 1960s, the rather low-level and low-prestige science of ecology was rediscovered and promoted. Budding environmental lawyers and policy analysts assumed that ecology contained principles that would serve as standards to resolve specific resource-use controversies. There were two dimensions to this assumption. The first assumed that the issue was solely one of science, and that science could provide neutral data for the definition of baselines against which conduct could be measured. The second assumption bridged the gap between ecology and morals, and asserted that there was a moral basis to ecology such that standards of conduct could

65. *Id.* at C4, col. 4.

66. *Id.*

67. *Nevada v. United States*, 463 U.S. 110, 145-46 (1983) (Brennan, J., concurring). See generally M. KNACK & O. STEWART, *AS LONG AS THE RIVER SHALL RUN* (1984) (an ethnohistory of the Pyramid Lake Reservation at Pyramid Lake, Nevada).

68. Gruson, *supra* note 64, at C1, col. 1.

69. *Id.*

70. *Id.* at C4, col. 4.

71. As part of his case against single-value systems, Professor Stone constructs a logical rather than a moral defense of triage. See C. STONE, *supra* note 13, at 153-68.

be derived from the environmental ethics.⁷² Enlightenment Deism and Transcendentalism, which had been preserved in American nature writing, were the sources of this moral vision.⁷³

Aldo Leopold's now-classic *A Sand County Almanac* is the ur-text for the moral vision of ecology. Leopold was one of those bright young men of the conservation era who committed themselves to progressive, conservationist ideals. Steeped in the high culture of German romanticism from both sides of his immigrant families, Leopold combined a lifelong working relationship with the land with the developing sciences of ecology and resource management to produce a powerful plea for respect for the land.⁷⁴ "A thing is right when it tends to preserve the integrity, stability, and beauty of the biotic community. It is wrong when it tends otherwise."⁷⁵ Leopold's thinking triumphed because it was both eloquently descriptive and prescriptive. Unfortunately, Leopold died before he could elaborate his theories. His land ethic did not resolve the tension between the prevailing theory of western civilization—that man commands and manipulates the biotic community—and the more radical theory of ecology—that man is *just* a participant in the community.

Leopold himself had a dualistic view of the relationship between man and nature, a view which "identifies man as an integral part of the land community only as human actions perpetuate and sustain that community's component food chains and energy systems. At the same time, this perspective identifies man as *Homo sapiens*, as a knowing creature capable of altering or directing the course of evolution"⁷⁶

Leopold was a person whose career greatly advanced game and resource management. But he was essentially a true individualist with a great skepticism of the power of government to regulate nature, so he did little more than develop a theory to be internalized by others. Leopold left his environmentalist followers, including Profes-

72. Rolston, *Can and Ought We to Follow Nature*, 1 ENVTL. ETHICS 7 (1979) (exploring the different meaning of the simple idea that we can derive prescriptive rules from nature).

73. See Hargrove, *The Historical Foundations of American Environmental Attitudes*, 1 ENVTL. ETHICS 209 (1979).

74. Leopold's thinking grew out of his experience with the over-grazed forests of Arizona and New Mexico, and evolved throughout his long and distinguished professional career. He did not use the term "land ethic" until a 1935 speech delivered at the University of Wisconsin shortly after the dust storms of the high plains had reached Wisconsin. C. MEINE, ALDO LEOPOLD 349-50 (1988). About this time, his views on game management shifted from attempts to establish an artificial equilibrium in place of natural ones to strategies based on less human manipulation. *Id.* at 366.

75. A. LEOPOLD, *A SAND COUNTY ALMANAC* 224-25 (1949).

76. Fritzell, *The Conflicts of Ecological Conscience*, in COMPANION TO A SAND COUNTY ALMANAC, *supra* note 35, 128, 141.

sor Stone, with the difficult task of deriving a complete system of prescriptive ethics from his lifelong experience as a self-taught applied ecologist. A cottage industry of environmental philosophers still is hard at work trying to create a complete theory of ethics from this slim base.

The land ethic of Leopold has been read by many of his followers to reject the individualistic, anthropocentric basis of western philosophy. Modern environmental philosophers assert that the land ethic is a source of specific duties and not simply a description of a long and indefinite evolution of attitudes toward nature.⁷⁷ Ironically, this reading has had three consequences which have stunted the development of environmental ethics.

a. The Primacy of Sentient Beings

Aldo Leopold's land ethic suggests that it is a moral requirement that certain species be abandoned to predation "for the sake of the integrity, stability, and beauty of the biotic community."⁷⁸ However, the theory of "deep ecology" disputes any such hierarchical scheme. Deep ecology, which asserts that all living and nonliving things have an equal right to live and flourish,⁷⁹ has taken the substitution of community for the individual to the logical extreme. One deep ecologist has written: "Man will, in the foreseeable future, confront the moral obligation to make himself extinct—to commit racial suicide. He will lie under a duty to preserve nature: that is, the life process and the earth."⁸⁰ Leopold himself was no ecofascist, and his defenders have sought to present the more humane face of the land ethic; but they have a difficult time making it operational.

Few are yet ready to subscribe to the imperative of deep ecology, and most philosophers limit rights and duties to sentient beings. This limitation affords some hope for animal rights advocates,⁸¹ but it

77. Callicott, *The Conceptual Foundations of the Land Ethic*, in COMPANION TO A SAND COUNTY ALMANAC, *supra* note 35, at 186, 212.

78. *Id.* at 206.

79. "The deep ecologist asserts that every living and nonliving thing has value. Every being has the right to live and flourish. . . . These rights and values have no connection with instrumental use; they are intrinsic within the biospheric net itself." Golley, *Deep Ecology from the Perspective of Ecological Science*, 9 ENVTL. ETHICS 45, 49 (1987). The leading presentations of deep ecology are B. DEVALL & G. SESSIONS, DEEP ECOLOGY (1985) and DEEP ECOLOGY (M. Tobias ed. 1985). See also Naess, *A Defence of the Deep Ecology Movement*, 6 ENVTL. ETHICS 265 (1984); Devall, *The Deep Ecology Movement*, 20 NAT. RESOURCES J. 299 (1980).

80. Jenkins, *Nature Rights and Man's Duties*, in LAW AND THE ECOLOGICAL CHALLENGE 91 (E. Dias ed. 1978).

81. The best articulation of the possibility of bringing animals within a modified rights framework remains R. NOZICK, ANARCHY, STATE, AND UTOPIA 35-42 (1974).

stops short of embracing the implications of *A Sand County Almanac*. The idea of parity between humans and nonhumans is beyond the bounds of rational discourse. Despite the irrationality of willing the destruction of civilization, there is now a persistent strain of nature rights advocacy which attempts to meet the objections of traditional philosophy.⁸² Inventive and impassioned arguments have been put forth by nature rights advocates, but they have not yet been able to overcome the major objection to the theory: rights-based theories prohibit the necessary weighing of interests involved in every controversy.⁸³

b. The Ecological Baseline

Initially, environmentalists hoped to avoid the problems inherent in deep ecology through reliance on the science of ecology itself. However, this led to a second reason that a theory of environmental rights has not been developed. Early in the environmental movement there was a widespread assumption that environmentalism would be largely free of values; ecology would provide the necessary standards of conduct, which would be widely accepted because they were the dictates of a neutral science. The idea was simple: ecology would set baselines for all human activities that threatened the integrity of natural systems, and the activities would be cut back to these baselines.⁸⁴ But, after an initial burst of enthusiasm, lawyers and policy makers realized that ecology raised more questions than it answered⁸⁵ and this realization retarded the acceptance of the idea of land ethic, which is ultimately driven by ecology.

Ecology failed to provide the necessary scientific basis for firm rights and duties, because society asked ecologists questions outside the parameters of science. Ecology was too new a science to meet the extraordinary demands placed upon it by society. It lacked a

82. McDaniel, *Physical Matter as Creative and Sentient*, 5 ENVTL. ETHICS 291 (1983); Regan, *The Nature and Possibility of an Environmental Ethic*, 3 ENVTL. ETHICS 19 (1981); Taylor, *In Defense of Biocentrism*, 5 ENVTL. ETHICS 237 (1983); Taylor, *The Ethics of Respect for Nature*, 3 ENVTL. ETHICS 197 (1981). See also Rolston, *Is There an Ecological Ethic?*, in ETHICS AND THE ENVIRONMENT, *supra* note 19, at 41.

83. Norton, *Environmental Ethics and Nonhuman Rights*, 4 ENVTL. ETHICS 17 (1982).

84. L. CALDWELL, HEALTH AND HOMEOSTASIS AS SOCIAL CONCEPTS: AN INTRODUCTORY EXPLORATORY ESSAY IN DIVERSITY AND STABILITY IN ECOLOGICAL SYSTEMS 206 (1969) is the leading statement of this position. Professor Caldwell was one of the drafters of NEPA. For Professor Caldwell's evaluation of how his idea has worked in practice, see L. CALDWELL, SCIENCE AND THE NATIONAL ENVIRONMENTAL POLICY ACT (1982).

85. See Carpenter, *Ecology in Court, and Other Disappointments of Environmental Science and Environmental Law*, 15 NAT. RESOURCES LAW. 573 (1983).

widely accepted methodology, adequate general models, and the necessary field data to produce studies with a quick operational payoff. Ecology could neither predict consequences with the specificity demanded by policy makers, nor offer a sufficiently compelling transcendent vision of the relationship between man and nature that could serve as the basis for a set of new legal rights and duties. Ecosystem behavior turned out to be more complex than anticipated, and often ecosystems were discovered to be more resilient to shock and disruption than proponents of the idea of ecosystem fragility would have liked.

The one rule that can be derived from ecology is the principle of nondegradation. But this principle proved to be too extreme for highly developed societies, let alone developing ones, to use as a basis for legal rights and duties. Nondegradation has had a profound influence on the development of domestic and now international environmental law, but in a weaker form than environmentalists would like.⁸⁶ The core idea of nondegradation has survived as a weaker, cautionary warning against unassessed human intervention in nature. This weaker statement is quite important because it serves as the basis for much of our environmental law, such as impact assessment. In the end, however, the principle of degradation represented another substitution of procedure for a definition of substantive legal rights and duties. NEPA, for example, is a law of procedural and not substantive duties.⁸⁷

c. The Failure to Protect Systems from Risk

The third reason for the lack of acceptance of Leopold's ideas, much as they are admired in the abstract, is that environmental law has focused more on the protection of *individuals* from risk rather than the protection of *systems* from risk. As mentioned earlier, many problems have been avoided in the short term by using the prevention of human health risks from exposure to toxic chemicals as a proxy for all environmental damage. But, the cost of bringing much of environmental law within the conventional framework of protected interests has been to weaken the basis of the protection of nonhu-

86. R. STEWART & J. KRIER, ENVIRONMENTAL LAW AND POLICY 479-95 (2d ed. 1978). See generally Sagoff, *The Principles of Federal Pollution Control Law*, 71 MINN. L. REV. 19 (1986).

87. The National Environmental Policy Act of 1969 (NEPA), 42 U.S.C. §§ 4321-4370a (1982 & Supp. II 1984), establishes the following: national environmental policies and goals (*id.* §§ 4321-4335), a Council on Environmental Quality (*id.* §§ 4341-4347), a Science Advisory Board (*id.* § 4365), and provisions for the coordination of research and development, expenditure of funds, and personnel management (*see generally id.* §§ 4361-4364, 4366-4370a).

mans, and to lessen the basis of the protection of nontoxic risks to both humans and ecosystems.

Within a short period of time in the 1970s, the prevention of cancer risks was accepted as a proxy for all environmental damage. The DDT controversy showed how much easier it was to ban or restrict the use of a dangerous chemical in order to prevent the risk of human injury, than it was to preserve the abstract notion of ecosystem stability.⁸⁸ Once courts overcame their reluctance to allow agencies to base regulations upon scientific evidence of risk rather than on a causal relationship between the activity and harm, environmental law became a law of risk assessment. Risk assessment is what drives our current efforts in the Clean Air Act,⁸⁹ the Clean Water Act,⁹⁰ the Comprehensive Environmental Response, Compensation, and Liability Act of 1980⁹¹ (Superfund), the Federal Insecticide, Fungicide, and Rodenticide Act,⁹² and the Resource Conservation and Recovery Act of 1976⁹³ to limit the possible effects of exposure to toxic chemicals. The morality is quite simple. No one is in favor of exposure; the issue is the *extent* of exposure, and the battle becomes one of experts.

Toxic pollutants are a real, continuing problem, and risk minimization is the only present basis for regulation; but it has deflected attention from other, more subtle environmental problems. Cancer prevention is not a proxy for all resource-use problems. The adverse consequences of long-term global climate change, for example, do not fit neatly within the civil- and common-law systems that focus on the protection of bodily integrity.

4. The Domination of Welfare Economics

Welfare economics, which is the ultimate application of the theory of individualism,⁹⁴ has capitalized on the inherent difficulties of deriving general moral principles from ecology and has undermined the development of a theory of environmental rights. Environmental

88. See NATIONAL ACADEMY OF SCIENCES, REGULATING PESTICIDES 18-28 (1980).

89. 42 U.S.C. §§ 7401-7642 (1982 & Supp. IV 1986).

90. 33 U.S.C.A. §§ 1251-1387 (1986 & West Supp. 1988).

91. 42 U.S.C. §§ 9601-9675 (1982 & Supp. IV 1986).

92. 7 U.S.C. §§ 136-136y (1982 & Supp. II 1984).

93. 42 U.S.C. §§ 6901-6991i (1982 & Supp. IV 1986).

94. The veneration of self-interest above other cultural concerns, such as community self-governance through the rule of law to create a more just society, is one of the most persistent criticisms of the use of economics in policy analysis. See White, *Economics and Law: Two Cultures in Tension*, 54 TENN. L. REV. 161 (1987). For a similar criticism, see Sagoff, *At the Shrine of Our Lady of Fatima or Why Political Questions are not all Economic*, 23 ARIZ. L. REV. 1283 (1981), who distinguishes between our behavior as consumers and as citizens.

policy analysis has been dominated by welfare economics because it offered a powerful explanation of environmental degradation. Equally important, welfare economics suggests remedies that are within the framework of the major social control mechanisms: markets, and government intervention in malfunctioning ones. Economic principles have either controlled the choice of standards of conduct or the debate about the means to achieve them.⁹⁵

Standard economic analysis of environmental problems identifies market failure as the cause of pollution. The logical remedy is the assignment of property rights, either directly or through command and control regulation, in the use of sinks for waste assimilation so that dischargers will have sufficient incentives to reduce their discharges to nonharmful levels.⁹⁶ Although we generally have rejected proposals for the direct assignment of property rights either to polluters or environmentalists, and have instead opted for administrative regulation of discharges that create de facto regulatory property rights which are less well defined, we nevertheless have accepted the central message of welfare economics: namely, that some form of benefit-cost analysis controls the level of environmental quality that society tries to achieve in practice.⁹⁷

As a result of our reliance on welfare economics to structure the environmental policy debate, the extension of rights to nonhumans has been deterred. Welfare economics counsels that the development of environmental rights and duties is either irrelevant or unnecessary. Economics attempts to be a positive science, and, consistent with this assumption, there are no a priori solutions to any given problem. For example, the level of a discharge on one side of Lake Michigan could be different from one on the other, because the damage function could be different.

There is a strong but less powerful strain of opposition to economic thinking. Welfare economics has been subject to substantial

95. See, e.g., Ackerman & Stewart, *supra* note 25, at 1341-51.

96. J. DALES, *PROPERTY, POLLUTION AND PRICES* (1968).

97. Professor Sagoff distinguishes between morally and economically based pollution control laws. Sagoff, *The Principles of Federal Pollution Control Law*, 71 MINN. L. REV. 19 (1986). He finds that the goals of many laws are intended to protect basic human rights to a safe environment, but that it is proper to take the costs of achieving these goals into account because environmental quality is an imperfect rather than a perfect duty in Kantian terms. He states:

A perfectly unpolluted environment is meritorious from a moral point of view, and society acts virtuously in attempting to eliminate pollution Yet a society that stops short of committing enormous resources to efforts of this kind does not necessarily violate moral obligations. . . .

. . . .
In setting goals and standards in pollution control law, society must recognize that ending pollution entirely may be so far beyond society's means at this point that such a goal lies well beyond the call of duty.

Id. at 93-94.

criticism because it assumes that all resource allocation choices can be conceptualized as the provision of different packages of "goods," and that resources should be allocated by individual preferences measured by willingness to pay.⁹⁸ These assumptions work well in situations where the costs of an activity can be reduced to dollars. Dollars are the widely accepted measure of damage and there is little difference between the present and future value of the resource injured. The assumptions do not work well for situations in which the present value of resource use must be compared to the future value of alternative resource uses, usually preservation.⁹⁹ Economics also does not deal well with the attribution of value to more subjective experiences and resources that have not been subject to market transactions.¹⁰⁰ Economics attempts to circumvent these problems by simulating the results of market allocation, but the assumptions that must be made are so great that the method is really one of value judgment rather than positive calculation.

The influence of both ecology and welfare economics, as well as the criticisms of this influence, are necessary to understand *Earth and Other Ethics*. This is the background in which the book is written. The book is an attempt to overcome the failure of the early promise of ecology and to counter, at least partially, the strong bias of welfare economics against soft and metaphysical methods of analysis. The need for the extension of environmental analysis is clear. Professor Stone identifies three forces—scarcity, technology, and the bureaucratization of life—which require us to expand our calculus of protected interests. We have accepted the value of wilderness, but it is questionable whether we have accepted the idea of respect for nature or any nonconventional entity. For example, the United States Supreme Court recently has refused to protect a Native American sacred site from interference by the United States Forest Service because the tribe has no rights against the owner, the United States government.¹⁰¹

98. See Sagoff, *Where Ickes Went Right or Reason and Rationality in Environmental Law*, 14 *ECOLOGY L.Q.* 265 (1987).

99. Welfare economics has a neat conceptual solution to the problem. *Ceteris paribus*, people are assumed to prefer present to future consumption (another example of the fact that we never grow up), so that the value of a resource in the future must be discounted to the present. Thus, resources should be consumed when present value is equal to expected future value, and conserved when the future value is expected to be higher than the present value. McNerney, *Natural Resource Economics: The Basic Analytical Principles*, in *THE ECONOMICS OF ENVIRONMENTAL AND NATURAL RESOURCES POLICY* 30, 35-37 (J. Butlin ed. 1981).

100. See Tribe, *Ways Not To Think About Plastic Trees: New Foundations for Environmental Law*, 83 *YALE L.J.* 1315 (1974).

101. *Lyng v. Northwest Indian Cemetery Protective Ass'n*, 108 S. Ct. 1319 (1988). "Whatever rights the Indians may have to the use of the area, however, those rights do not divest the Government of its right to use what is, after all, its land." *Id.* at 1327.

III. MORAL CONSIDERATENESS VERSUS MORAL RIGHTS

A. *The Concept Defined*

The previous section indicates the need for an expanded theory of environmentalism which moves beyond the existing parameters of analysis and the obstacles that anyone trying to develop such a theory faces. Professor Stone's answer to this challenge is a theory of moral considerateness as an alternative to the more absolute rights urged by the deep ecology movement. He himself nicely poses the four questions that he must answer: "(1) [H]ow prima facie considerateness for a thing originates, (2) how the ontological conundrums (which things are considerate?) are to be resolved, (3) the manner in which the prima facie considerateness ought to be manifested, and (4) the distributional dilemmas"¹⁰² To meet this challenge, *Earth and Other Ethics* extends an analysis that Professor Stone proposed in his much-discussed 1972 article, *Should Trees Have Standing?—Toward Legal Rights for Natural Objects*.¹⁰³ Written at a time when courts threatened to deny private attorneys general access to the courts, *Should Trees Have Standing?* analogized citizen environmental suits to in rem actions in order to solve the standing issues.¹⁰⁴ The precise content of the underlying right, however, was not extensively developed.

The first part of *Earth and Other Ethics* is devoted to a plea for the recognition of what Professor Stone calls legal considerateness¹⁰⁵ for nonpersons. To avoid the previously discussed philosophical objections to his enterprise, he draws a sharp distinction between the legal status of a thing and its legal rights.¹⁰⁶ This allows him to

102. C. STONE, *supra* note 13, at 113.

103. 45 S. CAL. L. REV. 450 (1972). The extent to which *Earth and Other Ethics* abandons Professor Stone's earlier position is somewhat unclear. A philosophy student was dismayed that Professor Stone had abandoned his earlier argument for the recognition of rights for nonhuman entities. See Varner, *Do Species Have Standing?*, 9 ENVTL. ETHICS 47 (1987). However, Professor Stone characterized *Should Trees Have Standing? Revisited*, *supra* note 10, and *Earth and Other Ethics* as an attempt "to demonstrate that none of these complications [to the recognition of rights for nonhumans] is fatal either to legal considerateness in general or legal rights holding in particular." Stone, *Legal Rights and Moral Pluralism*, 9 ENVTL. ETHICS 281, 282 (1987).

104. See Stone, *Should Trees Have Standing?—Toward Legal Rights for Natural Objects*, 45 S. CAL. L. REV. 450, 464-73 (1972).

105. C. STONE, *supra* note 13, at 43-62. The terms "considerate" and "considerateness" in Professor Stone's book are referred to in Professor Stone's article in this Symposium as, respectively, "considerable" and "considerableness." See Stone, *The Environment in Moral Thought*, 56 TENN. L. REV. 1 (1988).

106. *Id.* at 43-44.

propose the recognition of less than absolute interests for most nonpersons. He next tackles the most fundamental objection to his enterprise: that in the end we seem to be talking only about a redefinition of human interests in things.

Deep ecology has addressed this problem by positing interests in nonpersons that are as high as those of persons.¹⁰⁷ The Greco-Christian tradition is completely reversed, and the counter-western tradition of stewardship is given a strict meaning. *Earth and Other Ethics* consistently strives to be realistically speculative so that the simple solution of the deep ecology movement is rejected.¹⁰⁸ In its place, Professor Stone proposes an ingenious solution. He first concedes the basic premise of the critics of theories which give nonhumans parity or even a preference over humans: all preferences about things *must* be ours, not the thing's.¹⁰⁹ But he quickly turns this concession to his advantage by characterizing it as trivial—because the criticism ignores the question of how preferences are calculated.

B. Sources of Considerateness

Earth and Other Ethics correctly identifies the limited concept of preferences that is incorporated into contemporary welfare economics as the major barrier to a broader, more enlightened preference system.¹¹⁰ Professor Stone proposes to add a moral calculation to the conventional welfare economics calculation, and the example that he uses is the calculation of a “shadow price” to value the benefits of an unpriced resource such as a free-flowing river.¹¹¹ Conventional economics attempts to trick people into revealing their preference for an unconventional good by posing various scenarios that require them to calculate their willingness to pay to enjoy the good. *Earth and Other Ethics* takes the concept several steps forward and argues that we should calculate the “morally corrected shadow price.”¹¹² This price encompasses “the utility preferences adjusted as a consequence of moral reflection.”¹¹³ Most economists will reject the idea because it is a return to the discredited concept of cardinal utility.¹¹⁴

107. See *supra* note 79.

108. See C. STONE, *supra* note 13, at 75-83.

109. *Id.* at 77.

110. See *id.* at 75-80.

111. *Id.* at 77-79. For an example of the importance of shadow price calculation and its methodologies, see COMMITTEE TO REVIEW THE GLEN CANYON ENVIRONMENTAL STUDIES, NATIONAL RESEARCH COUNCIL, RIVER AND DAM MANAGEMENT: A REVIEW OF THE BUREAU OF RECLAMATION'S GLEN CANYON STUDIES 90-99 (1987).

112. C. STONE, *supra* note 13, at 79.

113. *Id.*

114. See *supra* note 28.

Philosophers may say that Professor Stone has merely rearticulated the idea that using benefit-cost analysis is only one of several ways of making what is, in the end, a value choice.¹¹⁵

In final analysis, the power of the idea of considerateness depends on the theories of value formation that can be marshalled to support it. After some dancing around the issue, Professor Stone surveys five theories in order to support the attribution of rights to nonhumans.¹¹⁶ The first is the familiar appeal to future generations.¹¹⁷ This is conventionally viewed only as a way to count the preferences of future humans, but Professor Stone rightly concludes that the "real concern is less with the treatment of future individuals than with the advancement of some good."¹¹⁸ Next he explores anthropocentric idealism, and joins with the quasi-religious celebratory tradition of environmentalism to conclude that we should protect nature because it uplifts us.¹¹⁹ His third approach is the dubious aesthetic theory that certain entities embody an ideal.¹²⁰ For example, it has been suggested that there is a constitutional duty to preserve wilderness because it embodies the idea of freedom.¹²¹ Professor Stone does not carry his analysis this far, but he does endorse the proposition that the intrinsic value of a thing is a starting point for a theory of rights for things. "To value flow, mightiness, and hoary age would provide some basis for preserving a river."¹²²

The fourth proposed theory is attitudinal idealism.¹²³ This idea, proposed by the philosopher Donald Regan,¹²⁴ builds on the theory of Cambridge aesthetician G.E. Moore and posits that the highest value is the contemplation of beauty.¹²⁵ Thus, under attitudinal idealism, the source of the Grand Canyon's right would be the right of humans to contemplate it.¹²⁶

Professor Stone's final solution attacks the central value of western thought—individualism—head on.¹²⁷ To many environmen-

115. See generally Sagoff, *supra* note 94.

116. C. STONE, *supra* note 13, at 84-109.

117. *Id.* at 85-89.

118. *Id.* at 88.

119. *Id.* at 89-91.

120. *Id.* at 91-98.

121. Sagoff, *On Preserving the Natural Environment*, 84 YALE L.J. 205 (1974) (arguing that the natural environment should be protected because it embodies primary values). Professor Tribe criticizes this theory in favor of a more evolutionary theory of environmental rights. See Tribe, *From Environmental Foundations to Constitutional Structures: Learning from Nature's Future*, 84 YALE L.J. 545 (1975).

122. C. STONE, *supra* note 13, at 97.

123. *Id.* at 98-99.

124. See generally Regan, *Duties of Preservation*, in *THE PRESERVATION OF SPECIES* 195-220 (B. Norton ed. 1986).

125. C. STONE, *supra* note 13, at 98.

126. *Id.* at 99.

127. *Id.* at 100-02.

talists, individualism is the root of our careless attitude toward nature. *Earth and Other Ethics* candidly seeks to transcend self-interest, and thus must link its analysis with the nonanthropocentric branch of environmental ethics. For example, deep ecologists seek to avoid the sins of individualism by restraining the ego, whereas welfare economics has only sought to redirect self-interest in order to force persons to take into account the full costs of their activities. Consistent with his effort to find a middle ground, Professor Stone's analysis seeks to avoid too deep a trip into metaphysics. Instead, Professor Stone joins with the disciples of Aldo Leopold who urge that ethics must evolve toward "a communal self."¹²⁸ The community, of course, is living and nonliving nature. The process of evolution is a process of acquiring the knowledge that will enable one to appreciate the beauty and function of the entire community and thus become virtuous.¹²⁹

There is, however, a common irony to Professor Stone's five approaches: like rights-based theories, they essentially look backward to preserve the status quo, because they support rights for relatively unique geologic or botanical areas. The irony is that these areas are the least in need of expanded theories of protection because these areas have achieved considerable protection through the political process.

C. Moral Pluralism: Application and Theory

The heading of this section is the same as the title of the last part of *Earth and Other Ethics*, and the syntax is revealing because it highlights the inevitable link between process and substance as well as the critical question of which institutions will govern the application of moral pluralism. Professor Stone returns to his earlier map analogy, and proposes to construct a series of overlay maps (although more traditional environmental analysts would simply call them matrices) for specific controversies.¹³⁰ The first map would describe the area, and the second would outline the different courses of action.¹³¹ The third set of maps is the trick. Moral reference maps, based on both utility and nonutility considerations, would overlay the first two maps.¹³² In short, this is an expanded and morally weighted environmental impact assessment process.

The first subset of the moral reference maps "are all utility-oriented."¹³³ These "maps" are, essentially, expanded and more

128. *Id.* at 101.

129. This thesis is developed throughout the book but especially in Chapter 14, entitled "Character and Other Attributes." *Id.* at 184-99.

130. C. STONE, *supra* note 13, at 202-03.

131. *Id.*

132. *Id.* at 203.

133. *Id.* at 205.

sensitive benefit-cost analyses. The current conflict in the Arctic over oil drilling is used to illustrate the mapping.¹³⁴ Starting with a conventional effort to calculate the value of whales, Professor Stone extends benefit-cost analysis to elevate whales "to the status of consumers whose own feelings are valued together with those of Persons."¹³⁵ The analysis is then extended spatially to more remote humans and other sentient creatures and intertemporally to future generations.¹³⁶ The problem with this analysis, as Professor Stone admits, is that the outcome of such an effort is indeterminate without some ranking of preferences.¹³⁷

The circle must be broken by some method of higher preference ranking. Modern public-choice theory has devoted a great deal of attention to a defensible ranking system.¹³⁸ For Professor Stone, the answer to the ranking dilemma lies in a marriage between utility and the morally corrected preferences.¹³⁹ To do this, the utility mapping procedure is repeated, starting with persons having an immediate interest in the controversy and extending through more remote persons to nonsentient beings. Professor Stone makes the following defense of the interests of consideration for plants:

With plants, there is life, which substantiates respect for a natural unfolding. I imagine a moral conversation regarding the choice of sites would go something like this. The interference with the lichen—its elimination in a place uncongenial to its reestablishment—is a worse interference with life than the early closing down of the wildflowers for the remainder of th[e] season. In a word, life is an intrinsic good¹⁴⁰

In addition to individuals, communities such as nations, species, corporations, and Native American tribes would also be mapped. These entities, especially tribes, might have rights, grounded in a value "in groupness or community,"¹⁴¹ to check majoritarian economic or political calculations.¹⁴²

134. *Id.* at 36-37, 206.

135. C. STONE, *supra* note 13, at 207.

136. *Id.* at 208-11.

137. *See id.* at 209-11. The Arrow impossibility theorem asserts that it is impossible to rank preferences in a manner that satisfies the criteria of formal rationality, pareto optimality, individual preference ranking, and lack of interpersonal comparison of utilities. *See* Farber, *From Plastic Trees to Arrow's Theorem*, 1986 U. ILL. L. REV. 337, 352-58 (reviewing the literature on why the theorem applies to majority voting schemes).

138. *See* Farber & Frickey, *Legislative Intent and Public Choice*, 74 VA. L. REV. 423, 425-37 (1988) (discussing the application of the Arrow impossibility theorem to legislative outcomes).

139. C. STONE, *supra* note 13, at 212.

140. *Id.* at 221-22.

141. *Id.* at 229.

142. The problem is that community rights may be countered by equal individual rights. *Id.* at 229-30.

The hardest case is the extension of considerateness to nonliving entities. Professor Stone again uses the arctic drilling controversy to contrast his theory with conventional benefit-cost analysis.¹⁴³ Proposals to extract hydrocarbon resources in ecologically fragile areas typically pose the questions (1) whether we should consume oil and (2) what is the risk of spills that might injure plant and animal communities. Conventional benefit-cost analysis is generally biased toward consumption over a limited time horizon. Standard economic analysis imposes no general obligation on the living to sacrifice consumption for future generations of the living; in fact, it generally assumes that it is inefficient to do so.¹⁴⁴ The most that economic analysis would support is some mechanism to force the internalization of natural resource damage costs. To "correct" the bias of benefit-cost analysis, *Earth and Other Ethics* falls back on *A Sand County Almanac*:

If there is any moral guidance regarding options on this level, we have to appeal elsewhere than to Gaia, perhaps to a notion of the biotic community

. . . On the biotic community viewpoint, the sea as it is, is valued because it is presumed to be integral to the earth as we know it.¹⁴⁵

IV. THE INSTITUTIONAL QUESTIONS

Earth and Other Ethics does not discuss who will draw the moral maps, but this is the crucial question. Almost all legal questions ultimately reduce themselves to one of institutional analysis,¹⁴⁶ but *Earth and Other Ethics* does not address the institutional questions implicit in its analysis. Rather, Professor Stone seems to rely on the courts to expand the range of recognized interests from the conventional to the nonconventional, although he recognizes that all branches of relevant thought must participate in the enterprise.¹⁴⁷ Not only is the judiciary the institution that is least able to embark on the voyage of consciousness raising urged by Professor Stone, but the focus on expanded interests for nonhumans is often unresponsive to the deeper, institutional problem.

There are many reasons for rejecting reliance on the judicial system, but two specific reasons seem to counsel a search for alter-

143. See *id.* at 212-40.

144. See C. STONE, *supra* note 13, at 215. "Except perhaps for future Inupiat, whales are not likely to play a critical role in the physical or spiritual subsistence of future persons. Without whales, future persons would still be *persons*." *Id.*

145. *Id.* at 225.

146. See Komesar, *A Job for the Judges: The Judiciary and the Constitution in a Massive and Complex Society*, 86 MICH. L. REV. 657, 659 (1988).

147. C. STONE, *supra* note 13, at 260.

native institutions. First, courts are least capable of responding to "the felt needs" of society when there is little tradition by which new interests can be justified, and the required response may not be a judicially incremental one. This is especially true when the definitions of the new interests require an ongoing, sophisticated dialogue among the major branches of the humanities and the natural sciences.¹⁴⁸ Moreover, the focus on new legal interests may be an insufficient structural change in our use of the environment. Instead of taking conflicts as a given, as does *Earth and Other Ethics*, there is a need to consider changes in resource-use incentives that will avoid or lessen the conflicts that Professor Stone wants to map.

In addition to the judiciary, at least four other institutions are possible candidates to carry forward the analysis of *Earth and Other Ethics* beyond interest creation: (1) popular democracy; (2) representative institutions with institutionalized dissent; (3) structured markets for unconventional goods; and (4) ecological mandarins. Each of these institutional approaches can to some degree fit with *Earth and Other Ethics*. This final section sketches the degree of fit and the obvious problems that each institutional arrangement poses for our political tradition.

A. Popular Democracy

Samuel Hays's recent history of the environmental movement, *Beauty, Health, and Permanence: Environmental Politics in the United States*, presents the case for popular democracy.¹⁴⁹ He argues that a major reason for our failure to achieve a greater level of environmental quality is the growing gap between the general public and the environmental managers, both public and private.¹⁵⁰ Professor Hays characterizes the conflict as a classic one between those with immediate, small-scale concerns and those with a larger, systemic view:

The public sought to bring to the fore the notion that natural environments were valuable and should be a central aspect of environmental progress, but those in positions of managerial leadership minimized these goals in favor of their own commitments to more traditional types of commodity development. . . .

There was a similar reluctance of that leadership to move forward rapidly toward higher levels of personal health, toward wellness and optimum fitness, with a shift in emphasis from the

148. See Bartlett, *Ecological Rationality: Reason and Environmental Policy*, 8 ENVTL. ETHICS 221 (1986). Professor Bartlett compares and contrasts ecological rationality—the rationality of biogeochemical systems—with other forms of rationality: economic, legal, and political. Professor Bartlett argues for the need to integrate fully ecological rationality with other modes of decision making. *Id.*

149. See S. HAYS, *supra* note 34.

150. *Id.* at 538-43.

acute effects of high-level exposures to the chronic effects of low ones. Managers seemed more concerned with reducing developmental costs than with increasing environmental benefits. . . .

By the 1980's the managerial and technical leadership had also tended to assert that the general public would have to accept a permanent level of human and environmental contamination as a price of material progress.¹⁵¹

Popular democracy is an easier institutional alternative because it fits nicely with our political ideals. Indeed, popular democracy, with constitutional constraints, does have a role to play in checking the errors of experts. It is fundamentally unsuitable for most environmental controversies, however, because it prefers the irrational to the rational. For this reason, it does not effectively rebut the case for stronger ecological governance mechanisms discussed in this section. Nor is popular democracy an effective mechanism to change basic incentive structures. Finally, popular democracy does not fit well with the thrust of *Earth and Other Ethics*. I read the book as a plea for the triumph of sensibility over vulgarity, but popular democracy tends toward the latter. It is difficult to imagine organizing referenda on the issues that concern Professor Stone, or admitting the legitimacy of referenda to determine the status of nonconventional entities such as Native American tribes, remote threatened species, and plants.

B. Institutionalized Dissent

Since nonconventional entities must be represented by man, these entities could be given special advocates. The thrust of Professor Stone's earlier article, *Should Trees Have Standing?*, was that courts should appoint guardians for nature.¹⁵² This idea could be extended to the institutionalization of dissenting or unconventional views within existing institutions. There is increasing precedent for this. During the Nixon, Ford, and Carter administrations, the Council on Environmental Quality added a dissenting voice to the traditional developmental missions of most government agencies.¹⁵³ There is even precedent for institutionalized vetoes. The Endangered Species Act,¹⁵⁴ unless overridden by the exemption process, grants the Department of Interior a veto over other governmental activities that threaten an endangered species.¹⁵⁵

151. *Id.* at 540.

152. Stone, *supra* note 104, at 464-73.

153. Belsky, *Environmental Policy Law in the 1980's: Shifting Back the Burden of Proof*, 12 *ECOLOGY L.Q.* 1, 16-17 (1984).

154. 16 U.S.C. §§ 1531-1543 (1982 & Supp. IV 1986).

155. *Tennessee Valley Auth. v. Hill*, 437 U.S. 153, 172, 180-81 (1978).

Institutionalized dissent has largely been rejected as an effective governance mechanism. Generally, we expect a political opposition to take advantage of its first amendment rights to organize itself. Political scientists have heeded the Madisonian warning of the dangers of factionism, and, starting with Woodrow Wilson, have generally endorsed centralized governance mechanisms.¹⁵⁶ Thus, we have opted for processes that weigh all interests in making a decision. Too often, however, the result is a superficial weighing that neither adequately addresses the root cause of the conflict nor examines ways of avoiding or lessening the conflict.

Earth and Other Ethics suggests that we rethink the fundamental structure of our political and administrative institutions. Congress considered and rejected doing this when NEPA was introduced.¹⁵⁷ Rather than examining the mandate of each agency and determining how it should be altered, Congress opted for an across-the-board approach to environmental sensitivity, which retained the tradition of centralized decision making.¹⁵⁸ This approach has expanded the consideration of environmental values, but it has also tended to trivialize them. Despite the risks of vetoes by narrow political interest groups, the range of serious environmental problems that are not addressed by existing institutions, as well as the continuing difficulty of addressing these problems within the context of existing institutions suggest a need to think more deeply about how we pursue environmental quality, broadly defined. There is a greater role for "ethics mappers" than they now play.

C. Structured Markets for Unconventional Goods

Professor Stone's moral maps could be drawn by markets as well as by regulatory agencies or referenda. Environmentalists have generally been opposed to the market allocation of sensitive environmental resources (as opposed to the taxation of pollution) because free-rider problems prevent the organization of coalitions to bid and acquire these resources.¹⁵⁹ Privatization advocates claim to have solved this objection to a Coasian solution: property rights would initially be allocated to those with the strongest interest in the resource.¹⁶⁰

156. See V. OSTROM, *THE INTELLECTUAL CRISIS IN AMERICAN PUBLIC ADMINISTRATION* 23-39 (1973).

157. See 42 U.S.C. § 4331 (1982) (stating congressional policy).

158. F. ANDERSON, *NEPA IN THE COURTS: A LEGAL ANALYSIS OF THE NATIONAL ENVIRONMENTAL POLICY ACT* 6 (1973).

159. See, e.g., Davis & Kamien, *Externalities, Information, and Alternative Collective Action*, in *ECONOMICS OF THE ENVIRONMENT* 75-76 (R. Dorfman & N. Dorfman eds. 1972); Sax, *The Claim for the Retention of the Public Lands*, in *RETHINKING THE FEDERAL LANDS* 125 (S. Brubaker ed. 1983).

160. See, e.g., Calabresi, *Transaction Costs, Resource Allocation, and Liability*

These first distributees could be Professor Stone's guardians and trustees.

After the initial allocation, the resource or entity would be allocated by markets. The enlightened right-holders would then be entitled to make all the calculations advocated by Professor Stone in deciding whether to keep or sell the resource. Recent small-scale experiments with "debt for nature" swaps to preserve tropical rain forests hold out some promise along this line: in 1987, an international environmental group bought \$650,000 of Bolivia's \$4 billion debt at a discounted price of \$100,000; in return, the government agreed to set aside 3.7 million acres of Amazon River land it owns and to manage it for environmental goals.¹⁶¹ I suspect, however, Professor Stone would argue that most of his unconventional entities merit inalienable rights¹⁶² and thus there should be no markets at all.

D. Ecological Mandarins

The environmental question for modern political theorists is whether the imperatives of environmentalism are compatible with liberal democracy. One much-discussed analysis concludes that liberal democracy cannot cope with the concept of limits on resource use. Therefore, society must be governed by ecological mandarins with the specialized knowledge to run a steady-state society.¹⁶³ If fundamental resource patterns cannot be changed indirectly, then society must accept fundamental change in order to survive.

This idea challenges the core western idea of individual choice and dignity, and is therefore profoundly disturbing. As one friendly critic of this theory observed, "What [the proponent] really wants and needs is Hobbes' sovereign, but what he really wants us to believe is that we will get Plato's philosopher king."¹⁶⁴ Much of modern environmental law, especially the "hard look" doctrine of

Rules, in *ECONOMICS OF THE ENVIRONMENT*, *supra* note 159, at 194, 195; Nelson, *Private Rights to Government Actions: How Modern Property Rights Evolve*, 1986 U. ILL. L. REV. 361.

161. Copeland, *Buying Debt, Saving Nature*, NEWSWEEK, Aug. 31, 1987, at 46. For an interesting proposal to site hazardous waste facilities through a state-supervised referendum on the operator's proposed package of community benefits, see generally Mitchell & Carson, *Property Rights, Protest, and the Siting of Hazardous Waste Facilities*, 76 AM. ECON. REV. 285 (1986).

162. See Calabresi & Melamed, *Property Rules, Liability Rules, and Inalienability: One View of the Cathedral*, 85 HARV. L. REV. 1089, 1111-15 (1972) (a brilliant discussion of the conditions under which inalienability may be the best allocation rule).

163. W. OPHULS, *ECOLOGY AND THE POLITICS OF SCARCITY* 13-14 (1977).

164. Hoffert, *The Scarcity of Politics: Ophuls and Western Political Thought*, 8 ENVTL. ETHICS 5, 28 (1986).

judicial review,¹⁶⁵ is premised on the idea that courts, not administrative agencies, are the proper philosopher kings. Unlike imperial China, we have never accepted the legitimacy of a mandarin class.

Proposals for ecological mandarins, however, remind us that proposals for new ethics are also proposals for new power relationships between government and its citizens. All our experience with environmental regulation and theory suggests that more, not less, state coercion (or structural change in the current incentives that drive resource use) is necessary to cope with the scale of the problems. So the idea, however disturbing, cannot be rejected out of hand.

The task is to reconcile this idea with the western tradition of accountable and limited state power. Ecological mandarins could draw Professor Stone's maps; the question is whether they could generate the necessary consensus to support the new directions in which the maps lead us.

V. CONCLUSION

This Article has stressed the institutional implications of *Earth and Other Ethics*, because there is a tendency to solve hard social choices by classifying the decision as moral. But, calling the question an ethical one is only a partial answer to the problem.¹⁶⁶ It is not enough for lawyers to "cite" *A Sand County Almanac* and assume that they have adequately grounded all environmental protection efforts. As with many social problems, the ethical issues rest on a complex and evolving scientific base and must be integrated with an understanding of the underlying causes of the conflict to be resolved. There must always be a close link between environmental ethics and their scientific roots.

Environmental issues raise serious ethical issues, and new ethics are necessary to bridge the gap between existing knowledge and necessary action. Professor Stone has done us a service by narrowing the gap between concerned lawyers and philosophers, but he has also illustrated the symbiotic relationship between the recognition of new interests and institutional change. He has given lawyers and others the hard task of deciding how new values should be formed and implemented.

165. See, e.g., NATIONAL ACADEMY OF SCIENCES, REGULATING PESTICIDES 24-25 (1980).

166. See Coleman & Kraus, *Rethinking the Theory of Legal Rights*, 95 YALE L.J. 1335 (1986) (discussing rights and the institutions that create and protect them).