

# PROTECTING BIODIVERSITY FOR FUTURE GENERATIONS: AN ARGUMENT FOR A CONSTITUTIONAL AMENDMENT

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*“Granting that the earth is for man there is still a question: What man?”<sup>1</sup>*

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For hundreds of thousands of years, successive human generations passed on to their descendants a fundamentally undamaged living natural estate. Now, however, this precious inheritance is under serious threat. Natural areas in many parts of the world are being supplanted or drastically altered by the works and activities of mankind, and the Earth’s biological wealth is rapidly being depleted.

Scientists have predicted that a significant proportion of the world’s plant and animal species will become extinct within the next several decades despite present conservation efforts.<sup>2</sup> This trend has serious implications for the human future, since species losses can impair

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\* President, Defenders of Wildlife.

1. Aldo Leopold, *Some Fundamentals of Conservation in the Southwest*, in THE RIVER OF THE MOTHER OF GOD 86, 96 (Susan L. Flader & J. Baird Callicott eds., 1991).

2. See U.S. COUNCIL ON ENVIRONMENTAL QUALITY AND U.S. DEPARTMENT OF STATE, THE GLOBAL 2000 REPORT TO THE PRESIDENT, VOL. 1, 37 (1980) [hereinafter Global 2000 Report].

life-support systems essential to human existence, as well as deprive the world of potentially valuable foods and medicines yet to be discovered.

Even the United States, despite its economic advantages, technological accomplishments and environmental and conservation laws, is failing to cope adequately with this adverse trend. With continued population growth, moreover, the threat both at home and abroad will worsen.

To meet this threat effectively, it seems evident, more is required than mankind has attempted to date. Ordinary laws and conservation programs have shown themselves to be insufficient. A logical recourse is to move to a higher level.

Many other nations now have environmental provisions in their constitutions.<sup>3</sup> So do some of our states.<sup>4</sup> Adding such a provision to the United States Constitution provides the best assurance that our own nation will upgrade its present efforts to stem the extinction of wild species and protect important ecological processes.

Relying on ordinary statutes alone is insufficient because normal legislative processes are systemically biased in favor of current benefits as opposed to the long-term future. Common law is also insufficient. It falls far short of addressing the comprehensive need for protecting species and habitat. As for our Constitution, as currently written and interpreted it overwhelmingly favors other values, especially private property rights.

This paper proposes a constitutional amendment in the U.S. that explicitly imposes upon the government an affirmative obligation to protect the right of all people, including future generations, to the benefits of our living natural resources. This paper also responds to anticipated arguments from two opposing viewpoints. The first claims that protection for nature as a subject is of insufficient stature to warrant constitutional treatment. The second maintains that by protecting nature only as a human resource the amendment does not go far enough. I respond that a constitutional amendment to protect biodiversity on behalf of all humans is the only option that captures scientific necessity and legal practicality.

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3. See *infra* note 113 and accompanying text.

4. See *infra* notes 114-20 and accompanying text.

A properly written constitutional amendment could protect against both legislation and administrative actions that significantly harm natural systems and biological diversity. It could guarantee the citizen's right to sue against questionable government actions in this area. It could also bolster the public-welfare position, offsetting the present overemphasis on private property values. Perhaps most importantly, it could serve as a catalyst, prompting the nation to move toward embracing an ecological morality to complement its social morality. This is a necessity if America is to sustain and maximize its benefits from nature over the long term.

#### I. SOCIETY'S NEED AND DUTY TO PROTECT LIVING NATURE

In the late 1960s and early 1970s, there were proposals made in the U.S. Congress for a constitutional amendment establishing every citizen's right to a decent and healthful environment.<sup>5</sup> These efforts failed in part perhaps because success in winning enactment of environmental protection statutes fostered the belief that a constitutional amendment was unnecessary. This now needs reassessment.

##### *A. The Emergence of Scientific Consensus*

The crown jewels of our environmental protection laws were enacted in the 1970s because people were worried about pollution threats to human health and about losing aesthetic and recreational opportunities. Many of these environmental problems, such as contaminated air and water, were easily seen by the naked eye, and it was clear to the public that the problems were intensifying. People communicated their concern to elected officials and a series of statutes were passed by a Democratic Congress and signed into law by a Republican President.

Since enactment of the environmental laws in the 1970s significant advances have been made toward solving many problems. The Clean Water Act ensures that today rivers are not catching fire, as the Cuyahoga once did. Emission controls on automobiles have reduced some types of air pollution, and use of some toxic pesticides such as DDT has been curtailed. The worst stream-polluting municipal and industrial activities are being reduced. Thanks to the Endangered Species Act

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5. Ernst Brandl & Hartwin Bungert, *Constitutional Entrenchment of Environmental Protection: A Comparative Analysis of Experiences Abroad*, 16 HARV. ENVTL L.J. 1, 14-15 (1992); H.R.J. Res. 1321, 90th Cong., 2d Sess. (1968); S.J. Res. 169, 91st Cong., 2d Sess. (1970).

(ESA or Act), some of our most charismatic endangered species are recovering, including the alligator, peregrine falcon and bald eagle.

This progress has given the public the impression that all critical environmental problems are being solved. The contrary is true.

Most disturbing are a suite of problems not targeted by the above-mentioned legislation, most of which have arisen or been identified since the early 1970s. These involve more subtle, long-term ecological degradation. They include global warming, ozone depletion, industrial chemicals that enter the food chain and disrupt hormones in humans and other animals, and, perhaps most importantly, biodiversity loss, which is uniquely menacing because of its accelerating speed and irreversibility.<sup>6</sup>

By 1980, near the end of the Carter administration, the problem of ecosystem deterioration and accompanying species extinction began impinging on the national consciousness. In that year, the Global 2000 Report to the President was prepared by the Council on Environmental Quality (CEQ) and the Department of State.<sup>7</sup> It predicted that between half a million and two million species, perhaps fifteen to twenty percent of all species on earth as then estimated, would be lost by the year 2,000.<sup>8</sup> Another 1980 report, CEQ's Environmental Quality, called this projected loss "unprecedented in the last 65 million years."<sup>9</sup> The Global 2000 report was followed by a set of recommendations to the president, entitled *Global Future: Time to Act*.<sup>10</sup> The recommendations included the establishment of a federal Interagency Task Force on Conservation of Biological Diversity to "develop a comprehensive, long-term U.S. strategy to maintain biological diversity," and U.S. participation in international cooperative efforts to conserve biodiversity.<sup>11</sup>

The report's recommendations were largely ignored by the Reagan Administration. However, scientific attention to biodiversity loss was expanding rapidly.

The new field of conservation biology grew to become a comprehensive and sophisticated scientific discipline. Satellite imagery

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6. See Theo Colborn et al., *Developmental Effects of Endocrine-Disrupting Chemicals in Wildlife and Humans*, 101 ENVTL. HEALTH PERSP. 378; WORLD RESOURCES INSTITUTE, GLOBAL BIODIVERSITY STRATEGY (1992); GRETA NILSSON, THE ENDANGERED SPECIES HANDBOOK (1983).

7. Global 2000 Report, *supra* note 2.

8. *Id.* at 37.

9. COUNCIL ON ENVIRONMENTAL QUALITY, ENVIRONMENTAL QUALITY-1980, at 31 (1980).

10. U.S. COUNCIL ON ENVIRONMENTAL QUALITY, GLOBAL FUTURE: TIME TO ACT (1980).

11. *Id.* at 87-89.

was used to gather estimates of rainforest loss. Research teams penetrated deep jungle and high mountains in search of areas rich in species. Sophisticated mathematical modeling made possible better estimates of species loss. With advanced genetic analyses and habitat models and a wealth of on-the-ground studies of altered habitats, researchers showed that small, fragmented populations face greater probabilities of extinction and that most nature reserves are too small to save all the species in them.<sup>12</sup> One study found that even our national parks, relatively small fragments surrounded by farmed or otherwise transformed lands, have already lost many of their native mammal species.<sup>13</sup>

This research led to growing recognition among scientists that species loss is even greater than had been feared and that the rate of loss is accelerating.<sup>14</sup> In 1990, the Environmental Protection Agency's thirty-nine member independent Science Advisory Board reported that species extinction and habitat loss, along with ozone depletion and global climate warming, pose the gravest risks to the global environment and human welfare.<sup>15</sup> New data suggest that there may be 30 million or more species in the world of which perhaps twenty percent may be lost by the year 2,000.<sup>16</sup> Losses will continue to accelerate thereafter.<sup>17</sup> For example, one estimate projects that 66 percent of Amazon plant and 69 percent of Amazon bird species will disappear.<sup>18</sup>

Attention at first focused on tropical rainforest diversity. Now scientists have recognized that temperate ecosystems are at risk too. The federal government currently lists 919 species in this country<sup>19</sup> as endangered or threatened and has identified some 4,000 additional listing

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12. See W.D. Neumark, *Mammalian Richness, Colonization, and Extinction in Western North American National Parks* (1986) (unpublished Ph.D. dissertation, University of Michigan).

13. *Id.*

14. NILSSON, *supra* note 6, at 3-4.

15. U.S. ENVIRONMENTAL PROTECTION AGENCY, *REDUCING RISK: SETTING PRIORITIES AND STRATEGIES FOR ENVIRONMENTAL PROTECTION* (1990).

16. R.L. Peters & T.E. Lovejoy, *Transformations in Terrestrial and Freshwater Fauna During the Past 300 Years as the Result of Human Actions*, in *THE EARTH AS TRANSFORMED BY HUMAN ACTION* 353, 355 (B.L. Turner et al. eds., 1991).

17. NILSSON, *supra* note 6, at 3-4.

18. Daniel Simberloff, *Are We on the Verge of a Mass Extinction in Tropical Rainforests?* in *DYNAMICS OF EXTINCTION* 165, 177 (D. K. Elliott ed., 1986).

19. Telephone Interview with Susan Jacobsen, Biologist, Listing Branch, Division of Endangered Species, U.S. Fish and Wildlife Service (Jan. 27, 1995).

candidates.<sup>20</sup> In Hawaii alone, seven species of native birds are thought to have become extinct since 1963, five of them since the 1980 publication of the Global 2,000 report.<sup>21</sup>

Entire U.S. ecosystems are threatened with extinction. A new Defenders of Wildlife report, *Endangered Ecosystems of the United States*, identifies twenty-one types of critically endangered ecosystems, among them Pacific Northwest old-growth forest, tall-grass prairie, South Florida pine rocklands and midwestern wetlands.<sup>22</sup> Seven of the twenty-one have lost more than ninety-eight percent of their area at the time European settlers arrived.<sup>23</sup> The overriding message science brings us is that poorly planned development and other human activities are rapidly destroying the biodiversity on which human well-being depends.

The human harm from continued biodiversity loss will come in many forms. While current knowledge permits only rough estimates of this harm, it is nonetheless obvious that it will be enormous.

To begin, species extinctions and loss of genetic diversity will reduce the promise of developing new medicines to fight disease, of using unique biological processes as medical models to discover new health benefits, and of preserving a sufficient variety of food sources to feed an exploding human population.<sup>24</sup> Furthermore, losses of distinctive animals and plants will deprive humanity of significant aesthetic, recreational and emotional benefits.<sup>25</sup> For many people, the ethical dilemma of being part of one species that is causing the extinctions of many others may produce significant mental anguish.<sup>26</sup>

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20. See *Endangered and Threatened Wildlife and Plants*, 50 C.F.R. §§ 17.11-12 (1994).

21. HAWAII STATE DEPARTMENT OF LAND AND NATURAL RESOURCES, HAWAII'S EXTINCTION CRISIS: A CALL TO ACTION 18 (1991).

22. ROBERT C. PETERS & REED NOFF, *ENDANGERED ECOSYSTEMS OF THE UNITED STATES* (forthcoming 1995).

23. *Id.*

24. See Eric Chivian, *Species Extinction and Biodiversity Loss: The Implications for Human Health*, in *CRITICAL CONDITION: HUMAN HEALTH AND THE ENVIRONMENT* (Eric Chivian et al. eds., 1993); Mark J. Plotkin, *The Outlook for New Agricultural and Industrial Products from the Tropics*, in *BIODIVERSITY* (E.O. Wilson ed., 1988); J. Trevor Williams, *Identifying and Protecting the Origins of Our Food Plants*, in *BIODIVERSITY* (E.O. Wilson ed., 1988).

25. See REED F. NOSS & ALLEN Y. COOPERRIDER, *SAVING NATURE'S LEGACY: PROTECTING AND RESTORING BIODIVERSITY* 21, 21-23 (1994).

26. See *id.* at 22-23; Ernest Partridge, *Nature as a Moral Resource*, 6 *ENVTL. ETHICS* (1984); E.O. Wilson, *Is Humanity Suicidal?*, *N.Y. TIMES*, May 30, 1993, at 24; see generally STEPHEN R. KELLERT & E.O. WILSON, *THE BIOPHILIA HYPOTHESIS* (1993); Plotkin, *supra* note 24; Williams, *supra* note 24; Chivian, *supra* note 24 (discussing effects of species extinction).

Even more catastrophic damage could result from altering life-supporting ecological processes called by biologists ecosystem services.<sup>27</sup> Biodiversity loss could impair the ability of natural ecosystems to regulate atmospheric gases, purify water, decompose wastes, generate fertile soils, provide food directly, cycle vital nutrients and control insects and wildlife diseases that destroy crops and otherwise impact human health.<sup>28</sup>

Unfortunately, the vast majority of citizens do not recognize the seriousness of this threat.<sup>29</sup> In part, this is because even highly disturbed ecosystems may give the illusion of health. In California, for example, although valley hills in the San Francisco Bay area appear covered with healthy oaks, closer inspection reveals that there are no saplings.<sup>30</sup> Because ecological processes have been interrupted and cattle and deer are eating young seedlings, there has been little regeneration for decades, and the old oaks are beginning to die.<sup>31</sup> Moreover, the native flowers and bunch grasses that once covered the hills beneath the oaks are gone, replaced by European weeds.<sup>32</sup> Although the fact is unrecognized by the public, this part of California is slipping away.<sup>33</sup>

Some prominent critics, such as Julian Simon and Aaron Wildarsky, neither trained in the biological sciences, argue that the rate of biodiversity loss is exaggerated and we do not need to be concerned about extinctions.<sup>34</sup> This is easily answered. Although it is true that there is uncertainty about the exact current rate at which species are becoming extinct, there is no doubt among mainstream scientists that we have entered the greatest episode of mass extinction since the loss of the dinosaurs.<sup>35</sup> Quibbling about the exact rule misses the point - when some

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27. See, e.g., Paul R. Ehrlich, *The Loss of Diversity: Causes and Consequences*, in *BIODIVERSITY* 21, 22 (E.O. Wilson ed., 1988).

28. See generally *id.* at 21-27; Chivian, *supra* note 24, at 212-13; NOSS & COOPERRIDER, *supra* note 25, at 19-23; Wilson, *supra* note 26; Paul R. Ehrlich & E.O. Wilson, *Biodiversity Studies: Science and Policy*, 253 *SCIENCE* 248-52 (1991); Walter E. Westman, *How Much Are Nature's Services Worth*, 197 *SCIENCE* 960-63 (1977); Paul R. Ehrlich & Harold A. Mooney, *Extinction, Substitution, and Ecosystem Services*, 33 *BIOSCIENCE* 248 (1983).

29. See PETER D. HART RESEARCH ASSOC., INC., DEFENDERS OF WILDLIFE NATIONAL SURVEY ON BIODIVERSITY (1993).

30. MICHAEL BARBOUR et al., CALIFORNIA'S CHANGING LANDSCAPE 87-88 (1993).

31. *Id.*

32. *Id.*

33. See *id.*

34. Julien L. Simon & Aaron Wildavsky, *Extinction: Species Lost Revisited*, 5 *NWI Resource: Endangered Species Blueprint* 6 (1994).

35. See Wilson, *supra* note 26, at 29.

one drives their car head first into a wall, arguing about whether the now dead driver was traveling at 80 miles per hour or 90 miles per hours is academic.

Another argument is that even if extinction estimates are correct, technological advances, such as genetic engineering, will allow human beings to flourish even if we lose many of the species that presently support human life.<sup>36</sup> In short, the extinction crisis doesn't matter.

This argument deserves inspection. It is true that technology provides daily advances in many areas and can help solve some environmental problems, hopefully, such as acid rain, ozone depletion, and heating of the atmosphere. For these pollution problems, at least partial solutions exist in the form of alternative energy sources and industrial chemicals.<sup>37</sup> Implementation will depend on cost and political will.

But how useful can technology be, either for repairing ecosystems once we have damaged them, or in substituting for the services they render? Unfortunately for those who pin their hopes on ecological engineering, natural ecosystems are so complex and so little understood that once destroyed it would be impossible to rebuilt them on a large scale. Despite decades of trying, skilled specialists find it difficult or in many cases impossible even to restore damaged U.S. saltwater wetlands, some of the simplest ecosystems in the world in terms of their species composition.<sup>38</sup> We barely know enough to introduce a single new species into a functioning ecosystem with safety, and the ecological literature is full of horror stories of ecosystems severely damaged by such attempts.<sup>39</sup> For example, opossum shrimp (*Mysis relicta*) were introduced into Flathead Lake, in Montana, to provide a new food source for kokanee salmon, a popular game fish. Unpredictably, the opossum shrimp ate so much zooplankton that there was little available as food for

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36. Simon & Wildavsky, *supra* note 34, at 6-9.

37. DEAN EDWIN ABRAHAMSON, THE CHALLENGE OF GLOBAL WARMING 224 (1989); JAMES J. MACKENZIE, BREATHING EASIER: TAKING ACTION ON CLIMATE CHANGE, AIR POLLUTION, AND ENERGY INSECURITY 17-23 (1988); JAMES J. MACKENZIE ET AL., ILL WINDS: AIRBORNE POLLUTIONS TOLL ON TREES AND CROPS 56-57 (1988).

38. William R. Jordan et al., *Ecological Restoration as a Strategy for Conserving Biological Diversity*, 1 ENVTL. MANAGEMENT 56, 61-62 (1988).

39. See generally CHARLES S. ELTON, THE ECOLOGY OF INVASIONS BY ANIMALS AND PLANTS 15-32 (1958).



the salmon. Salmon declined greatly, along with the bald eagles which relied on them.<sup>40</sup>

As Edward O. Wilson has pointed out, ecosystems are so incredibly complex that a team of biologists with a billion dollar budget could not begin to rebuild a tropical forest.<sup>41</sup>

If we cannot rebuild destroyed ecosystems, can we replace their functions with technology? Can we in some undreamed of way artificially create new soil for all the world's agriculture and filter all the water currently purified by wetlands through treatment plants? Can we farm all our seafood in enclosures, like we now do some salmon? Can we sustain our agricultural base without the addition of any new genes from wild plants to confer disease resistance? Can new "virtual reality" experiences provide psychological benefits equal to those humans gain from actual contact with nature and its many magnificent species now seriously endangered? Can we invent from whole cloth the pharmaceuticals and genetic models upon which modern medicine and genetic recombination technology depend? The obvious answer is no; humans depend on the natural world for our well-being, and if we destroy it, we destroy our children's patrimony. We thus have certain knowledge that future generations not only are being placed at risk, but also that they will in fact experience significant resulting harm. As Edward O. Wilson has written, "There is no way in sight to micromanage the natural ecosystems and the millions of species they contain. That feat might be accomplished by generations yet to come, but then it will be too late for the ecosystems—and perhaps for us."<sup>42</sup>

*B. Society's Moral Responsibility to Future Generations*

Scientists are not alone in demanding that contemporary society take note of the long-term environmental damage being caused and do something about it. A growing number of moral theorists are now making the same argument.

Before scientific evidence proved otherwise, moral philosophers generally accepted the comfortable assumption, imbedded in Western economic and political institutions, that technological advancement and

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40. RICHARD B. PRIMAK, *ESSENTIALS OF CONSERVATION BIOLOGY* 174 (1993).

41. Wilson, *supra* note 26, at 29.

42. *Id.* at 27.

economic growth are synonymous with progress and per se desirable.<sup>43</sup> In cases in which such progress nonetheless presaged diminution of some aspect of the quality of life, it was confidently believed that the loss would be more than offset by gains elsewhere and in overall wealth.<sup>44</sup>

That assumption fits comfortably with and helps justify the utilitarianism that is so influential in the United States. Utilitarianism offers the goal of “the greatest happiness for the greatest number.” It views all human obligations as being limited to, and satisfied by, consideration only of identifiable individuals alive today or anticipated in immediate human posterity. Economic well-being is seen as the key to human “happiness” and all economic growth as progress that by definition will benefit posterity.<sup>45</sup>

Until scientists proved otherwise, there was no reason to pursue the issue of the responsibility of present generations to their descendants. Now the world of moral philosophy appears to be in a period of transition.

Those who continue to argue for placing primary reliance on philosophies like utilitarianism put forward the following three major arguments.<sup>46</sup> First, it is the only practical approach because we cannot know today what individuals in the distant future will value, what problems technological advances will solve before those individuals are born, and therefore what society is now doing or not doing that will cause future harm.<sup>47</sup> Second, it is consistent with mainstream economists’ “present value” approach to relating future impacts to current decision-making. That approach assigns quantifiable measurements to future impacts and uses some percentage rate to discount those measurements back through time to determine their present value. That present value, compared for example to present cost or other expenditure alternatives, permits policy decisions to be reduced to economic decisions.<sup>48</sup> Last, it immensely simplifies the conceptual problem of considering moral obligations to future generations.<sup>49</sup>

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43. Bryan G. Norton, *Obligations to Future Generations*, in *ENCYCLOPEDIA OF BIOETHICS* (forthcoming 1995).

44. *See id.*

45. *See id.*

46. *Id.*

47. *Id.*

48. *Id.*

49. *Id.*

For an influential and growing number of theorists, however, traditional utilitarianism is not adequate because of scientific evidence that society is causing substantial long-term environmental damage.<sup>50</sup> Gone is the confident belief that all growth and change represent progress and therefore that life in the future will necessarily be better than life today. Further, there could even be an environmental catastrophe threatening human life itself. Precise prediction of the values that future humans will hold is not possible, but common sense forces us to anticipate the continued validity of basic human needs now recognized to be at risk. Also, continued sole reliance on “present value” discounting techniques is ludicrous where they could eliminate even future catastrophe from having any bearing on current decisions.<sup>51</sup>

It isn't just utilitarianism that is under fire. Some moral philosophers subscribe to the belief that no individualistic ethical framework can adequately conceptualize living humanity's obligations to future generations.<sup>52</sup> They propose use of ethical frameworks consistent with the ideas of 18th century English political philosopher Edmund Burke that treat our obligations to the future as extending not to individuals but to organic human society as a whole.<sup>53</sup> Furthermore, some are prepared to go further and to substitute a more holistic, ecosystemic approach to valuing nature for a strictly anthropocentric one and thus to grant moral consideration even to nonhuman entities.<sup>54</sup>

While such a challenge to anthropocentrism may have merit, I believe that the desirability of a wholly ecosystemic reordering of moral philosophy is not the subject of anything approaching consensus among moral theorists. Nor is acceptance of such a major reordering necessary to support legal protection for biodiversity. It is necessary only to accept the scientific reality that current policies are certain to harm future generations and that we have a moral obligation to modify those policies

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50. *Id.*

51. See Alan Randall, *What Mainstream Economists Have to Say About the Value of Biodiversity*, in *BIODIVERSITY* 217, 219-20 (E.O. Wilson ed., 1988). (discussing welfare economists' efforts to find alternatives to traditional benefit-cost-analysis for deciding biodiversity conservation issues).

52. See Norton, *supra* note 43.

53. *Id.*

54. See, e.g., Partridge, *supra* note 26; *RESPONSIBILITIES TO FUTURE GENERATIONS* (Ernest Partridge ed., 1980); *HOLMES ROLSTON, III, ENVIRONMENTAL ETHICS: DUTIES TO AND VALUES IN THE NATURAL WORLD* (1988); *PAUL TAYLOR, RESPECT FOR NATURE* (1986); *J. BAIRD CALLICOTT, IN DEFENSE OF THE LAND ETHIC* (1989).

in the interest of intergenerational equity. We should then easily find agreement with the following commonsense proposition set out by Professor Edith Brown Weiss of the Georgetown University School of Law in her 1989 book, *In Fairness to Future Generations*:<sup>55</sup>

In order to define what intergenerational fairness means in using and conserving our common patrimony, it is useful to view the human community as a partnership among all generations. . . . The purpose of human society must be to realize and protect the welfare and well-being of every generation. This requires sustaining the life-support systems of the planet, the ecological processes, environmental conditions, and cultural resources important for the survival and well-being of the human species, and a healthy and decent human environment.

Although all generations are members of this partnership, no generation knows before it is a living generation at one point in time it will be the living generation, nor how many members it will have, nor even how many generations there will ultimately be. . . .

[I]t is appropriate to assume the perspective of a generation that is placed somewhere along the spectrum of time, but does not know in advance where it will be located. Such a generation would want to inherit the common patrimony of the planet in as good condition as it has been for any previous generation and to have as good access to it as previous generations. This requires that each generation pass the planet on in no worse condition than it received it and provide equitable access to its resources and benefits.

A critical feature of this intergenerational obligation is its recognition that the living are at once trustees of the environment for future generations and beneficiaries of that environment (which previous

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55. EDITH BROWN WEISS, *IN FAIRNESS TO FUTURE GENERATIONS: INTERNATIONAL LAW, COMMON PATRIMONY, AND INTERGENERATIONAL EQUITY* 23, 23-24 (1989) (employing established legal concepts of equity and trust relations to provide international protection for the rights of future generations as a class and proposing a framework for intergenerational equity law based upon planetary obligations and rights).

generations held in trust for them).<sup>56</sup> This dual role means present humanity is not required to forsake using natural resources in order to preserve them. It has not only a right to use those resources but also an obligation to conserve them to protect future options and welfare. The obligation it imposes on present humans is not to forgo use of natural resources but only to live so that those resources are used sustainably.

This proposal incorporates a strong recommendation for being fair in decisions having impacts across generations. Weiss comments favorably on philosopher John Rawls' classic decision model intended to eliminate temporal bias by requiring that self-interested decision-makers not know, when they make decisions, in which generation they themselves will live.<sup>57</sup> Although such an idealized decision model cannot be duplicated in the real world, it helps to conceptualize the objective viewpoint society should take if it is to extend its moral horizon and assure intergenerational equity.

Theorist Bryan Norton of the Georgia Institute of Technology has modified Rawls' rational decision model on the basis of the holistic Leopoldian view that ecosystem health will be assured only if "the sum total of species and the variety of associations in which they exist are preserved over time."<sup>58</sup> He then employs the modified model to evaluate alternative strategies for natural resource use.<sup>59</sup> To acknowledge and balance society's two roles of resource trustee and resource beneficiary, Norton proposes a "naturalist-preservationist" strategy assuring great attention to the utilitarians' favored economic criteria.<sup>60</sup> But he rejects exclusive reliance on such criteria.<sup>61</sup> He proposes a two-step decision process:

In the first step, ecological information on the biotic systems in question, its strength and redundancy, its vulnerability to stress, and so forth, must be considered. Some systems may be so vulnerable that they should not be exploited at all, others may be extremely resilient and

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56. See *id.*; Daniel Callahan, *What Obligations Do We Have to Future Generations?*, in *RESPONSIBILITIES TO FUTURE GENERATIONS* 73 (Ernest Partridge ed., 1990).

57. WEISS, *supra* note 55, at 24.

58. Bryan G. Norton, *Intergenerational Equity and Environmental Decisions: A Model Using Rawls Veil of Ignorance*, 3 *ECOLOGICAL ECONOMICS* 137, 144 (1989).

59. *Id.*

60. *Id.* at 143.

61. *Id.*

appropriate objects of heavy exploitation. Other systems range between these extremes, but the maximal degree of exploitation should be determined . . . by the functional relationships within the system and its resilience in the face of proposed management regimens.

The second step in deciding resource use . . . can only be taken after natural scientific data, drawn from ecology, soil studies, climatology, etc. have been used to establish the constraints on exploitation which are inherent in the land community. In this second step, economic considerations are used to determine which of the permissible models of exploitation will maximize human material well-being in the present. Economic choices are therefore constrained by ecological data on the health of the system and its susceptibility to riskless exploitation. . . . [C]oncerns for the long-term future are addressed in the first stage of analysis—the search for preemptive constraints—while concerns of economic productivity are addressed in a second stage.<sup>62</sup>

Our sense of moral obligation to future generations should focus our attention primarily on policies that we know threaten unrecompensable harm to posterity. In the area of biological diversity, these are policies that seriously impact species, habitats and ecological processes. Norton aptly describes these policies as requiring preemptive constraints limiting the manner in which society's immediate economic objectives may be pursued.<sup>63</sup> This is where our moral duty is inescapable because the welfare of our successors is profoundly at stake and we can no longer claim we are ignorant of that fact. Because we have knowledge of the consequences of our actions, options available, and the capacity to choose those options, we also have the moral responsibility to act.

Norton also has devised a conceptual tool that he calls a "risk decision square" to help identify subjects that warrant society's priority attention because of their intergenerational aspects.<sup>64</sup> (See Figure 1) Subjects requiring decisions based upon their human-caused effect on the future are located by plotting their potential magnitude of impact against

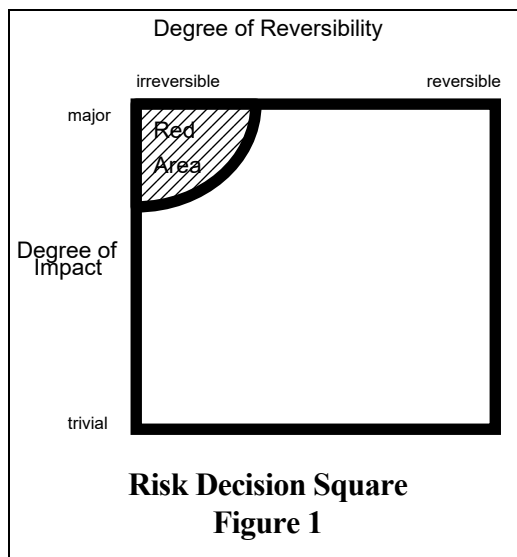
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62. *Id.* at 145-46.

63. *Id.* at 146-47.

64. *Id.*

their degree of reversibility. Subjects falling in the far upper left quadrant, the “red area,” are those threatening maximum impact on the future with the least possibility of reversal. These are decisions that cannot be compensated for by increases in wealth or in any other manner. They risk unrecompensable harm to the future and therefore must be “constrained by a moral principle of sustainability” or “morally forbidden.”<sup>65</sup>



With modification, the “Risk Decision Square” can also be a useful conceptual tool for evaluating individual proposals to protect future generations and identifying those that truly warrant a forced paradigm shift realized by constitutional amendment. The new tool might be used to evaluate not only the environmental amendment proposed here but others, such as the currently popular proposal for an amendment

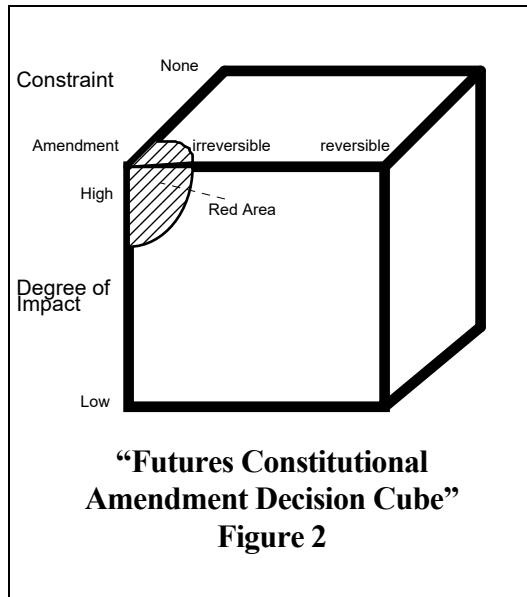
to require a balanced federal budget.

Norton used only the “x” and “y” axes. If a “z” axis is added, the square becomes a decision cube. (See Figure 2) Using a third dimension, it is now possible to plot proposals for amendments to protect the future based not only on their degree of expected impact and reversibility, but also on the level of governmental constraint required in order to assure the desired outcome.

Beginning at the most remote point on the z axis and moving inward, the level of constraint rises and becomes more legally formal. At the furthest limit of Z, there is no formal constraint, which equals a libertarian reliance solely on voluntary action by private individuals and entities. Approaching the origin along the Z axis represents increasing levels of constraint as would be imposed by common and statutory law.

65. See generally *id.*; see also Bryan G. Norton, *Sustainability, Human Welfare and Ecosystem Health*, ENVIRONMENTAL VALUES 97, 102-03 (1992).

Then closer to the origin, there is increased constraint afforded by new judicial interpretation of constitutional law. As Z reaches the origin, there arises a new constraint imposed at the highest possible level via amendment to the Constitution.



Utilizing this “Futures Constitutional Amendment Decision Cube,” suppose a specific subject threatens high and irreversible impact on future generations. If lower-level constraints will satisfactorily handle this issue through voluntarism, common law, statutory regulation or even constitutional judicial interpretation, it falls outside the three-dimensional red area and does not merit elevation to explicit constitutional expression. However, if the subject falls within the red

area, i.e., if it is found to be fraught with danger for the future, lacks any significant opportunities to reverse or otherwise compensate and is impervious to effective attack through other means, then a constitutional amendment is required.

To summarize, a moral perspective must conclude that beggar-the-children policies destroying needed biodiversity are unethical and must be morally forbidden. The magnitude and certainty of the future harm society is causing with policies that entail biodiversity loss has led many moral philosophers to use biodiversity loss as a prime example when discussing the responsibility of the living to the unborn.<sup>66</sup> There should be no question that a proposal to deal with the biodiversity loss problem falls in the red area of Norton’s “Risk Decision Square.” Much of the balance of this paper will argue that such a proposal also falls in the three-dimensional red area of the “Futures Constitutional Amendment Decision Cube.”

66. See, e.g., RESPONSIBILITIES TO FUTURE GENERATIONS (Ernest Partridge ed., 1980); Norton, *supra* note 58; Partridge, *supra* note 26; WEISS, *supra* note 55.



I take it as evident without further analysis that reliance on voluntarism cannot adequately protect biodiversity. If it could, biodiversity loss would not now be the enormous problem scientists have identified. Therefore, the paper will focus on the other portions of the z axis; evaluating whether statutory law, common law and constitutional judicial interpretation offer viable means of confronting biodiversity loss. I will conclude that the necessary constraint on society's actions that impact biodiversity is possible only by constitutional amendment.

## II. LAWMAKING PREJUDICED AGAINST THE FUTURE

To look to elected politicians to legislate a solution to biodiversity loss is probably futile. Our political/legislative process currently reflects the utilitarian conviction that the best life for ourselves and by extension for our descendants maximizes current economic benefits.<sup>67</sup> Thirty years after Stewart Udall forcefully condemned our "myth of superabundance," most voters continue to favor candidates promising the quickest improvement in our material standard of living while ignoring scientific evidence that long-entrenched policies must be changed if the nation's material gains are to be sustained over the long term.

In this circumstance, it is perhaps not surprising that American action specifically to protect biodiversity, a movement the major stakeholders in which cannot vote and mostly are not yet alive, is woefully inadequate. This country, alone among industrialized nations, initially opposed the international biodiversity preservation treaty negotiated as part of the 1992 Earth Summit and still has not ratified it although it is now international law.<sup>68</sup> One might suppose the U.S. government would at least require that federal lands be managed to preserve biodiversity. However, Congress and most presidents have steadfastly opposed efforts to end public lands subsidies that destroy biodiversity, thereby doubly harming future generations by increasing their deficit burden while diminishing their natural estate.<sup>69</sup>

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67. See *supra* notes 34-52 and accompanying text.

68. Ashali Varna, *Biodiversity Meeting in Bahamas to Consider Financial Mechanisms*, EARTH TIMES, Nov. 20, 1994, at 4; Rodger Schlickeisen, *Foot Dragging on the Biodiversity Treaty*, WILDLIFE ADVOCATE, Summer 1994, at 2.

69. HOUSE COMM. ON NATURAL RESOURCES, MAJORITY STAFF REPORT, TAKING FROM THE TAXPAYER: PUBLIC SUBSIDIES FOR NATURAL RESOURCES DEVELOPMENT, 103d Cong., 2d Sess. (1994).

Occasionally a glimmer of light has appeared, if only to be quickly extinguished. In the 103rd Congress an attempt to designate preservation of natural diversity as a purpose of our national wildlife refuge system did not pass either the House or the Senate.<sup>70</sup> A similar fate met a proposal by the Clinton administration for congressional authorization of the new administratively created National Biological Survey (NBS), whose mission is simply to inventory and monitor the country's biological wealth.<sup>71</sup> Property rights advocates are now threatening to kill the NBS by eliminating its funding.<sup>72</sup>

To its credit, the Clinton administration has launched a tentative experiment to wean federal public land agencies from their historic practice of putting current commodity production above all other goals and values.<sup>73</sup> Agencies have been directed to begin operating in accordance with the principles of "ecosystem management."<sup>74</sup> Instead of administering land for maximum commodity production and then trying to deal with the environmental and economic wreckage, the ecologically oriented land manager could determine, first, how to preserve ecosystem health and then what kind and how much of commodity production a healthy natural environment will tolerate. This should sound familiar, for it is exactly the "naturalist-preservationist" strategy Norton recommended to protect biodiversity for future generations.<sup>75</sup> Like the NBS, however, "ecosystem management" appears sure to run afoul of special interests and be required to run the legislative gauntlet in what is threatening to be a strongly anti-environmental 104th Congress.

The inability of our political and legislative process to properly address the biodiversity crisis is illustrated by the history of the Endangered Species Act. Although the Act's purposes include protecting natural ecosystems, its original political support relied on the supposition that its goal was simply to rescue a few charismatic species. When

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70. See S. 823, 103d Cong (1993) (The "National Wildlife Refuge System Management and Policy Act" was considered and approved by the Senate Environment Committee but was not voted on); see also *Environment, Energy and Natural Resources Status Report for the 103rd Congress*, ENVIRONMENTAL AND ENERGY STUDY INSTITUTE (Oct. 13, 1994) [hereinafter EESI].

71. EESI, *supra* note 70, at 23.

72. See NBS: *Babbit Renames Programs Aims to Blunt Criticism*, 4 GREENWIRE, Jan. 6 1995, at 12-13.

73. See United States General Accounting Office, *Ecosystem Management*, Aug. 1994, at 28-36, 68-76.

74. *Id.*

75. See *supra* notes 59-63 and accompanying text.

species jeopardy proved to be far more sweeping and effective action was seen to involve more than minor inconvenience, political support eroded.<sup>76</sup>

Despite numerous surveys<sup>77</sup> that have consistently shown strong public support for saving endangered species and for the Act itself, political opponents have managed to impede the act's implementation and most administrations and Congress have starved the program for funds.<sup>78</sup> Largely on this account, few listed species have approved recovery plans and few of those plans are being properly administered.<sup>79</sup> In many cases, courts have found the act being violated by the government itself.<sup>80</sup> Until recently, use of ESA provisions reaching beyond single species to promote ecosystem health and prevent endangerment was essentially untried.<sup>81</sup> So unfavorable has been the congressional climate that whenever the Act has come up for periodic reauthorization, backers have felt compelled to concentrate primarily on protecting the inadequate present program rather than seeking needed expansion.<sup>82</sup>

Despite this strategy, opposition has grown stronger and more determined with each reauthorization round. ESA supporters purposely delayed reauthorization during the Bush administration in the hope that the 1992 election would produce a more biodiversity-friendly White House. Yet when this happened, other White House priorities and

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76. Stephen M. Meyer, *The Final Act*, THE NEW REPUBLIC, Aug. 15, 1994, at 24; Lynn E. Dwyer, *Taming the Pit Bull? Property Rights Case Law and Implementation of the Endangered Species Act 3-5* (unpublished manuscript, Center for Conservation Biology, Stanford University).

77. See, e.g., NOSS & COOPERRIDER, *supra* note 25, at 18; *Election '94 Voters Want Strong Enviro Laws—Poll*, GREENWIRE, Dec. 21, 1994, at 3-4.

78. See Meyer, *supra* note 76, at 24; Michael O'Connell, *Response to Six Biological Reasons Why the Endangered Species Act Doesn't Work and What to do About It*, 6 CONSERVATION BIOLOGY 140 (1992); RICHARD TOBIN, THE EXPENDABLE FUTURE: U.S. POLITICS AND THE PROTECTION OF BIOLOGICAL DIVERSITY 34-68, 229-70 (1991).

79. Oliver A. Houck, *The Endangered Species Act and Its Implementation by the U.S. Departments of Interior and Commerce*, 64 U. COLO. L. REV. 277, 344-51 (1993).

80. DANIEL J. ROHLF, THE ENDANGERED SPECIES ACT: A GUIDE TO ITS PROTECTIONS AND IMPLEMENTATION (1989).

81. See, e.g., Dwyer, *supra* note 76, at 35-36. R. Edward Grumbine, *What is Ecosystem Management?*, 8 CONSERVATION BIOLOGY 27 (1994); Ronald B. Taylor, *Crusade for the Gnatcatcher*, DEFENDERS, Fall 1994, at 26-33.

82. Suzanne R. Jones, *The Endangered Species Act: Where Are We?*, AUDUBON NATURALIST NEWS, May 1994; John M. Fitzgerald, *The Endangered Species Act in The Congress and the Courts: A Review and Forecast*, A.B.A. ENVTL. LITIG. COMMITTEE (1991).

increased opposition in Congress resulted in delay until after the 1994 congressional election.

Now the ESA faces its most serious challenge ever. Supporters worry that it may be shredded by congressional opponents who seize upon the act's every shortcoming and perceived inconvenience to economic activity as reasons to emasculate it.<sup>83</sup> Of particular significance, leading opponents propose to repeal the requirement that species be listed as endangered or threatened exclusively on the basis of objective science, and to make listing conditional upon favorable cost/benefit analysis.<sup>84</sup> Under such analysis, "present value" discounting could result in essentially all negative impacts projected beyond two or three decades having no influence on current listing decisions. This would ignore both the scientific significance of species loss and the ethical issue of harm to future generations.

One of the most effective political attacks on the Endangered Species Act uses the Constitution itself. So important did our founding fathers consider private property rights that they assured their protection by including them in the Bill of Rights. They could not have foreseen that this would someday result in the use of that value to undermine another important American value fostering our descendants' well-being by protecting biological diversity.

It was of course also impossible for the drafters of the Constitution to anticipate that within a mere two centuries an exploding population with incredible nature-devouring technology would fundamentally threaten the future welfare of the nation. Now, as the previous discussion suggests, our legislative process is facilitating the accelerated loss of nature, sacrificing the welfare of future generations in order to maximize immediate economic benefits.

The legislative processes are also predictably slow and inflexible and the resulting laws are much too particularistic and easily ignored to effectively protect the full range of biodiversity. Even with the best possible legislative performance, we would still need assurance that expeditious judicial review is available for legislation or government action affecting biodiversity.

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83. See Meyer, *supra* note 76.

84. See H.R. 1414, 103d Cong., 1st Sess. (1993) (the lead co-sponsor of the Human Protection Act, Don Young of Alaska is now chairman of the House Endangered Species, Act Authorizing Committee).

For these reasons, the normal legislative processes are very unlikely to be effective in protecting biodiversity and thus averting serious harm to future generations.

### III. THE LIMITATIONS OF THE TRADITIONAL LEGAL SYSTEM

That our founding fathers could not have foreseen our contemporary environmental problems is obvious. Still, to those not schooled in the development of our legal system, it is discouraging to learn that something as basic as society's need to assure the sustainability of our living natural resources is not included in the U.S. Constitution or common law. This even though the Constitution's drafters unquestionably intended to provide for the welfare of future generations. The Preamble makes this clear:

We the People of the United States, in Order to form a more perfect Union, establish Justice, insure domestic Tranquility, provide for the common defence, promote the general Welfare, and secure the Blessings of Liberty to ourselves *and our Posterity* do ordain and establish this Constitution for the United States of America.<sup>85</sup>

Yet in the original articles and amendments there is nothing explicitly providing for posterity's welfare by protecting nature. Attempts to establish an environmental fundamental right through new interpretation of various existing provisions of the Constitution have all been unsuccessful.<sup>86</sup>

Wildlife law in the U.S. has evolved based upon a view of wildlife as a common resource. Although the boundaries separating federal and state government responsibilities for wildlife stewardship remain imprecisely defined, by common law practice and the Tenth Amendment, primary responsibility clearly resides with the states.<sup>87</sup> The states, in turn, exercise that responsibility by considering themselves “. . .

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85. U.S. Const. pmbl. (emphasis added).

86. Brandl & Bungert, *supra* note 5, at 21-23 (discussing failed attempts to infer an environmental constitutional right using the First Amendment); *see also* A.E. Dick Howard, *State Constitutions and the Environment*, 58 VA. L. REV. 143, 194-96 (1972).

87. *See* MICHAEL BEAN, *THE EVOLUTION OF WILDLIFE LAW* 9-48 (1983); Oliver A. Houck, *Why Do We Protect Endangered Species and What Does That Say About Whether Restrictions on Private Property to Protect Constitute Takings* (forthcoming *Iowa Law Review*).

as the owners of their wildlife resources, and as trustees holding wildlife in custody for the benefit of their citizens.”<sup>88</sup>

But state government has a long history of concentrating its wildlife stewardship activities on regulation and management of a comparative handful of sports species valued almost exclusively for their direct consumptive uses.<sup>89</sup> Moreover, the ecologically arbitrary boundaries of the states, and thus the limits of their responsibility and authority, are inconsistent with the cross-border dimensions of the many ecological processes society needs to preserve.

Environmentalists intent on stemming biodiversity loss want appropriate protection for all living organisms, including for example insects and microorganisms responsible for such life-supporting services as decomposing waste and providing fertile soil. But little in current law protects the myriad life forms and their interactions that provide such services.

The common law doctrine of nuisance has evolved to redress a wide variety of injuries to private property and public rights, including pollution or other harm to the environment. But even the concept of public nuisance, which by definition involves harm to an interest common to the general public, has never been extended to a subject as complex as conserving biodiversity for human benefit.

The other common law doctrine which arguably is available is the public trust doctrine. But this doctrine, which establishes state government’s common law responsibility for some aquatic resources, has rarely been used aggressively and demonstrates insufficient application to the much more comprehensive task of protecting biodiversity.<sup>90</sup>

As things stand, we have no practical alternative but to try to protect the vast majority of species and habitats, and thus biodiversity, as incidental to the regulation of pollution discharge as an immediate health threat and, especially, the use of land as property. Again we are confronted by the formidable reality of the Constitution’s silence on stewardship of natural resources.

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88. *Id.*

89. DEFENDERS OF WILDLIFE, IN DEFENSE OF WILDLIFE: PRESERVING COMMUNITIES AND CORRIDORS 68 (1989).

90. John A. Chappinelli, *The Right to a Clean and Safe Environment: A Case for a Constitutional Amendment Recognizing Public Rights in Common Resources*, 40 BUFF. L. REV. 597, 599-601 (1992).

On the other hand, the Fifth Amendment places heavy emphasis on protecting the right of the individual owner to do as he wishes with his property, even though in the case of land it may be home to much of the biodiversity upon which society's welfare ultimately depends. So ingrained in the American culture is our notion of private property rights that it has given rise to "[o]ne of the more bizarre notions of Anglo-American property law [that there is an] asserted right of an owner to destroy what he owns, even if in doing so he deprives the world of something valuable and unique. . . ."<sup>91</sup>

Unless this constitutionally protected value is appropriately balanced with the even more fundamental value of preserving nature's benefits, land ownership can be interpreted to convey to a present tenant a unique and legally protected power to destroy species and habitats important to the continued welfare of society. This at least appears to be the practical import of Supreme Court decisions giving deference to individual owners to decide the fate of the wildlife species and natural biodiversity associated with their land.<sup>92</sup>

Professor Joseph Sax, a noted authority on public land law, has analyzed the unprecedented challenge that biodiversity preservation poses to traditional property rights concepts.<sup>93</sup> His conclusion is that the Supreme Court has rejected the challenge, opting purposely to limit severely the legal foundation for protecting land for its ecological value.<sup>94</sup> He notes that Justice Antonin Scalia's majority decision in the landmark *Lucas v. South Carolina Coastal Council* effectively leaves historical common law nuisance principles as the only source of state authority to regulate private land in favor of ecological processes, but simultaneously says that those processes are not covered by necessary "background principles" of nuisance and property law.<sup>95</sup> Sax adds, "Justice Scalia assumes that redefinition of property rights to accommodate ecosystem demands is not possible."<sup>96</sup>

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91. Joseph L. Sax, *The Search for Environmental Rights*, 6 J. OF LAND USE & ENVTL. LAW 93, 103 (1990).

92. *See infra* notes 93-96 and accompanying text.

93. Joseph L. Sax, *Property Rights and the Economy of Nature: Understanding Lucas v. South Carolina Coastal Council*, 45 STAN. L. REV. 1433 (1993).

94. *See id.*

95. *See id.* at 1439-41 (citing *Lucas v. S. Carolina Coastal Council*, 112 S. Ct. 2886 (1992)).

96. *Id.* at 1446; *see also* Houck, *supra* note 87.

Professor Richard Lazarus has offered a similar assessment, saying that in *Lucas*:

the Court [apparently assumes] that the common law of nuisance is the sole legitimate basis for a restriction that eliminates all economic value. Consequently, the Court seems firmly planted in the nineteenth-century property model under which absolute private property rights exist in natural resources, and nuisance law is necessary only in marginal cases at the physical boundaries existing between discrete parcels of property. The Court thus ignores both the interconnectedness of natural resources—plainly reflected in the dangers associated with construction on the shifting sands of the coastal zone—as well as the legitimate role to be played by state legislatures and expert agencies in responding to enhanced understanding of the externalities associated with development on fragile natural resources.<sup>97</sup>

Professor Dan Tarlock, who has also scrutinized the Supreme Court's rulings, asserts that the Scalia opinion in *Lucas* "reflects an unjustified contempt for all levels of environmental regulation, no matter how clear the scientific link between a land use activity and harm to other land in the area, and a lack of appreciation for the extent to which the teachings of ecology have altered our conception of harmful land use practices."<sup>98</sup> Tarlock identifies the challenge as finding a better balance between "individual prerogatives and a sustainable future" for society.<sup>99</sup>

All three scholars conclude that recent majority opinions err in their approach to protecting ecological processes and biodiversity. The opinions err because they ignore the fact that definitions of property have proved to be flexible in the past. Sax and Tarlock express hope that a commonsense legal conception of property will evolve that takes account of its value both to the society at large as a provider of ecological services and also to the individual owner as a personal possession.<sup>100</sup> (This is similar to the recommendations of Weiss and Norton that society's

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97. Richard J. Lazarus, *Shifting Paradigms of Tort and Property in Natural Resources Policy and Law* 193, 211-12 (Lawrence J. MacDonnell & Sarah F. Bates eds., 1993).

98. A. Dan Tarlock, *Local Government Protection of Biodiversity: What is Its Niche?*, 60 U. CHI. L. REV. 555, 565 (1992).

99. *Id.* at 613.

100. *See supra* 93-96 and accompanying text.



obligation to future generations should recognize that the living are both trustees of the environment and current beneficiaries of that environment).<sup>101</sup>

To the legal scholar it is no doubt fascinating to contemplate how, through the complicated and sometimes tortured evolution of judicial interpretation, our legal system might eventually do the unprecedented; how in spite of the handicap of the fundamental law of the land promoting only a personal ownership view of land as property, inventive minds might find creative means to integrate into court decisions a broader doctrine of ecological protection. But why should we gamble the welfare of our children and future generations on this possibility? When we are dealing with a value as fundamental as providing for the future welfare of our own species, should we not opt for a stronger, more direct remedy? Should we not consider biodiversity as a commons benefiting all society and appropriately protected for that purpose in the Constitution?

Another justification for a constitutional amendment safeguarding nature's living legacy has to do with the problem of legal standing to sue when the object of a lawsuit is to prevent future harm. Consider this hypothetical situation: Against the odds, Congress has enacted a comprehensive law protecting biodiversity. Relying upon that law, a plaintiff is in court with unimpeachable evidence that a proposed federal agency action that he seeks to block will cause immediate significant loss of biodiversity and thereby inflict serious human harm, but not until 100 years in the future. The plaintiff's objective is to protect present generations' unborn descendants and all subsequent human life. The plaintiff's attorney figures that unless the plaintiff argues some other purpose that clearly involves harm to himself and living humanity, precedent suggests that the court will find insufficient injury for him to sue. The plaintiff's attorney therefore presents instead or in addition a potentially more saleable argument that advances a separate purpose involving harm (albeit perhaps inconsequential harm) to living humanity. This, the attorney determines, might lead to a finding that the plaintiff has standing and can therefore pursue the real objective.

At best, the outcome on standing in this case would be uncertain when by any reasonable moral standard it should be assured. Why, moreover, should it be necessary to find a back door into court when the

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101. *See supra* notes 55, 58 and accompanying text.

plaintiff's noble purpose is to advance one of society's most fundamental values? Why should not the Constitution itself assure U.S. citizens legal standing for such a worthwhile purpose in which society has great interest?

Not only does the Constitution not now assure such standing, but also a number of legal scholars interpret recent court cases as indicating that the courts are purposefully making it more difficult for opponents of damaging natural resource use to bring lawsuits.<sup>102</sup> Furthermore, it is claimed, Congress is abetting the move by enacting legislation that serves the same end.<sup>103</sup> Says one analyst: "In short, individuals and advocates of common resource protection have become disenfranchised. When a population has suffered wide scale disenfranchisement in the past, constitutional amendments have been used to restore that populace to a legal whole."<sup>104</sup>

Only an amendment that guarantees citizens a constitutional right to protect biological resources important to future generations will be able to resolve all doubt about the standing of a citizen to enjoin government actions that endanger those resources.

#### IV. A PROPOSED CONSTITUTIONAL AMENDMENT

How should we structure a constitutional amendment to protect biological diversity for future generations and what impact can we expect it to have?

Among the scholars who have considered environmental rights and obligations, two who have enunciated valuable guiding principles are Edith Brown Weiss and Joseph Sax. Weiss has recommended:

three basic principles of intergenerational equity. First, each generation should be required to conserve the diversity of the natural and cultural resource base, so that it does not unduly restrict the options available to future generations in solving their problems and satisfying their own values, and should be entitled to diversity comparable to that of previous generations. . . . Second, each generation should be required to maintain the quality

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102. Chappinelli, *supra* note 90, at 605.

103. *Id.*

104. *Id.* at 606.

of the planet so that it is passed on in no worse condition than the present generation received it, and should be entitled to a quality of the planet comparable to the one enjoyed by previous generations. . . . Third, each generation should provide its members with equitable rights of access to the legacy from past generations and should conserve this access for future generations.<sup>105</sup>

In his analysis of the basis for asserting fundamental environmental rights, Sax suggests that a “driving idea behind efforts to establish environmental rights is a version of welfare-state ideology . . . [t]he goal would not be government abstention, but rather a call for affirmative action by the state—a demand that it assure, as a right of each individual, some level of freedom from environmental hazards or some degree of access to environmental benefits.”<sup>106</sup> Sax further writes “the issue is not simply leaving the earth as it is—for if that were the case, only remaining as cave dwellers would have been acceptable—but refraining from those acts that impoverish by leaving less opportunity for freedom of action and thought by those who follow us.”<sup>107</sup> He offers the following further guidance:

The genetic stock should be maintained essentially undiminished. The practical application is to make habitat and species preservation a primary programmatic obligation of environmental law.

Biological diversity, with adequate representatives of various ecosystem types, should be protected. The application is establishment and maintenance of nature reserves, whether in the form of parks or refuges or biosphere reserves, as primary embodiments of our heritage.

The stock of resources that constitutes our primary natural endowment should be conserved. The application here is a policy of sustaining yield in the management of resources, whether privately or publicly held, with the goal of undiminished productive capacity. . . .

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105. WEISS, *supra* note 55, at 38.

106. *See* Sax, *supra* note 91, at 95.

107. *Id.* at 103.

Private rights in the natural endowment of water, soil and air can never be more than usufructuary. No one may acquire a property right to destroy or to impair the productivity of our endowment, and any rights acquired should be considered subordinate to the public trust obligation to commit these resources to the foregoing purposes.

An obligation to sustained productivity mandates that irreversible contamination of soil, water and air be avoided and where damage has occurred, a concerted effort to repair the damage inflicted in the past should be undertaken so as to restore diminished capital.<sup>108</sup>

What should be the wording of an amendment that, with reasonable judicial interpretation, would offer the best prospect of satisfying these two sets of principles? The possibilities may be many, falling along a spectrum from purely benign to aggressively active. At one extreme might be a simple statement of public policy while at the other, an extensive declaration of right combined with specific directives to official bodies to secure that right and some description of the process to be followed.

As a nonlawyer, I will be satisfied if I succeed in stimulating legal scholars to debate the possibilities. However, I offer the following suggestion, which relies primarily upon stating an environmental right but includes a brief, basic policy statement. It is concise and fundamental in order to accommodate the goal of maintaining the Constitution as a living document. It purposely leaves to statutory law and judicial interpretation the task of determining the complex details. My proposal:

The living natural resources in the United States are the common property of all the people, including generations yet to come. All persons and their progeny have an inalienable, enforceable right to the benefits of those resources for themselves and their posterity. The United States and every State shall assure that use of those resources is sustainable and that they are conserved and maintained for the benefit of all the people.

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108. *Id.* at 104-05.

Whatever the wording and length, the language should establish the right to the benefits of living nature and explicitly extend that right to future generations as a class. Nothing less can guarantee the fundamental values at issue and guarantee that those values receive at least the same legal deference the Supreme Court now gives to other values of no greater merit.

The result should be that future conflicts between sustainable use of our living natural resources and other constitutionally imbedded values will shift more in favor of sustainability. This should mitigate the traditional political bias maximizing immediate benefits at the expense of assuring their continuation over the long term.

Professor A.E. Dick Howard of the University of Virginia Law School has noted that the provision of a constitutional environmental right also,

“might result in a broader definition of what constitutes a nuisance, private or public. Moreover, the existence of a constitutional right could alter the balancing technique which courts use in nuisance cases to weigh the social and economic benefits of the defendant’s activity against the harm which that activity is doing to the plaintiff. It is one thing to balance the value of the complained-of activity against private harm; it is quite another to make that balancing judgment when a constitutional right is involved . . . .”<sup>109</sup>

The wording is intended to make the amendment self-executing. It provides for citizen participation by guaranteeing that citizens will have standing to sue to enforce its provisions, both for themselves directly and for future generations as their guardians, whether or not there is supporting statutory law. In its most direct application, this will provide a direct means of bringing a cause of action to prohibit legislative or other governmental action that violates government’s obligation to protect living nature’s benefits for all people, including future generations.

The language imposes an obligatory duty on all levels of government to take positive action to secure the stated right. It recognizes traditional state management responsibility for resident fish

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109. A.E. Dick Howard, *State Constitutions and the Environment*, 58 VA. L. REV. 193, 203 (1972).

and wildlife within a constitutionally mandated framework of sustainability. Also it encourages legislative and administrative approaches to utilizing our natural resources so all adopt that same common framework.

Lastly, by constitutional recognition of environmental sustainability, the amendment should powerfully, albeit informally, promote in a way unavailable through any other means a paradigmatic shift in America's traditional culture of natural resource exploitation. Because the Constitution is the most fundamental expression of society's values, "constitutional provisions promote a model character for the citizenry to follow, and they influence and guide public discourse and behavior. On a practical level, the public tends to be more familiar with constitutional provisions than specific statutory laws. Citizens tend to identify with, and in turn are identified by, the form of their national constitution. Thus, establishing some form of environmental protection in a national constitution results in the identification of environmental protection with expressions of national pride and character. The establishment process itself further informs the nation's consciousness."<sup>110</sup>

#### V. CONSTITUTIONAL PROVISIONS ELSEWHERE

It is likely to be argued—as it was in the late 1960s and early 1970s—that environmental values and nature conservation simply do not deserve elevation to constitutional status.

This paper presents many counter arguments supporting the case for expressing in our most fundamental law the right of present and future generations to the continued benefits of living nature. However, since it seems widely recognized that constitution-writers the world over have tended to accept the precept that constitutions should be limited to only the most basic and necessary fundamentals of government, it is instructive to note the recent appearance of environmental constitutional provisions elsewhere.

Species extinction, habitat loss and the resulting threat to basic ecological processes are worldwide phenomena. Other nations have responded to the scientific evidence of mounting problems both as a

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110. Brandl & Bungert, *supra* note 5, at 4-5.

community of nations and individually. Weiss points out that the international

[c]oncern for justice to future generations regarding the natural environment first emerged in the preparatory meetings for the 1972 Stockholm Conference on the Human Environment. The preamble to the Stockholm Declaration on the Human Environment expressly refers to the objective of protecting the well-being of future generations: ‘... To defend and improve the environment for present and future generations has become an imperative goal for mankind a goal to be pursued together with, and in harmony with, the established and fundamental goals of peace and of world-wide economic and social development.’<sup>111</sup>

The Declaration provides further that the “natural resources of the earth, including the air, water, land, flora and fauna . . . must be safeguarded for the benefit of present and future generations.”<sup>112</sup>

Since then, numerous international legal documents have been negotiated with the explicit intent of advancing protection of the environment for the future, most recently the Convention on Biological Diversity.

Weiss identified thirty-three national constitutional provisions, nearly all recent, that require government and/or private citizens to provide such protection. Following are excerpts from three examples of national constitutions that provide both a fundamental environmental right and a complementary statement of public policy:<sup>113</sup>

#### BRAZIL

Ch. VI, Art. 225: Everyone has the right to an ecologically balanced environment, an asset for the common use of the people and essential to the wholesome quality of life. This imposes upon the Public Authorities and the community the obligation to defend and preserve it for present and future generations.

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111. WEISS, *supra* note 55, at 28-29.

112. *Id.* at 24.

113. English translations of foreign national constitutional provisions of course vary. Brazilian and Portuguese translations appear in WEISS, *supra* note 55, at 298-99, 312-13. The Turkish translation appears in Brandl & Bungert, *supra* note 5, at 71.

Sec. 1. To assure the effectiveness of this right, referred to in this article, it is incumbent upon the Public Authorities:

I — to preserve and restore essential ecological processes and to provide for the ecological management of species and ecosystems;

II — to preserve the diversity and the integrity of the genetic heritage of the Nation and to supervise entities dedicated to research and the manipulation of genetic material.

#### PORTUGAL

Part I, Sec. III, Ch. II, Art. 66: (1) All have the right to a human, healthy and ecologically balanced human environment and the duty to preserve it.

(2) The State is obliged, through its agencies and by appeal and support of popular initiatives: a) to prevent and control pollution and its effects and harmful forms of erosion; b) to organize territorial space so as to establish biologically balanced landscapes; c) to create and develop natural and recreational parks and reservations, as well as to classify and protect natural landscapes and sites, in a manner that assures conservation of nature and the preservation of cultural values of historical or artistic interest; d) to promote the rational enjoyment of natural resources, while safeguarding their responsibility and ecological stability.

#### TURKEY

Art. 56: (1) Everyone has the right to live in a healthy, balanced environment. (2) It is the duty of the State and the citizens to improve the natural environment, and to prevent environmental pollution.

In addition, no fewer than twelve of our states have now gone beyond the common law public trust doctrine to include in their constitutions explicit provisions requiring government to conserve nature. Four of these, Hawaii, Illinois, Montana and Pennsylvania, incorporate references to future generations and five, Hawaii, Illinois, Massachusetts,



Pennsylvania and Rhode Island, establish a fundamental environmental right.<sup>114</sup>

#### HAWAII

Art. XI, Sec. 1: For the benefit of present and future generations, the State and its political subdivisions shall conserve and protect Hawaii's natural beauty and all natural resources, including land, water, air, minerals and energy sources, and shall promote the development and utilization of these resources in a manner consistent with their conservation and in furtherance of the self-sufficiency of the State.

All public natural resources are held in trust by the State for the benefit of the people.

Art. XI, Sec. 9: Each person has the right to a clean and healthful environment, as defined by laws relating to environmental quality, including control of pollution and conservation, protection and enhancement of natural resources. Any person may enforce this right against any party, public or private, through appropriate legal proceedings, subject to reasonable limitations and regulation as provided by law.<sup>115</sup>

#### ILLINOIS

Art. XI, Sec. 1: The public policy of the State and the duty of each person is to provide and maintain a healthful environment for the benefit of this and future generations. The General Assembly shall provide by law for the implementation and enforcement of this public policy.

Art. XI, Sec. 2: Each person has the right to a healthful environment. Each person may enforce this right against any party, governmental or private, through appropriate legal proceedings subject to reasonable limitation and regulation as the General Assembly may provide by law.<sup>116</sup>

#### MASSACHUSETTS

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114. *See infra* notes 115-120 and accompanying text.

115. H.I. CONST. art. VI, §§ 1, 9.

116. I.L. CONST. art. VI, §§ 1, 2.

Amend. Art. XLIX: The people shall have the right to clean air and water, freedom from excessive and unnecessary noise, and the natural, scenic, historic and esthetic qualities of their environment; and the protection of the people in their right to the conservation, development and utilization of the agricultural, mineral, forest, water, air and other natural resources is hereby declared to be a public purpose.

The general court shall have the power to enact legislation necessary or expedient to protect such right.

In the furtherance of the foregoing powers, the general court shall have the power to provide for the taking, upon payment of just compensation therefor, or for the acquisition by purchase or otherwise, of lands and easements or such other interests therein as may be deemed necessary to accomplish these purposes.<sup>117</sup>

#### MONTANA

Art. IX, 1: (1) The state and each person shall maintain and improve a clean and healthful environment in Montana for present and future generations.<sup>118</sup>

#### PENNSYLVANIA

Art. I, Sec. 27: The people have a right to clean air, pure water, and to the preservation of the natural, scenic, historic and esthetic values of the environment. Pennsylvania's public natural resources are the common property of all the people, including generations yet to come. As trustee of these resources, the Commonwealth shall conserve and maintain them for the benefit of all the people.<sup>119</sup>

#### RHODE ISLAND

Amend. Art. XXXVII, Sec. 1: The people shall continue to enjoy and freely exercise all the rights of fishery, and the privileges of the shore, to which they

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117. M.A. CONST. amend. art. XLIX.

118. M.T. CONST. art. IX, § 1.

119. P.A. CONST. art. I, § 27.

have been heretofore entitled under the charter and usages of this state; and they shall be secure in their rights to the use and enjoyment of the natural resources of the state with due regard for the preservation of their values, and it shall be the duty of the general assembly to provide for the conservation of the air, land, water, plant, animal, mineral and other natural resources of the state, and to adopt all means necessary and proper by law to protect the natural environment of the people of the state by providing adequate resource planning for the control and regulation of the use of natural resources of the state and for the preservation, regeneration and restoration of the natural environment of the state.<sup>120</sup>

Before dismissing the suggestion that the U.S. Constitution should protect nature, it should also be recalled that in 1972 Supreme Court Justice William O. Douglas, supported by Justices Harry Blackmun and William Brennan, gave serious consideration in *Sierra Club v. Morton* to the proposition that someone or some human institution should be permitted standing to sue on behalf of nonhuman nature.<sup>121</sup> In fact, so close was the vote by which the proposal lost that Garrett Hardin, writing in the foreword to Christopher Stone's 1973 book, *Should Trees Have Standing? Toward Legal Rights for Natural Objects*, commented optimistically:

In a way, the trees lost, albeit narrowly—and perhaps temporarily. Had they won, the Mineral King decision would no doubt have been called “a watershed decision.” . . . I submit that it is a good bet that we are near the ridge of a watershed. It is not merely the closeness of the decision (4-to-3) that leads to the suspicion; it is also the tone of the majority opinion—which is not unfriendly to the trees—as well as other evidences of a changing climate of opinion in this country. . . . The rapidity with which Stone's work has been favorably commented on by jurists, journalists, and legislators gives grounds for optimism as to the early

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120. R.I. CONST. art. XXXVII, § 1.

121. *Sierra Club v. Morton*, 405 U.S. 727, 741-46 (1972).

incorporation into law of Stone's thesis that natural objects should have standing in court.<sup>122</sup>

If three Supreme Court justices and other scholars believed legal standing should be granted on behalf of nonhuman nature based upon nature's own intrinsic values, then a suggestion that the Constitution should protect living nature explicitly for humans is certainly not out of bounds.

#### VI. DOES THE PROPOSED AMENDMENT GO FAR ENOUGH?

To many committed environmentalists, my proposal to protect living nature for its value to present and future generations will seem inadequate. They no doubt will be joined by the moral philosophers noted earlier who reject traditional anthropocentric ethical frameworks in favor of ecocentric ones that grant moral consideration to elements of nonhuman nature.<sup>123</sup> Under their alternative approach, nonhuman nature cannot be treated as a mere resource from which humans derive benefit.<sup>124</sup> The idea of protecting nature for merely human purposes may even be considered morally anathema, albeit no more so than under our current legal system.

In his evaluation of alternative strategies for guiding human use of natural resources, Norton defined environmentalists and their philosopher counterparts proposing to extend moral consideration to nonhuman nature as "extensionist-preservationists."<sup>125</sup> According to their view, Norton wrote:

[t]here are interests that reside in nature itself, independent of human interests, and these interests give rise to values inherent in nonhuman species and ecosystems. Sometimes this view is expressed by saying that nonhuman species have 'rights' of their own. . . . Extensionist-preservationists believe that, even if adequate safeguards were in place to guarantee the interests of all future generations of humans, there are legitimate interests which may not be protected. The values are the interests that reside in nature itself. . . .

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122. Garrett Hardin, *Foreword*, in *SHOULD TREES HAVE STANDING?* ix, xvi (1988).

123. *See supra* note 50 and accompanying text.

124. *Id.*

125. *See Norton, supra* note 58, at 146.

These values cannot be reduced to human values and they are incommensurable with human interests. . . .

The extensionists . . . differ from the naturalists in arguing that environmentalism must go beyond time preference issues and also develop rules for protecting the independent value that nature has. They believe that incommensurable nonhuman values further limit the range of morally permissible behaviors available to human resource users.<sup>126</sup>

It is possible to be sympathetic to this perspective and still conclude that, because of the legal and systemic constraints of our anthropocentric culture, it actually offers little benefit to the cause of protecting nature. Also, a number of moral philosophers categorically reject the proposition that because there are important values inherent in nature, one must conclude that all nonhuman nature (such as a tree) has “rights.”<sup>127</sup>

Norton has noted that Aldo Leopold himself, although including in his “land ethic” specific obligations of humans to nature, nonetheless stuck to an anthropocentric approach to determining policy:

Leopold accepted nonanthropocentrism as an important new direction for human consciousness, but he explicitly chose to support his environmental policy directives on an anthropocentric basis. He reasoned as follows: the nonanthropocentric position will not be persuasive in policy discussions because “to most men of affairs, this reason is too intangible to either accept or reject as a guide to human conduct.” Moreover Leopold argued that a human-oriented approach is adequate to support environmental protection, provided it takes into account all human values and provided it is farsighted enough: “Granting that the earth is for man - there is still a question: What man?” He argued that any decent culture must be capable of passing on an undefiled earth to all future generations.<sup>128</sup>

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126. *Id.* at 146-47.

127. *Id.*

128. *Id.* at 142-43 (quoting Aldo Leopold, *Some Fundamentals of Conservation in the Southwest*, 1 ENVIRONMENTAL ETHICS 131, 141 (1979)).

As a practical matter and in the light of the previously discussed legislative process and trend of judicial interpretation of the Constitution, it is extremely unlikely that our legal system in the foreseeable future will follow Justice Douglas's suggestion and grant legal consideration without first confirming the existence of moral consideration.

Perhaps the amendment herein proposed would turn out to be but a way station on the road to granting legal consideration to nonhuman nature. If so, fine. In the meantime, the approach entailed by this amendment, establishing a guardian-protected right of future human generations to the continued benefits of nature's biodiversity, should offer better prospects of acceptance because it relies only on anthropocentric moral arguments with which our legal system should be comfortable and for which it was created. The Constitution already guarantees to "our Posterity" legal rights to go along with their moral rights to such fundamental values as liberty, religious freedom, and freedom of speech. What is necessary, I submit, is the fairly straightforward task of persuading society (a) that posterity has an equal moral right to benefit from living nature and (b) that this moral right should be similarly and equally protected by a legal right stated in the Constitution.

While the proposed amendment does not go as far as some would wish in protecting nature from human impact, to my mind it goes as far as possible, considering current and foreseeable constraints. Also, while the amendment's direct purpose is to promote human welfare, the result nonetheless should be a significant degree of otherwise unattainable protection for the natural environment. Biological diversity in this context is potentially a very big umbrella under which numerous environmental values should find shelter.

## VII. CONCLUSION

Scientists are warning that losses of species and natural habitats, together producing the loss of biological diversity, have already reached a crisis stage. Because these losses are the result of human activities that harm future generations even though benefiting current material standards of living, present generations have a compelling moral obligation to preclude this biocrisis from ending in catastrophe for our posterity.

There are options for Americans to live more sustainably, and opportunities to choose them, but the political will to do so is missing. Elected officials align themselves with beggar-the-children policies that

maximize short-term economic gain without heed to the need for sustainability. Biological diversity is destroyed to provide immediate economic benefits for constituents who vote now to the detriment of future generations who cannot.

To the extent that elected officeholders do enact statutes giving greater protection to species and natural habitats, their efforts, unless supplemented by a constitutional amendment, will probably be so slow and unwieldy that they will result in serious, permanent and unnecessary additional losses of biodiversity. Even with the requisite set of statutes, judicial interpretation of standing and private property rights probably would defeat meaningful implementation and enforcement.

Except for the rapidly growing legacy of harm that will be inherited by our descendants, it would be intriguing to see whether and how our political and legal systems over time would accommodate our nation's need to assure effective protection for unique genetic resources and life-supporting ecological services. But waiting for long and questionable self-correction of these problems is untenable when scientific opinion says humans are already causing rapid biodiversity loss that will significantly harm future generations, and when it is predicted that the combination of continued technological advances, population growth and unsustainable development will accelerate that loss and harm. No moral authority can justify slow and uncertain reform when there is a better alternative.

Surely it is time for America to treat the Constitution as the living document our forefathers intended and amend it to protect a value that its drafters undoubtedly would have embraced had they possessed the necessary knowledge and foresight. That value merits constitutional expression because it is one of society's most fundamental: to provide for proper stewardship of the natural estate upon which human life depends.

In years to come, protecting the right of future generations to benefit from living nature may seem strange only because it took so long to realize the enormity of our impact on nature and to accept the moral implications of that impact. Unhappily, our nation has yet to acknowledge that protecting nature for its citizens is such a compelling governmental obligation that it merits constitutional treatment.

Some may consider it naive to argue that a political system that has failed to protect nature adequately by statute may be persuaded to enshrine this objective in the fundamental law of the land. Certainly the

task of winning approval of such an amendment by either Congress or a constitutional convention is formidable. However, political action in our democracy is powerfully influenced by the public's urgent expression of concern for deeply held values.

Since no value is more dear than providing for the welfare of our children, grandchildren and other descendants, the major requirement for a biodiversity constitutional amendment to acquire political salience may be establishing for the public the connection between that value and preserving living nature. And nothing may better mobilize public opinion than serious public discourse on the amendment itself.

Properly worded and interpreted, a constitutional amendment will help our nation protect nature both by law and in less direct cultural ways. It will assure that citizens have a legal right to continue to receive the benefits of living nature. It should provide at least equal legal footing for that value with other values already in the Constitution. And it should help stimulate throughout society a change from resource exploitation activities that give priority to short-term economic benefits at the expense of the future, to ones that emphasize current well being within a framework of assured continued environmental health that permits maximization of long-term economic and other benefits.

Ultimately, such an amendment may point the way to America's adoption of the "land ethic" first propounded by Aldo Leopold, an ecological morality in which humans see themselves not as conquerors of nature but rather as partners in our shared land community. Paradoxically, it is only by adopting this perspective that we can maximize nature's benefits to human society over the long term.

A theme Thomas Jefferson often developed, and one which he explicitly applied to the revision of constitutions, was: "The earth belongs always to the living generation." He meant, of course, that while the present generation of men may venerate the wisdom of their forebears they must adapt that heritage to the needs of their own time. Had Jefferson lived in this time of environmental concern, he might have amended his adage to say, "The earth belongs always to the living generation—and to generations unborn." This would



recognize the fiduciary obligation which those who today inhabit the earth owe to those who will come after.<sup>129</sup>

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129. A.E. Dick Howard, *State Constitutions and the Environment*, 58 VA. L. REV. 193, 228-29 (1972).