

3-1-1999

Diverse Opinions on Biodiversity

Royal C. Gardner

Follow this and additional works at: <http://digitalcommons.law.utulsa.edu/tjcil>



Part of the [Law Commons](#)

Recommended Citation

Royal C. Gardner, *Diverse Opinions on Biodiversity*, 6 Tulsa J. Comp. & Int'l L. 303 (1998).

Available at: <http://digitalcommons.law.utulsa.edu/tjcil/vol6/iss2/8>

This Article is brought to you for free and open access by TU Law Digital Commons. It has been accepted for inclusion in Tulsa Journal of Comparative and International Law by an authorized administrator of TU Law Digital Commons. For more information, please contact daniel-bell@utulsa.edu.



DIVERSE OPINIONS ON BIODIVERSITY

*Royal C. Gardner**

Protection of Global Biodiversity: Converging Strategies,
edited by Lakshman D. Guruswamy and Jeffrey A. McNeely.
Duke University Press, 1998. pp. 425.

I. INTRODUCTION

In 1992, the United Nations Conference on Environment and Development produced two significant “hard law” treaties: the Framework Convention on Climate Change¹ and the Convention on Biological Diversity.² As the November 1998 Climate Change Conference of the Parties in Buenos Aires illustrated, however, translating platitudes and generalities into concrete obligations and plans is maddeningly slow and fraught with difficulties.³ The same difficulties apply with respect to threats to global biodiversity and attempts to halt the decline of species and habitat loss. Part of the problem is, of course, the different perspectives of various nations. An industrial nation does not necessarily view the issue in the same manner in which a developing nation does. A similar difficulty is that individuals bring their own perspectives to the debate; they view the issue through the prism of their particular discipline, whether scien-

* Associate Professor of Law, Stetson University College of Law.

1. United Nations Conference on Environment and Development: Framework Convention on Climate Change, May 9, 1992, S. TREATY DOC. 102-38, 31 I.L.M. 849 (entered into force Mar. 21, 1994).

2. United Nations Conference on Environment and Development: Convention on Biological Diversity, June 5, 1992, S. TREATY DOC. 103-20, 31 I.L.M. 818 (entered into force Dec. 29, 1993) [hereinafter CBD].

3. The Conference’s major accomplishment was procedural rather than substantive; the parties agreed to an established timeframe for making decisions regarding implementation of the Kyoto Protocol. See *Climate Change: Groups See Progress in Buenos Aires, but Look for More Action Before 2000*, Int’l Env’t. Daily (BNA), at D-3 (Nov. 18, 1998) (environmental groups noting that progress “came mainly in the form of commitments to processes and dates”); *Hot Air in Buenos Aires*, GLOBE AND MAIL (Toronto), A20, Nov. 16, 1998 (editorial critical of the Conference).

tific, economic, political, moral, or legal. Lakshman Guruswamy and Jeffrey McNeely do a great service by bringing together these different perspectives into a single volume and trying to identify concordant notes within the cacophony.

Guruswamy and McNeely note at the onset that the volume is not intended to break new ground by advancing "the frontiers of biology, ecology, or economics, *per se*,"⁴ but to offer a multidisciplinary framework in which to consider the issue of biodiversity. The volume is divided into six parts. After providing an overview of the threat to and importance of biodiversity, the volume examines scientific responses, economic responses, institutional responses, and moral responses to biodiversity loss. It concludes with a discussion of issues associated with the legal implementation of biodiversity protection. In each part, the editors have amassed an impressive menagerie of experts from each discipline.⁵ What is just as impressive is that the editors recognize the need to include a diversity of opinion within each part. For example, in the opening part titled "Identifying the Problem: An Overview," Peter Raven and McNeely report the "moderate estimate" that the world will lose "an average of 50,000 species per year over the next several decades"⁶ In response, Ariel Lugo states that such extinction estimates are scientifically unsound and suggests that, as additional data are gathered, "species loss estimates are likely to be lower than those normally given today."⁷ As a result of the mix of viewpoints, the reader is offered a vigorous debate about both the value of biodiversity and how it should be protected.

4. PROTECTION OF GLOBAL BIODIVERSITY: CONVERGING STRATEGIES 4 (Lakshman D. Guruswamy & Jeffrey A. McNeely eds., 1998) (hereinafter PROTECTION OF GLOBAL BIODIVERSITY).

5. Peter H. Raven (with McNeely) and Ariel E. Lugo provide an overview of the problem. Robert B. Horsch and Robert T. Fraley, Laura L. Jackson, and Gregory Benford discuss scientific responses to the loss of biodiversity. Graciela Chichilnisky, Geoffrey M. Heal, and R. David Simpson (with Roger A. Sedjo and John W. Reid) explore economic responses. An examination of institutional responses is offered by Elinor Ostrom, Walter V. Reid, Anil K. Gupta, Gary H. Toenniessen, S. James Anaya and S. Todd Crider, and Ana M. Sittenfeld and Annie Lovejoy. Byron G. Norton and Mark Sagoff delve into moral responses to the issue. Turning to legal implementation, Christopher D. Stone, Yvonne Cripps, Sagoff, Guruswamy, and Brent Hendricks offer their thoughts. Finally, McNeely and Guruswamy offer some concluding observations.

6. Peter H. Raven & Jeffrey A. McNeely, *Biological Extinction: Its Scope and Meaning for Us*, in PROTECTION OF GLOBAL BIODIVERSITY 13, 19-20. See *supra* note 4.

7. Ariel E. Lugo, *Biodiversity and Public Policy: The Middle of the Road*, in PROTECTION OF GLOBAL BIODIVERSITY 33, 34. See *supra* note 4.

II. THE VALUE OF BIODIVERSITY?

The value assigned to biodiversity depends, in large measure, on how one defines the term.⁸ Guruswamy and McNeely suggest a suitably elastic definition: "a portfolio of diverse life-forms, including all species whose survival is currently threatened."⁹ That definition encompasses numerous related aspects of biodiversity. Many of the contributors to the volume focus on species loss; others concentrate on the sum of the parts, habitats and ecosystems, or the components of the parts, genetic variations within species. Professor Laura Jackson even links cultural diversity (family farming operations) to the concept of biodiversity.¹⁰

Each of these approaches offers distinct justifications for protecting biodiversity.¹¹ Viewing biodiversity as species diversity highlights the aesthetic rationale; people like to observe magnificent creatures and delicate flowers. Even if one is unable to see the species firsthand, one may derive psychic satisfaction from the fact of its existence.¹² The aesthetic rationale, however, often leads to emphasizing charismatic megafauna or celebrity species (such as manatees). While this may be necessary to rally public support for endangered species programs, it tends to obscure the broader notions of biodiversity. Of course, this may be a deliberate strategy: public support of endangered species protection erodes when the debate shifts from manatees and panthers to insects and rats.¹³

Emphasizing the habitat/ecosystem aspect of biodiversity and its ecological values allows one to offer a more utilitarian justification for biodiversity protection. For example, wetland systems, which can provide critical habitat for flora and fauna, also perform functions such as filter-

8. For a discussion of the interrelationship among the primary attributes of biodiversity, see R. EDWARD GRUMBINE, *GHOST BEARS: EXPLORING THE BIODIVERSITY CRISIS* 22-28 (1992).

9. Portfolio is a particularly apt term, meaning not only a collection of specimens, but investments for the future, thus capturing the concept of intergenerational equity. Cf. Daniel M. Bodansky, *International Law and the Protection of Biological Diversity*, 28 VAND. J. TRANSNAT'L L. 623, 627-28 (1995) (noting that intergenerational equity is among the "principles most relevant to biological diversity").

10. Laura L. Jackson, *Agricultural Industrialization and the Loss of Biodiversity*, in PROTECTION OF GLOBAL BIODIVERSITY 66, 67. See *supra* note 4.

11. Of course, the justifications may also overlap. For example, the aesthetic rationale can easily apply both to species and habitat/ecosystem aspects of biodiversity.

12. Geoffrey M. Heal, *Markets and Biodiversity*, in PROTECTION OF GLOBAL BIODIVERSITY 118, 119.

13. Cf. *National Ass'n of Home Builders v. Babbitt*, 130 F.3d 1041 (1997) (upholding application of Endangered Species Act to protect the Delhi Sands Flower-Loving Fly); U.S. GENERAL ACCOUNTING OFFICE, *IMPACT OF SPECIES PROTECTION EFFORTS ON THE 1993 CALIFORNIA FIRE* (1994) (examining and rejecting claims that protection of the Stephens' kangaroo rat precluded homeowners from adequately protecting their property).

ing pollutants, recharging aquifers, and storing flood waters.¹⁴ Destruction of ecosystems also may affect the local and even the global climate.¹⁵ The shriveling of the Aral Sea has reduced its role in moderating the climate in the surrounding region of central Asia.¹⁶ The loss of rainforests is believed to be a significant contributing factor to the recent global warming trend. Focusing on the ecological value of biodiversity, especially in the climate change context, helps explain why protection of biodiversity is important to people.

Similarly, an emphasis on the importance of genetic diversity tends to lead to an economic rationale. The most common economic argument is that we should protect biodiversity because of its value to the pharmaceutical industry; society (and perhaps the host countries) then benefits from the drugs that are produced from or modeled on natural products. Raven and McNeely offer taxol, a cancer-fighting drug that was derived from the western yew, as an example.¹⁷ Inevitably, Aldo Leopold's admonition is invoked: the first sign of intelligent tinkering is to save all the parts.¹⁸

One rationale not tethered to a particular definition of biodiversity is the moral justification. Raven and McNeely characterize the loss of a species and its genetic diversity as a "desecration."¹⁹ Mark Sagoff, in what is perhaps the most compelling chapter, argues that human-induced extinction is "shameful" and a "moral crime."²⁰ In his (and others') view,

14. Cf. Raven & McNeely, *supra* note 6, at 26-28 (discussing ecological values of biodiversity).

15. See *id.* at 26. The Hall of Biodiversity in the Museum of Natural History in New York City attempts to convey this point by explaining various ecosystems' relationships to climate.

16. See MURRAY FESHBACH & ALFRED FRIENDLY, JR., *ECOCIDE IN THE USSR: HEALTH AND NATURE UNDER SEIGE* 74-75 (1991) (describing increased frequency and magnitude of dust storms as the Aral Sea shrinks); Mike Edwards, *Lethal Legacy*, 186 NAT'L GEOGRAPHIC 70, 91 (1994) (discussing effects of dust storms in Kazakstan).

17. See Raven & McNeely, *supra* note 6, at 23.

18. See *id.* at 25; Bryan G. Norton, *Biological Resources and Endangered Species: History, Values, and Policy*, in PROTECTION OF GLOBAL BIODIVERSITY 247, 258. As a peripheral matter, it seems somewhat disingenuous or counterproductive for those truly concerned about biodiversity to point to its pharmaceutical potential as a justification for protection. The threat to biodiversity can be traced to overpopulation and overconsumption. If the rainforest yielded cures for cancer and other life-threatening ailments, it could be hastening its own demise. Allowing more people to live longer and consume more places greater pressure on undeveloped areas. Cf. Yvonne Cripps, *Aspects of Intellectual Property in Biotechnology: Some European Legal Perspectives*, in PROTECTION OF GLOBAL BIODIVERSITY 316, 322 (observing that insights from understanding the human genetic code "may be regarded as somewhat of a mixed blessing, as demographers and social scientists chart with growing concern the increase in the world's population").

19. Raven & McNeely, *supra* note 6, at 21.

20. Mark Sagoff, *On the Uses of Biodiversity*, in PROTECTION OF GLOBAL BIODIVERSITY

we should protect biodiversity because it is the right thing to do.

One of the benefits of this volume is that it gives a reader a concentrated place in which to compare arguments. Sagoff's chapter that discusses the moral rationale, for example, dismantles the economic rationale to protect biodiversity. Sagoff examines the plight of the sockeye salmon and the reasons to protect it and its habitat. Economic justifications fall flat as he notes, *inter alia*, that aquaculture is rendering wild salmon fisheries economically obsolete.²¹ Sagoff suggests that, while an economic rationale should be invoked where credible, excessive reliance on this point may "bring the cause of preserving biodiversity into disrepute."²²

One instance of overreliance may be the pharmaceutical potential of biodiversity. Several contributors report on biological prospecting agreements into which private companies and host countries have entered,²³ but the economic value of bioprospecting to these companies is probably overstated. As R. David Simpson observes, bioprospecting is an expensive and time-consuming endeavor.²⁴ Moreover, the value of indigenous genetic resources is usually exaggerated because redundancies are not taken into account.²⁵ If the rainforests held such economic promise, one

265, 268.

21. *See id.* at 266-67.

22. *Id.* at 273. An example of overreaching may be found in Sea World's manatee exhibit in Orlando, which suggests that one reason to save this creature is because it may hold keys for human health. Of course, the exaggeration of economic benefits is not limited to environmental matters. NASA's claim that John Glenn's participation in a Space Shuttle mission will somehow contribute to the science of aging and help earthbound senior citizens strains credulity and could be seen to "bring the cause of [exploring space] into disrepute." *Cf.* Alan Bavley, *Flight May Give Insight on Aging*, KANSAS CITY STAR, at A1, Oct. 28, 1998 (reporting suggestion by NASA that it is "conceivable that the research conducted on Glenn's shuttle mission may lead to practical benefits for the elderly"). There are good reasons to save the manatee and to send Senator Glenn back into orbit, but an economic or utilitarian rationale is not among them.

23. *E.g.*, Ana M. Sittenfeld and Annie Lovejoy, *Biodiversity Prospecting Frameworks: The INBio Experience in Costa Rica*, in PROTECTION OF GLOBAL BIODIVERSITY 223, 223-44.

24. *See* R. David Simpson, Roger A. Sedjo & John W. Reid, *The Commercialization of Indigenous Genetic Resources as Conservation and Development Policy*, in PROTECTION OF GLOBAL BIODIVERSITY 129, 132-33.

25. For example, Simpson notes that more than one species may offer a cure for a particular condition and that the "marginal value of genetic information for medicinal purposes is measured by its contribution to the improvement of available health care." *Id.* at 135. He states that "it is often the case that one product will largely duplicate another, or that discovery of one effective compound will reduce the urgency, or even eliminate the need, to continue research on others." *Id.* *See also* Sagoff, *supra* note 20, at 272-73 (observing that "[p]ristine natural areas are prima facie no more likely than cesspools to merit protection for the useful chemicals its creatures might contain" and that it is less expensive to design new

would expect pharmaceutical companies to lobby governments to adopt strong preservation policies; the companies' silence, Simpson points out, is telling.²⁶

III. PROTECTION OF BIODIVERSITY

Obviously, rainforests and other reservoirs of biodiversity possess economic value unrelated to pharmaceutical development; unfortunately, harvesting that economic value often results in the degradation of the natural environment. The most significant threat to biodiversity (however defined) is habitat destruction, which typically occurs when an area is converted to agricultural uses.²⁷ The attractiveness of proposed solutions to biodiversity loss depends on how one defines and values biodiversity.

The possible solutions offered by biotechnology highlight the tension. Robert Horsch and Robert Fraley observe that while milk production in the United States has increased in the past forty years, the number of dairy cows has dropped from 21 million to 11 million.²⁸ Fewer cows means less area required for dairy operations, reduced waste run-off, and less methane emissions.²⁹ Putting aside the possible human health risks associated with bovine somatotropin, such an approach is anathema to those who, like Professor Jackson, include cultural diversity as part of biodiversity. She bemoans the industrialization of agriculture and mourns the passing of the family farm.

A similar conflict arises with Gregory Benford's *ex situ* "library of life" strategy. To preserve the genome of species, he suggests a large scale cryopreservation program. While sampling and freezing is a cost-effective way to capture information about the genetic diversity of species, this plan, as Benford recognizes, has little appeal for those who focus on the aesthetics of biodiversity.³⁰

The holy grail of the economic remedy is to create a system in which a site rich in biodiversity has an economic value while remaining in its present state. Such a system might satisfy all biodiversity constituencies. In the United States, the federal government has taken a two-pronged approach to encouraging voluntary wetland preservation. One method

pharmaceuticals by computer rather than by bioprospecting).

26. See Simpson, *supra* note 24, at 144.

27. See Graciela Chichilnisky, *Sustainable Development and North-South Trade*, in PROTECTION OF GLOBAL BIODIVERSITY 101, 102; Robert B. Horsch & Robert T. Fraley, *Biotechnology Can Help Reduce the Loss of Biodiversity*, in PROTECTION OF GLOBAL BIODIVERSITY 49, 49-50.

28. See Horsch, *supra* note 27, at 58.

29. See *id.*

30. See Gregory Benford, *An Ex Situ "Library of Life" Strategy*, in PROTECTION OF GLOBAL BIODIVERSITY 87, 95.

involves government payments; the Department of Agriculture purchases conservation easements from willing farmers.³¹ The other method involves the concept of wetland mitigation banking, which creates incentives for the private sector to restore, enhance, create, and preserve wetlands.³² In a mitigation banking system, the entity that produces the environmental gain is paid by private interests.³³ Under both approaches, however, a key element of success is the credible threat of government supervision and enforcement. Accordingly, adapting such approaches to global environmental problems, such as biodiversity loss, is problematic. While the concept of biodiversity depletion permits discussed by Geoffrey Heal is sound in the abstract,³⁴ it runs into institutional roadblocks. The decentralized nature of international law and traditional notions of state sovereignty will limit the effectiveness of such programs.

Current international legal standards offer few effective solutions. Guruswamy savages the CBD as a missed opportunity and a betrayal of basic international environmental norms.³⁵ Brent Hendricks suggests, *inter alia*, that under an invigorated CBD non-governmental organizations may have standing to invoke formal dispute resolution processes,³⁶ but such a prospect seems exceedingly remote.³⁷ Much of the legal discussion focuses on intellectual property rights (IPR) issues, especially on the matter of how to create a system that encourages private and public

31. Programs include the Wetlands Reserve Program, 16 U.S.C. §§ 3837-37(f) (1994), and the Conservation Reserve Program, 16 U.S.C. §§ 3831-36 (1994).

32. For a general overview of mitigation banking, see Royal C. Gardner, *Banking on Entrepreneurs: Wetlands, Mitigation Banking, and Takings*, 81 IOWA L. REV. 527, 550-63 (1996). The federal government's current policy on mitigation banking may be found in the Federal Guidance for the Establishment, Use and Operation of Mitigation Banks, 60 Fed. Reg. 58,605 (1995).

33. Typically, the purchaser of the mitigation credits uses them to offset adverse environmental effects of its own development project. In theory, wetland mitigation banking can advance the goal of no net loss (and even net gain) of wetland functional values if higher compensation ratios are required (e.g., two acres restored for every acre destroyed).

34. See Geoffrey M. Heal, *Markets and Biodiversity*, in PROTECTION OF GLOBAL BIODIVERSITY 118, 122-24 (discussing depletion permits).

35. See Lakshman D. Guruswamy, *The Convention on Biological Diversity: A Polemic*, in PROTECTION OF GLOBAL BIODIVERSITY 351, 351-59. In sum, Guruswamy criticizes the CBD for emphasizing development over environmental protection, denying "state responsibility for damage to the global commons," and rejecting the notion that biodiversity's genetic resources are the common heritage of humankind.

36. See Brent Hendricks, *Transformative Possibilities: Reinventing the Convention on Biological Diversity*, in PROTECTION OF GLOBAL BIODIVERSITY 360, 368-69.

37. As the recent International Court of Justice case between Spain and Canada demonstrates, sovereigns are reticent to enter into dispute resolution processes with other sovereigns, let alone non-governmental organizations. See *Fisheries Jurisdiction (Spain v. Canada)*, 1995-98 I.C.J. (Judgment Dec. 4, 1998).

sources to pay host countries and communities to protect biological resources.³⁸ Even if such a system is practicable, however, an IPR solution that focuses on preserving genetic material may be objectionable to those who subscribe to a moral rationale for protecting biodiversity. As Sagoff contends, this approach (contained in Agenda 21) seeks to protect biodiversity as sources for biotechnology; collecting and screening these genetic materials do not necessarily translate into protection of habitats and ecosystems.³⁹

With respect to legal responses, the volume gives short shrift to trade sanctions, and I would have like to have seen more discussion about the General Agreement on Tariffs and Trade's impact on environmental trade measures.⁴⁰ Trade sanctions cut across disciplinary boundaries, raising economic, institutional, legal, and even moral issues. Moreover, trade sanctions, whether multilateral or unilateral, have been demonstrated to achieve appreciable environmental gains. For example, despite adverse GATT panel rulings regarding the United States' tuna embargo,⁴¹ that trade policy has contributed to dramatic declines in dolphin kills in the Eastern Tropical Pacific.⁴² A related issue that deserved more attention is eco-labeling. Even if unilateral embargoes are suspect under the GATT, labeling requirements are not and may provide important information to consumers when making their decisions regarding products.⁴³ Providing

38. E.g., Christopher D. Stone, *What to Do about Biodiversity: The Earth's Biological Riches in Law and Economics*, in PROTECTION OF GLOBAL BIODIVERSITY 287, 302-310.

39. See Sagoff, *supra* note 20, at 282 (suggesting that finding "useful materials" from the natural environment "may only pave the way for the further industrialization of the natural world").

40. To be sure, trade was mentioned in at least two chapters. Chichilnisky identifies the current trading system as a prime contributor to acceleration of biodiversity loss, see Chichilnisky, *supra* note 27, at 105-07, and Stone dismisses trade sanctions as of marginal value. See Stone, *supra* note 38, at 296.

41. General Agreements on Tariffs and Trade: Dispute Settlement Panel Report on United States Restrictions on Imports of Tuna, 33 I.L.M. 839 (1994); General Agreements on Tariffs and Trade: Dispute Settlement Panel Report on United States Restrictions on Imports of Tuna, 30 I.L.M. 1594 (1991) (hereinafter Tuna/Dolphin I).

42. See Eugene H. Buck, Dolphin Protection and Tuna Seining, Congressional Research Serv. Rep. 97-588 ENR (noting that more than 300,000 may have been killed annually in the late 1960s and early 1970s and that by 1994 dolphin kills in the ETP were "105 by U.S. vessels and about 4,100 by foreign vessels"); Declaration of Panama (Oct. 4, 1995) (setting 5,000 as the total annual dolphin mortality due to seine nets in the ETP).

43. See Tuna/Dolphin I, 30 I.L.M. at 1622 (finding that labeling standards in the Dolphin Protection Consumer Information Protection Act are not inconsistent with GATT). See also Avi Gesser, *Canada's Environmental Choice Program: A Model for a "Trade-Friendly" Eco-Labeling Scheme*, 39 HARV. INT'L L.J. 501 (1998); Mark McCown, *Eco-Labeling in the European Union*, 8 GEO. INT'L ENVTL. L. REV. 492 (1996); Kristine Forstbauer & John Parker, *The Role of Ecolabeling in Sustainable Forest Management*, 11 J. ENVTL. L. &

this information through eco-labels is consistent with Guruswamy and McNeely's call for greater knowledge and awareness about biodiversity protection.

IV. CONCLUSION

In the concluding chapter, Guruswamy and McNeely recognize that no overarching, comprehensive system to protect biodiversity is feasible. They do not pretend to find a grand consensus; the differing values and views of biodiversity preclude any such convergence. Rather, they opt to focus more realistically on "small wins." Small wins can be "real victories," the editors note, "if they contribute to an overall strategy for conserving biodiversity."⁴⁴ By marshalling diverse perspectives on biodiversity into a single volume, Guruswamy and McNeely have contributed to establishing a base of knowledge and understanding that is necessary for any significant progress. The work is, in this sense, a real victory.

LITIG. 165 (1996).

44. Jeffrey A. McNeely & Lakshman D. Guruswamy, *Conclusion: How to Save the Biodiversity of Planet Earth*, in PROTECTION OF GLOBAL BIODIVERSITY 376, 378.

