

“ARE ALL SPECIES CREATED EQUAL?” AND OTHER QUESTIONS SHAPING WILDLIFE LAW

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Our relationships with other species have become increasingly complicated in recent years. Issues that would have been almost unthinkable a few decades ago appear with increasing frequency. For example, at the University of Hawaii's marine laboratory, a terminated employee charged with theft for releasing two of the lab's dolphins into the Pacific Ocean, argued that his actions were justified as a "lesser evil" than the continued confinement of such intelligent animals.¹ In another case, a fifteen-year-old California student, threatened with having her grade in biology class lowered because of her refusal to dissect a frog, contended that the school's action constituted a violation of law.² A plan by the Fish and Wildlife Service to capture the last six California condors for a zoo breeding program was challenged by the National Audubon Society, which argued that the birds should be allowed to remain free.³ A decision by the United States not to permit Alaskan Eskimos a subsistence quota of bowhead whales provoked litigation that pitted endangered lifestyles against endangered species,⁴ and divided traditional allies such as the Sierra Club and the Friends of the Earth.

The shifting undercurrents affecting the way the law treats other species defy easy classification. It is no longer possible, if it ever was, to separate participants in this debate into "preservationists" and "exploiters." Persons advocating increased protection for a species do so for different reasons — some out of sentimentality or a humanitarian impulse, others out of a felt obligation to preserve the "integrity, stability, and beauty of the biotic community."⁵ Moreover, as the controversy over the California condors indicated, even those feeling an obligation to preserve the

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1. *State v. LeVasseur*, 613 P.2d 1328, 1332-33 (Haw. 1980).
2. *Kansas City Times*, June 4, 1987, at A5, col. 1.
3. *National Audubon Soc'y v. Hester*, 801 F.2d 405 (D.C. Cir. 1986).
4. *Adams v. Vance*, 570 F.2d 950 (D.C. Cir. 1978).
5. A. LEOPOLD, *A SAND COUNTY ALMANAC* 262 (1949).

"integrity, stability and beauty of the biotic community" may assign different weights to the three values. Some people support the use of wildlife for economic purposes, but they are not of one mind either. Many who supported the right of the Inupiat Eskimos to take a limited number of endangered bowhead whales had no sympathy at all for the oil companies whose proposed drilling in the Arctic Ocean threatened the same animals.⁶

Laws relating to other species, especially wildlife laws, have changed and will continue to change because our attitudes towards other species have changed and will continue to change. Reverend Cotton Mather's statement, "what is not useful [in nature] is vicious,"⁷ once summarized the widespread agreement about our relationship to other species. There were few restrictions on the taking of wildlife in Cotton Mather's time. This reflected the prevailing ethic. Laws ensured the sustained yield of animals as sources of food and clothing.⁸

Today, laws relating to other species reflect the *absence* of a prevailing ethic. The old ethic has not completely lost its hold, as various state bounty laws illustrate, but the ethics of the environmentalists and those who assert that animals have "rights" have had a significant impact on modern legislation relating to other species. Future developments in the law will depend increasingly upon the relative strengths of environmentalists and animal rights advocates.⁹

This article examines the forces shaping modern law relating to non-human species. It begins by tracing the expansion of wildlife law and animal welfare law, both in the values protected and in the range of species subject to protection. Next, the article considers how the maturing environmental movement and the burgeoning animal rights movement are likely to influence the development of this body of law.

6. North Slope Borough v. Andrus, 642 F.2d 589 (D.C. Cir. 1980).

7. P. MATTHIESEN, WILDLIFE IN AMERICA 57 (1964).

8. See generally T. LUND, AMERICAN WILDLIFE LAW 19-34 (1980).

9. Advocates of ethical treatment for animals have been divided into three groups: (1) animal rights advocates (who employ peaceful means to effect changes in society's treatment of and attitudes towards animals); (2) animal liberationists (who advocate more radical methods such as violence and the freeing of laboratory animals); and (3) animal welfare advocates (who have a general, but more collateral, concern for the care and treatment of animals). Comment, *Antinomy: The Use, Rights, and Regulation of Laboratory Animals*, 13 PEPPERDINE L. REV. 723, 725-26 (1986).

I. DEVELOPMENT OF NEW CONSTITUENCIES TO SUPPORT PROTECTIVE LEGISLATION

Initially, American law recognized only the economic value of wildlife as a source of food and clothing. The abundance of most species in the wild and the relative ineffectiveness of hunting techniques meant that restrictions were usually necessary only in highly accessible hunting grounds, such as those located near towns. An early New York law limited the hunting of deer "near Christian settlements,"¹⁰ and Massachusetts limited the "taking of fowl close to towns" and "fish in convenient fishing holes."¹¹ In less densely populated areas, the only restrictions on hunting or fishing prohibited the taking of certain species during the breeding season.¹²

The view of nature that divided species into two categories — the useful and the vicious — produced laws promoting extirpation of species believed to cause economic harm. Bounties, or cash payments, were offered for animals such as wolves and squirrels which, although they had some value for food or fur, were

10. 1741 N.Y. Laws 723, in 3 THE COLONIAL LAWS OF NEW YORK 196 (1894) (1741 law restricting deer hunting).

11. MASS. PROVINCE L. ch. 13 (1710), in 1 ACTS AND RESOLVES OF THE PROVINCE OF MASSACHUSETTS BAY 667 (1878) (1710–11 law restricting fowl hunting). Other early laws of this sort are cited in T. LUND, *supra* note 8, at 28–29.

12. T. LUND, *supra* note 8, at 28–29. As population levels increased and weaponry improved, restrictions on the taking of "useful" species often proved inadequate to sustain population levels. By the end of the nineteenth century, deer had nearly disappeared in the eastern states. The passenger pigeon and eskimo curlew, species once so numerous that they would blacken the sky during migrations, were headed for extinction. Buffalo populations were decimated to the point where rail travelers could travel for days "never out of sight of dead buffalo, and never in sight of a live one." *Id.* at 58.

One reason for the drop in populations of desirable species was the failure of the law to address the development of new weaponry. Hunters used cannons to slaughter sleeping ducks. Improvements in commercial netting techniques could produce takings of up to 3,000 birds with one effort. The new weaponry brought new competitions in single-shot records. One gunner claimed 81 ducks killed, 46 crippled by a single blast. Even where states adopted laws in an effort to deal with such excesses, enforcement tended to be poor. Game laws were viewed as a trivial matter. Under the prevailing ethics, the mass slaughter of game animals did not generate the outrage that it likely would today. P. MATTHIEN, *supra* note 7, at 183–84.

Loss of habitat, a problem barely addressed until recently, also led to the population declines of the nineteenth century. Restrictions on the taking of migratory birds did little to improve population levels, because the more important reason for the decline was the loss of the midwestern wetlands to agricultural production. Buffalo populations fell not only in response to tremendous hunting pressure, but also because of the cattle-raising that depleted available supplies of grass. The passenger pigeon was the victim of the loss of hardwood forests, as much as it was of hunters' greed. T. LUND, *supra* note 8, at 57–67.

thought to cause more harm than good.¹³ Government efforts to control “nuisance” animals were not new to early America. Under orders of King Edgar and King Canute, England’s wolf population was slaughtered to the point of extinction.¹⁴ In the colonies, however, predator control was given a higher priority than it generally had been given in Europe. Virginia went to an unprecedented extreme when it established a tax for its inhabitants payable only in crow heads or squirrel scalps.¹⁵ More generally, the size of bounty payments indicated how pernicious various predators were thought to be by early legislators. The highest bounties were set for larger predators, such as mountain lions, wolves, bears, and wildcats.¹⁶ Rewards for killing species, such as squirrels and crows, were generally much less, if any payment was made at all.¹⁷

People continued to enact bounty laws despite evidence that they were an ineffective means of reducing “undesirable” species. In areas where predators adversely affected agriculture, the laws rewarded farmers for doing what they would have done anyway. In remote areas, where predators survived entirely on a diet of wild animals, the laws rewarded hunters but failed to produce any corresponding economic benefit for society. Nonetheless, the laws were widespread and aroused relatively little opposition.¹⁸

When wildlife declined at an alarming rate in the late nineteenth century, recreational hunters, not naturalists, effectively lobbied for legal reforms to deal with the problem. Among those in a position to influence legislation, the value of wildlife as a recreational resource had surpassed its value as a source of food or clothing. This was a new development in American wildlife law, even though English law had long recognized wildlife as a source of recreation.¹⁹

13. *Id.* at 32.

14. J. MANWOOD, TREATISE OF THE FOREST LAWS 161 (1717).

15. T. LUND, *supra* note 8, at 34.

16. *Id.* at 33.

17. *Id.*

18. Although bounty laws undoubtedly contributed to the extirpation of species such as wolves from much of their historic range, it was not bounties, but full-time government hunters, reduction in habitat by advancing civilization, and the extensive use of poisoned baits in the countryside that had the largest impacts. *Id.* at 58.

19. *Id.* at 61. England limited recreational hunting under qualification statutes. Until the qualification statutes were abolished in 1831, normally only the English upper class was permitted to hunt. *Id.* at 7–8.

The recreational hunters had several proposals for reversing declines in the population of game species and, for the most part, had sufficient clout to get their proposals enacted. Commercial hunting, already in decline because hunters had succeeded in "shooting themselves out of business," was prohibited.²⁰ Laws were adopted to make hunting and fishing more "sporting." This was done by eliminating some of the most effective techniques, and thereby reducing takings.²¹ Funding for the enforcement of game laws — traditionally a low priority — was greatly increased.²² Legislatures appropriated money for breeding and stocking programs, as well as for habitat acquisition and improvement.²³ License fees, first applied only to nonresidents, then to residents, provided much of the needed revenue.²⁴ By the 1930's, a federal tax on hunting gear provided additional funds for state game programs.²⁵

Hunters and fishermen who saw wildlife primarily as a recreational resource have been the most effective advocates on wildlife issues for most of this century. Even early environmentalists — prior to the adoption of the term "environmentalist" — recognized that they could only achieve their legislative goals with the support of hunters. Aldo Leopold, perhaps the best known of the early environmentalists (and a hunter himself), saw that the environmental ethic he preached would not be adopted by sufficient numbers of people to accomplish real changes in policy for at least another generation. Leopold concentrated instead on mobilizing the support of hunters — "getting action from human beings as now constituted" — to build game management into a profession.²⁶ He hoped that game consciousness would serve as "the leavening

20. *Id.* at 61.

21. *Id.* at 66-67.

22. *Id.* at 63.

23. *Id.* at 62.

24. *Id.* at 64-65.

25. Federal Aid in Wildlife Restoration (Pittman-Robertson) Act, 16 U.S.C. §§ 669-669i (1982 & Supp. IV 1986). The Pittman-Robertson Act, enacted in 1937, set up a fund comprised exclusively of revenues from a federal excise tax on firearms, shells, and cartridges. In 1950, Congress enacted the Federal Aid in Fish Restoration (Dingell-Johnson) Act, 16 U.S.C. §§ 777-777k (1982 & Supp. IV 1986). The Dingell-Johnson Act imposed a tax on fishing rods, reels, lures, and baits. These two acts contain parallel provisions. The Pittman-Robertson Act provides federal assistance to states for projects pertaining to game. The Dingell-Johnson Act provides federal assistance to states for projects pertaining to fish.

26. Lewis, "A Fierce Green Fire": Remembering Aldo Leopold, 12 EPA J. 26, 29 (1986).

core of a wider awareness expanding in time into that new social concept toward which conservation is groping."²⁷

Artists, poets, and authors have proclaimed the aesthetic value of wildlife.²⁸ The artists of the nineteenth and early twentieth centuries had some success in helping others to appreciate aesthetic values, but until recently, instances in which aesthetic considerations played a principal role in shaping wildlife legislation were rare. State legislatures continued to rely on traditional economic arguments to support wildlife protection. Pennsylvania, for example, moved to prohibit "the wilfull killing and taking of song and wild birds" in 1889 because the killings and takings caused "great injury to the agricultural interests, on account of the increase in noxious insects, which would otherwise be destroyed by said birds."²⁹ Similarly, the Preamble to a 1916 agreement between the United States and Great Britain stated that the birds it sought to protect "are of great value . . . in destroying insects which are injurious to forests and forage plants . . . as well as to agricultural crops."³⁰

Although pest control was offered as the justification for protecting songbirds, it seems likely that an aesthetic appreciation of bird species also influenced some who supported protection. A nineteenth-century state legislator may have felt uncomfortable expressing the personal pleasure he received from viewing a scarlet tanager or a bluebird, but may have had no reservations about speaking out on the benefits of controlling mosquitoes. Moreover, a legislature's motivation may sometimes be inferred from its actions. Because many state laws extended protection to species

27. *Id.*

28. See generally R. NASH, *WILDERNESS AND THE AMERICAN MIND* (1982). Three American writers whose works have become almost sacred to environmentalists are David Thoreau on Walden Pond, John Muir on the Sierra Nevada, and Aldo Leopold on Sand County. Rousseau was probably the philosopher most obsessed with our relationship to nature. Rousseau's somewhat sentimental view of nature was an appeal against arbitrariness, bureaucracy, pedantry, and mind-killing disciplines. Rousseau believed that excessive civilization is inherently alienating — it keeps us from our essential natures. For a discussion of how Rousseau, Hobbes, Mill and other thinkers viewed nature, see Frankel, *The Rights of Nature*, in *WHEN VALUES CONFLICT* 93-113 (1976).

29. 1889 Pa. Laws 228, 218.

30. Convention for the Protection of Migratory Birds, Aug. 16, 1916, United States-Great Britain, 39 Stat. 1702, T.S. No. 628 at 1. The economic concerns of the Convention are also demonstrated by article VII which authorizes the issuance of permits to kill migratory birds that "may become seriously injurious to the agricultural or other interests in any particular community." *Id.* at 3.

(such as hummingbirds), which play no role in pest control, one might assume that aesthetic considerations played a role.³¹

By 1940, aesthetic values had clearly emerged as a primary justification for enacting protective legislation, as exemplified by passage of the Bald Eagle Protection Act.³² The First Congress chose the bald eagle as a national symbol over other candidate species (including Benjamin Franklin's favorite, the turkey)³³ because it was seen as expressing national values, such as freedom, purpose, and strength.³⁴ The precipitous decline in bald eagle populations in the first half of this century was undoubtedly seen by many to symbolize a threat to our own freedom. No attempt was made to justify the Bald Eagle Protection Act in economic terms. It was plainly legislation to preserve aesthetic values.

The Wild Free-Roaming Horses and Burros Act of 1971³⁵ is a more recent example of legislation designed to preserve particular species that have become aesthetic symbols. Other than species threatened with extinction, wild horses and burros are the only land mammals directly protected under federal law. This may seem curious, especially since the animals are not indigenous to North America, but arrived on the continent with the Spanish conquistadors.³⁶ Their favored status, however, is no accident. They have

31. *FUR, FIN AND FEATHER* 19 (M.B. Brown & Co. ed. 1870) (a compilation of state game laws). In some cases, species that produced no economic benefits were specifically listed as protected. More often, a general prohibition was enacted against the taking of all birds not expressly subject to taking under other legislation. *Id.*

32. 16 U.S.C. §§ 668-668d (1982).

33. Ben Franklin believed that the bald eagle had an immoral character because it would sometimes take food from other birds. The choice of the eagle over the turkey undoubtedly influenced how we have subsequently come to regard the two species, as illustrated by this framed motto hanging behind my secretary's desk: "It's hard to soar with the eagles when you work with turkeys."

34. Nature has long served as an aesthetic symbol. The metaphorical qualities given to various animals by artists, poets, and religious storytellers enrich our relationships with other species. Wildlife's function as an aesthetic symbol has been examined in two articles. Sagoff, *On Preserving the Natural Environment*, 84 *YALE L.J.* 205 (1974); Frankel, *supra* note 28, at 93.

Both authors stress the instructive value of wildlife. Sagoff contends that aesthetic descriptions of wildlife are actual properties, not mere subjective responses. He argues that nature contains "symbols which our perception and our tradition allow us to recognize and understand." Sagoff, *supra*, at 252. Sagoff suggests that "preserving an environment may be compared to maintaining an institution, for symbols are to values as institutions are to our legal and political life." *Id.* at 265. Frankel emphasizes the value of nature as a celebration of the random and unpredictable. The fact that wildlife has its own vitality is a treasured reminder of the limitations of human plans. Frankel, *supra* note 28, at 111.

35. 16 U.S.C. §§ 1331-40 (1982).

36. Guilbert, *Wildlife Preservation Under Federal Law*, in *FEDERAL ENVIRONMENTAL LAW* 582 (Env'tl. L. Inst. ed. 1974).

become beloved symbols of the Old West and of the freedom that is so important to our national identity.³⁷ As with bald eagles, the aesthetic value of wild horses and burros, more than economic, recreational, or biological concerns, provided the impetus for protective federal legislation.

The Bald Eagle Protection Act and the Wild Free-Roaming Horses and Burros Act typify much of the recent federal wildlife legislation, which has been based less on economic considerations than on aesthetic, ethical, and ecological ones. The Marine Mammal Protection Act³⁸ and the Endangered Species Act³⁹ are additional examples of this approach. *All* marine mammals and *all* threatened or endangered species are protected, regardless of how "useless" they may be, in the sense of failing to provide economic benefits to man.⁴⁰ Both acts establish as their principal goal the preservation of healthy ecosystems⁴¹ — a goal that would have been almost unthinkable only a few decades ago.

Most significantly, with only minor exceptions, both acts attempt to remove economic considerations from the decision making process. The Marine Mammal Protection Act rejects an economically-based population goal such as maximum sustained harvests. Instead the Act favors a scientifically-based goal of optimum sustainable population, which is defined as the maximum population of a species that can be maintained consistent with preserving the integrity of the ecosystem.⁴² The Endangered Species Act also severely restricts the role of economic considerations. Species are listed as "threatened" or "endangered" solely on the basis of scientific criteria and, once listed, must be protected regardless of cost in all but the most extreme situations.⁴³

37. Congress declared wild horses and burros to be "living symbols of the historic and pioneer spirit of the West." 16 U.S.C. § 1331 (1982).

38. *Id.* §§ 1361–1407 (1982 & Supp. IV 1986).

39. *Id.* §§ 1531–43. The Endangered Species Act states that endangered wildlife is of "aesthetic, ecological, educational, historical, recreational, and scientific value to the Nation and its people." *Id.* § 1531(a)(3). This is the most comprehensive statement made in any federal law of the diverse values wildlife represents.

40. *Id.* §§ 1362(13), 1538(a)(1). The only exception is for insect pests determined to constitute "an overwhelming and overriding risk to man." *Id.* § 1532(6).

41. The Marine Mammal Protection Act declares that the primary purpose of marine mammal management "should be to maintain the health and stability of the marine ecosystem." *Id.* § 1361(6). One of the purposes of the Endangered Species Act is to "provide a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved." *Id.* § 1531(b).

42. *Id.* § 1361(6).

43. The Endangered Species Act says that the decision to list a species must be

The Animal Welfare Act of 1966⁴⁴ provides evidence that our relationship with at least some species is now influenced as much by ethics as by economics.⁴⁵ The Act, as amended in 1985,⁴⁶ requires facilities using laboratory animals to follow a specific set of regulations for animal treatment. It requires a regular exercise regimen for dogs,⁴⁷ an appropriate psychological environment for primates,⁴⁸ and specific training for all animal handlers.⁴⁹ Whereas most state laws regarding cruelty to animals balance the interests of humans and animals, the specificity of the Animal Welfare Act departs from this mold.⁵⁰ Whereas state anticruelty laws are best seen as a means of protecting public morality, concern for the animals themselves provided the impetus for the Animal Welfare Act.⁵¹ This is evidenced by the fact that the Act defines "animal" to include only warm-blooded animals⁵² (presumably the objects

"solely on the basis of the best scientific and commercial data available to him." *Id.* § 1533(b)(1)(A) (1982). The legislative history of 1982 amendments to the Act clearly indicates that economic factors, including the "regulatory impact analysis" of the Reagan Administration, was to play no part in the listing process. M. BEAN, *THE EVOLUTION OF NATIONAL WILDLIFE LAW* 339 (1983).

Economic considerations may play a role under a formal process established by 1978 amendments for considering any project presenting an "irresolvable conflict" under section seven of the Endangered Species Act. 16 U.S.C. § 1536 (1982 & Supp. IV 1986). Where there are "no reasonable and prudent alternatives" to the proposed federal agency action, and where the benefits of the action "clearly outweigh" the benefits of alternatives that would not jeopardize endangered species, an action may be allowed to go forward. *Id.* §§ 1536(h)(1)(A)(i)-(ii). So far, only two projects have been considered for exemption. In one case, the exemption was rejected. In the second case, the project was allowed to go forward only after modifications were made to mitigate its effects on whooping crane habitat. Sagoff, *On the Preservation of Species*, 7 COLUM. J. ENVTL L. 33, 41 (1980).

44. 7 U.S.C. §§ 2131-57 (1982 & Supp. IV 1986).

45. Public opinion polls also indicate that concern for the welfare of laboratory animals has grown. In 1949, 85% of the public endorsed the use of animals in research. A 1982 poll conducted by the Boston Globe showed that only one-third of the respondents supported the use of live animals in experiments. Dresser, *Research on Animals: Values, Politics, and Regulatory Reform*, 58 S. CAL. L. REV. 1147, 1150 n.14 (1985).

46. Pub. L. No. 99-198, 99 Stat. 1354, effective Dec. 23, 1985.

47. 7 U.S.C. § 2143(a)(2)(B) (Supp. IV 1986).

48. *Id.*

49. *Id.* § 2143(d). The Act contains many other specific requirements. For instance, an investigator must consider "alternatives to any procedure likely to produce pain or distress in an experimental animal." *Id.* § 2143(a)(3)(B).

50. Comment, *supra* note 9, at 746.

51. See S. REP. NO. 1281, 89th Cong., 2nd Sess., *reprinted in* 1966 U.S. CODE CONG. & ADMIN. NEWS 2635, 2636. Hearings on the proposed legislation focused primarily on the inhumane conditions of medical and other scientific research.

52. 7 U.S.C. § 2132(g) (1982). Rats and mice were also excluded from protection. *Id.*; 9 C.F.R. § 1.1(n) (1987). As a result of these and other exclusions (e.g., birds and farm animals), it has been estimated that the Animal Welfare Act covers only four to five percent of research animals. Griffin & Sechzer, *Mandatory Versus Voluntary Regulation of Biomedical Research*, 406 ANNALS N.Y. ACAD. SCI. 187, 188 (1983). The number of animals of

of greater concern),⁵³ even though most state anticruelty laws make no such distinction.

The debate over proposals for more stringent restrictions on the use of laboratory animals shows the complexity of our current relationships with other species. Groups such as People for the Ethical Treatment of Animals and The American Society for the Prevention of Cruelty to Animals have succeeded in terminating even biomedical research experiments. In one case, pressure by these groups induced Secretary Caspar Weinberger to issue an order blocking a study of "tissue damage" at a Defense Department laboratory. In these experiments, military personnel planned to fire bullets into dogs and pigs.⁵⁴ In another case, public pressure resulted in the termination of federal funding for the University of Pennsylvania's "Head Injury" Laboratory, where monkeys were injured in attempts to simulate automobile and boxing accidents.⁵⁵

Many animal rights advocates seek nothing less than a total ban on experiments causing injury to laboratory animals, no matter how valuable to humans the resulting information might be.⁵⁶ The more extreme animal rights advocates believe that even an exper-

various species estimated to be used annually in United States labs is as follows: 45 million mice; 15 million rats; 2.75 million hamsters, guinea pigs, and rabbits; 5 million birds; 3 million frogs; 200,000 hoofed animals; 100,000 cats; 250,000 dogs; and 25,000 primates. The biomedical uses of these animals include basic and applied research (40% of animals), drug development (26% of animals), toxicology testing (20% of animals), education (8% of animals), and miscellaneous (6% of animals). Dresser, *supra* note 45, at 1152-53.

53. See *infra* notes 90-94 and accompanying text.

54. *In the Doghouse, Protest Halts Animal Killings*, TIME, Aug. 8, 1983, at 38.

55. Comment, *supra* note 9, at 733. The experiments involved the smashing of monkeys' skulls with a piston blow. The monkeys did not receive adequate anesthesia. After network television aired portions of a taped film which showed experimenters mocking the injured animals and flopping them around on tables, United States Health and Human Services Secretary Margaret Heckler ordered the National Institutes of Health to suspend the clinic's funding. Fourteen million taxpayer dollars had funded the experiments. *Id.*

56. Tom Regan, one of the leading theoreticians of the animal rights movement, has written of the plight of laboratory animals:

Lab animals are not our tasters; we are not their kings. Because these animals are treated — routinely, systematically — as if their value is reducible to their usefulness to others, they are routinely, systematically treated with lack of respect, and thus their rights are routinely, systematically violated. This is just as true when they are used in trivial, duplicative, unnecessary or unwise research as it is when they are used in studies that hold out real promise of human benefits. We can't justify harming or killing a human being (my Aunt Bea, for example) just for these sorts of reasons. Neither can we do so even in the case of so lowly a creature as a laboratory rat.

Regan, *The Case for Animal Rights*, in PEOPLE, PENGUINS, AND PLASTIC TREES 38 (1986).

iment to develop a cure for Acquired Immune Deficiency Syndrome ("AIDS") should not be undertaken if it will result in the death of a single laboratory monkey.⁵⁷

The concern of animal rights advocates for individual members of a species is very different from the concern for an entire species that motivates environmentalists. Environmentalists base their concerns on concepts of population biology, not species equality. Environmentalists such as Aldo Leopold believe that our obligation to preserve the "integrity, stability, and beauty of the biotic community" creates no duties whatever to the individual members of that community — except in the rare instance when an individual is important to the functioning of a community.⁵⁸

For Leopold, the good of the biotic community is the measure of moral value. The killing or wounding of animals would not necessarily offend Leopold, an avid hunter. Environmentalists recognize that the structure of nature is a series of killings; one being lives at the expense of another.⁵⁹

Conflicts are inevitable between animal rights advocates who argue that we should protect other species for humanitarian reasons and environmentalists who believe we should protect wildlife for ecological reasons. Clashes have already occurred. Plans by federal resource managers to reduce deer or feral goat populations to improve habitat for other species have encountered opposition from persons afflicted with what Susan Schectman has labeled "the Bambi Syndrome."⁶⁰ The resource managers complain that

57. *Four Monkeys Given Virus That Causes AIDS-Like Disease*, L.A. Times, Mar. 1, 1984, § 1, at 3, col. 1. AIDS researchers have used monkeys extensively because their immune system most closely resembles our own. One recent example of the experimental use of monkeys in AIDS research is the efforts of a Florida research group to determine whether mosquitoes might transmit AIDS. The group exposed the monkeys to AIDS-carrying mosquitoes. *Morning Edition* (National Public Radio Broadcast, June 26, 1987).

58. A. LEOPOLD, *supra* note 5, at 217 (1949).

59. See, e.g., Callicott, *Animal Liberation: A Triangular Affair*, in PEOPLE, PENGUINS, AND PLASTIC TREES 184-203 (1986).

60. Schectman, *The "Bambi Syndrome": How NEPA's Public Participation in Wildlife Management is Hurting the Environment*, 8 ENVTL L. 611 (1978). For an example of a recent case brought by persons suffering from what Schectman would call the "Bambi Syndrome," see *Animal Lovers Volunteer Ass'n v. Weinberger*, 765 F.2d 937 (9th Cir. 1985). In *Animal Lovers*, a citizens' group sought to enjoin a Navy plan to remove goats from San Clemente Island, California, through a program of "aerial eradication." The Department of Interior had determined removal was necessary to protect endangered or threatened animals and plants in a critical habitat covering about one-third of the island. The group's suit was dismissed for lack of standing. The court concluded, "[a] general contention that because of their dedication to preventing inhumane treatment of animals,

opponents of population thinnings have used the National Environmental Policy Act's public involvement process to delay or block their plans. According to Schectman:

The public was concerned with individual animals and not their ecosystem as a whole, and seemed to respond more to emotional media presentations than [to] technical assessments prepared by the managers. Skepticism towards the managers and emotionalism created by Walt Disney-like misconceptions of wildlife jeopardized the information function. The sentimental value of individual wildlife to the public became clear⁶¹

Today public support for protecting wildlife is broader than that which has existed at any other time in our history. Where once only the few species that provided tangible economic benefits to humans could expect protection, constituencies now exist that can be rallied to protect not only threatened species (no matter how obscure) but also individual members of many species. Environmentalists will rally to support the endangered Cumberland monkeyface pearly mussel⁶² or furbish lousewort,⁶³ hunters will unite to counter threats to the habitat of the elk or canvasback, and animal rights groups will likely initiate direct-mail campaigns targeting any company conducting laboratory tests that blind rabbits.⁶⁴ The varied interests motivating those concerned about other species, and the intensity of their beliefs, make frequent and more bitter controversies likely in the future.

ALVA members will suffer distress if the goats are shot does not constitute an allegation of individual injury." *Id.* at 938.

61. Schectman, *supra* note 60, at 633.

62. The Cumberland monkeyface pearly mussel threatened construction of the Columbia Dam on the Duck River in Tennessee. Supporters of the dam sought unsuccessfully to block the listing of the mussels found in the Duck River on the ground that the Department of Interior had not prepared an environmental impact statement on the proposed action. *Pacific Legal Found. v. Andrus*, 657 F.2d 829 (6th Cir. 1981).

63. *See infra* note 101 and accompanying text.

64. People for the Ethical Treatment of Animals ("PETA") launched such a campaign against the Gillette Company in 1987. In its direct mail literature, PETA claimed that Gillette "continues to blind, burn and gas thousands of animals each year in tests that . . . many prominent researchers and scientists from around the world have criticized as worthless." Fundraising letter from Alex Pacheco, PETA Chairperson (June, 1987). PETA urged its supporters to boycott Gillette Company products. PETA also criticized the animal experimentation performed by Avon, Proctor and Gamble, and Bristol Meyers. *Id.*

II. THE BROADENING SWEEP OF PROTECTION FOR NONHUMAN SPECIES

When wildlife was valued exclusively as a source of food and clothing, only those species whose flesh was eaten or fur was worn received protection under the law. As wildlife became seen as a source of recreation or amusement, as aesthetic symbols, as objects of ethical concern, or as part of a complete ecosystem, the number of species protected under the law went from a handful to thousands. Thus, the choice of species protected by law is influenced by the values society attaches to wildlife.

The development of legal protection for birds illustrates this societal influence. In colonial America, what few restrictions existed on the taking of birds applied only to species such as duck, goose, and grouse, which were popular dinner fare. Moreover, such restrictions applied only when necessary to produce a sustained yield of the popular fowl. By 1900, most songbirds had received protection under state laws, primarily because of their value in controlling insect pests.⁶⁵ When Congress took its first steps toward protection of wildlife with the enactment of the Lacey Act of 1900,⁶⁶ birds were the chief beneficiaries. The decimation of the passenger pigeon, the eskimo curlew, and other birds provided the impetus for the legislation.⁶⁷ Congress responded to these massive kills by authorizing the Secretary of Agriculture to take all necessary steps to ensure the "preservation, distribution, introduction, and restoration of game birds and other wild birds," subject to existing state laws.⁶⁸

Congress made additional efforts to protect bird populations when it enacted the Migratory Bird Act of 1913⁶⁹ and the Migratory Bird Treaty Act of 1916.⁷⁰ Both acts were clearly designed to stabilize or reverse declines in populations of migratory birds, but both laws also — unlike more recent legislation — allowed for an

65. T. LUND, *supra* note 8, at 75-76.

66. Ch. 553, 31 Stat. 187 (1900) (codified as amended at 16 U.S.C. §§ 701, 3371-78 (1982 & Supp. IV 1986) and 18 U.S.C. § 42 (1982)).

67. T. LUND, *supra* note 8, at 58.

68. 16 U.S.C. § 701 (1982).

69. Ch. 145, 37 Stat. 878 (repealed 1981).

70. Ch. 128, § 2, 40 Stat. 755 (codified as amended at 16 U.S.C. §§ 703-11 (1982 & Supp. IV 1986)).

economic balancing to determine how much protection a species should receive. Congress specifically directed the Secretary of Agriculture to consider the "economic value" of a bird species in deciding whether, and to what extent, to authorize hunting.⁷¹ Congress did not, however, indicate how this determination of the "economic value" was to be accomplished.

While the economic benefits of a bird species provided justification for its protection, the economic cost inflicted by a species was sufficient reason to withhold protection or, in some cases, to undertake eradication programs. Raptors and other "nuisance" species were either subject to state bounty laws or classified as "unprotected," meaning they could be killed at any time by the use of virtually any means. In Iowa, for example, the law prior to 1937 placed no restrictions on the taking of English starlings, house sparrows, bluejays, blackbirds, crows, sharp-shinned hawks, Cooper's hawks, and great horned owls.⁷²

Public appreciation for the aesthetic value of wildlife, which has been increasing steadily throughout this century, eventually led to the protection of previously unappreciated bird species. In 1937, Iowa removed the colorful bluejay from its list of unprotected species.⁷³ In 1970, the sharp-shinned hawk, Cooper's hawk, and great horned owl were removed from Iowa's avian most-wanted list.⁷⁴ In 1980, the crow was also removed,⁷⁵ leaving only the starling, sparrow, and blackbird wholly unprotected. Finally, in 1983, Iowa repealed the statutory provision that identified unprotected birds and delegated responsibility for listing unprotected birds to the State Conservation Commission.⁷⁶ The solid public consensus behind the selection of certain species as "nuisances" had clearly dissipated; fewer species were perceived as utterly lacking social value. As a result of increasingly varied attitudes

71. 16 U.S.C. § 704 (1982).

72. IOWA CODE, § 1776 (1931), *repealed by* 1933 IOWA ACTS (45 G.A.) ch. 30, § 4; 7 IOWA CODE ANN. § 216 (West 1984).

73. 1937 IOWA ACTS (47 G.A.) ch. 99, § 33. IOWA CODE § 109.42, enacted in 1937 (effective until 1970), provided: "Protected nongame birds shall include any wild bird other than game, . . . except that the following are not protected by this act: European starling, English or house sparrow, blackbird, crow, sharpshinned hawk, Cooper's hawk, and great horned owl." 7 IOWA CODE ANN. § 216 (West 1984).

74. 1970 IOWA ACTS (63 G.A.) ch. 1063, § 1 (repealed 1980).

75. 1980 IOWA ACTS (68 G.A.) ch. 1034, § 1 (repealed 1983).

76. 1983 IOWA ACTS (70 G.A.) ch. 168, § 6; 7 IOWA CODE § 109.42 (West 1984).

toward species, the legislature found it politically attractive to delegate the task of designating "nuisances" to an "expert agency."

Protection also has been extended to increasing numbers of bird species at the federal level as appreciation for non-economic values of wildlife has grown. The Bald Eagle Protection Act is a prime example of legislation premised on non-economic values.⁷⁷ Federal efforts to preserve endangered bird species such as the whooping crane began in earnest by the 1950's, despite the lack of any evidence that such efforts would produce economic benefits to outweigh the costs of protection. The Endangered Species Act of 1973, which has come to epitomize non-economic legislation⁷⁸ and has forced major changes in federal and state government plans, has helped to save endangered bird species such as the Mississippi sandhill crane⁷⁹ or palila.⁸⁰

One of the most significant recent developments in wildlife law has been the extension of protection to broad classifications of wildlife, not just individual species on an *ad hoc* basis. The Marine Mammal Protection Act protects *all* marine mammals, including all species of whales, porpoises, seals, sirenians, walrus, polar bears, and sea otters.⁸¹ The plights of popular species such as the humpback whale and harp seal may have generated the public support necessary to make the Act possible, but the protection of the law was not limited to popular species. The taking of the obscure dugongs is controlled no less than the taking of blue whales.⁸²

The practice of protecting individual species on an *ad hoc* basis reflected the crisis-oriented approach adopted by Congress during the first two-thirds of this century. Only when species had suffered dramatic population declines, often leaving them on the verge of extinction, did the federal government try to come to the rescue. The 1972 Congress was perhaps the first "environmentalist" Congress. It was certainly more sensitive to the lessons of ecology than any of its predecessors. It understood, and so as-

77. See *supra* notes 32-34 and accompanying text.

78. See *supra* notes 39-43 and accompanying text.

79. National Wildlife Fed'n v. Coleman, 529 F.2d 359 (5th Cir. 1976).

80. Palila v. Hawaii Dep't of Land and Natural Resources, 639 F.2d 495 (9th Cir. 1981).

81. 16 U.S.C. § 1362(5) (1982).

82. *Id.*

serted in the Marine Mammal Protection Act, that the lack of information available about the population dynamics of marine mammals was reason enough to extend protection of the law, at least until more information was produced which revealed that proposed levels of takings would not threaten the species in question.⁸³

The Endangered Species Act of 1973 expanded the number of endangered species eligible for federal protection to encompass virtually "any member of the animal kingdom."⁸⁴ Only insects "determined by the Secretary [of the Interior] to constitute [pests] whose protection under the provisions of this Chapter would present an overwhelming and overriding risk to man" do not qualify for an endangered listing.⁸⁵ The Wyoming toad, Gila topminnow, Iowa Pleistocene snail, valley elderberry longhorn beetle, and Kentucky cave shrimp are a few of the over seven hundred animal species presently listed as endangered or threatened in all or a portion of their ranges, and therefore protected by the Act.⁸⁶ In addition, The Department of Interior's Fish and Wildlife Service has found that endangered and threatened plants, including members of families such as cactus, gourd, mint, and spurge, meet the biological criteria necessary to qualify for protected status under the Act.⁸⁷

Perhaps this legislative history reflects the belief that "[e]volution does not arrange species in a pyramid or a tree or a ladder."⁸⁸ A sphere has been proposed as a better metaphor.⁸⁹ As the points on the surface of a sphere are equidistant from the center, all forms of life have evolved an equal distance from their origin. The idea that evolution constitutes an order that has culminated in man is a religious conception, not a scientific one.⁹⁰

83. *Id.* § 1361(3).

84. The Act defines the term "fish or wildlife" to include "any member of the animal kingdom, including without limitation any mammal, fish, bird, . . . amphibian, reptile, mollusk, crustacean, arthropod or other invertebrate." *Id.* § 1532(8).

85. *Id.* § 1532(6).

86. Fish and Wildlife Serv., Dep't. of Interior, Endangered and Threatened Wildlife, 50 C.F.R. § 17.11 (1986).

87. Fish and Wildlife Serv., Dep't of Interior, Endangered and Threatened Plants, 50 C.F.R. § 17.12 (1986).

88. Livingston, *Rightness or Rights?*, 22 OSGOODE HALL L.J. 310, 315 n.13 (1984).

89. *Id.*

90. Michael Peters argues that the only "biological" distinction made by evolution is between "successful" and "unsuccessful" species:

Although the protections afforded any "threatened" or "endangered" species are substantial, protection is more extensive for vertebrate than invertebrate species. A 1978 amendment to the Endangered Species Act expanded protection to distinct populations of vertebrate animals only.⁹¹ Presumably, the exclusion of invertebrates was based less on any biological distinctions than it was on a political desire to reduce the number of listings.

Even in this Act, which purports to provide "a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved,"⁹² Congress distinguished between vertebrate and invertebrate species. Congress was doing nothing new. Numerous laws give more protection to species "higher" on the scale of evolution. Distinctions between vertebrate and invertebrate species appear frequently. Missouri's anticruelty statute, for example, defines "animal" as "every living vertebrate except a human being."⁹³ State conservation plans funded under the Federal Non-Game Act cannot include protection for invertebrates.⁹⁴ The Federal Insecticide, Fungicide, and Rodenticide Act ("FIFRA")⁹⁵ extended certain protections to those invertebrates providing economic benefits to man.⁹⁶

The Animal Welfare Act distinguishes between warm-blooded animals, which generally fall within the Act's protection, and cold-

Insofar as there are any *values* to be deduced from the science of biology, that of fitness for survival puts *all* contemporary species on the same level. All species which have managed to survive to the present day are biologically *successful*; man is no more successful than any other.

Peters, *Nature and Culture*, in *ANIMALS, MEN AND MORALS* 213, 226 (1971).

91. 16 U.S.C. § 1532(11) (1982). The term "species" is defined to include "any subspecies of fish or wildlife or plants, and any *distinct population segment of any species of vertebrate fish or wildlife* which interbreeds when mature." *Id.* § 1532(16) (emphasis added).

92. *Id.* § 1531(b).

93. MO. REV. STAT. § 578.005(3) (1986).

94. 16 U.S.C. §§ 2902(5), (6) (1982). The legislative history indicates that Congress excluded funding for invertebrates because "the potential number of invertebrate species could quickly exhaust the money and overwhelm the planning process of the proposed programs." 126 CONG. REC. S12,307 (1980) (remarks of Senator Chafee). Michael Bean describes the explanation as "not very persuasive." He points out that "the authority to conserve or plan for the conservation of invertebrates would tax the resources of a state only to the extent it chose to exercise that authority. By denying the authority, the statute denies states the choice." M. BEAN, *supra* note 43, at 229.

95. 7 U.S.C. §§ 135-36(y) (1982 & Supp. IV 1986).

96. M. BEAN, *supra* note 43, at 247. The 1972 Amendments to FIFRA extended protection to "all vertebrate and invertebrate species." 7 U.S.C. § 136(d) (1982).

blooded animals, which do not.⁹⁷ A more logical line, although perhaps an impossible one to draw, would separate animals capable of experiencing pain from those that cannot. The Act's failure to protect at least some cold-blooded species has left many animal rights advocates unsatisfied.

The expansion of the range of species protected by law has not received universal welcome. People who do not share the priorities of environmentalists have ridiculed the fact that a species known only to a few specialists might block a popular project. After the Supreme Court enjoined construction of the Tellico Dam because it threatened the three-inch snail darter with extinction,⁹⁸ the uncompleted dam was called "the world's biggest monument to the world's smallest fish."⁹⁹ Chief Justice Burger, author of the decision, found the result unsatisfactory but mandated by the statute. He quoted the line ascribed to Sir Thomas Moore in *A Man For All Seasons*: "I'd give the Devil benefit of law, for my own safety's sake."¹⁰⁰ Lawsuits threatening other projects have provoked reactions ranging from outrage to sarcasm, especially when the species in question had a funny name. For example, critics decried environmentalists' efforts to protect the furbish lousewort which jeopardized completion of the Dickey-Lincoln project in Maine.¹⁰¹

The law now protects virtually all endangered species, but a consensus that protection is a good thing exists only with respect to the larger, more familiar species such as the blue whale, rhinoceros, and whooping crane. Disparities between the expenditures of government programs to preserve various species readily demonstrate that not all species are seen as equal under the law. Although substantial funds have been devoted to the expansion of whooping crane, grizzly bear, and even black-footed ferret populations, essentially no federal dollars have been targeted to the

97. The Act defines "animal" as any "dog, cat, monkey (nonhuman primate mammal), guinea pig, hamster, rabbit, or such other warmblooded animal, as the Secretary may determine is being used, or is intended for use, for research, testing, experimentation, or exhibition purposes, or as a pet." *Id.* § 2132(g) (1982).

98. *Tennessee Valley Auth. ("TVA") v. Hill*, 437 U.S. 153 (1978).

99. This phrasing has been attributed to Senator Howard Baker of Tennessee.

100. *TVA v. Hill*, 437 U.S. at 195 (quoting R. Bolt, *A Man for All Seasons*, in *THREE PLAYS 147* (Act I) (1967)).

101. Sagoff, *supra* note 43, at 42. Approximately 40% of the world's population of furbish lousewort, a type of snapdragon, was found within the project area. N. MYERS, *THE SINKING ARK* 55 (1979).

restoration of depleted populations of species such as the Nashville crayfish or the Texas blind salamander.¹⁰²

Realistically, the degree of protection a species receives will depend upon why we value it. Domesticated species are subject to those protections consistent with their use by humans. Species valued for hunting or fishing are generally protected to the extent necessary to sustain annual yields sufficient to please hunters or fishermen. Species valued for what they symbolize, such as wild horses, eagles, and songbirds, are given greater protection against takings. Other species whose value is seen primarily in terms of their contribution to the diversity of life on earth, such as the gray bat or dromedary pearly mussel, are protected only when their populations fall to levels that jeopardize their ability to contribute to life's diversity.

In George Orwell's *Animal Farm*, "all animals are equal but some are more equal than others."¹⁰³ Whether or not most Americans subscribe to the abstract belief that all species are created equal, it is clear that the level of public support for the preservation of a particular species varies considerably. The economic importance of a species, as well as its tendency to delight, inspire, comfort, frighten, or disgust, will affect our willingness to protect that species under law.

III. THE EMERGING QUESTIONS AND THE COMPETING ANSWERS

Wildlife law has been remade in the last one hundred years in response to the demands for protective legislation by new constituencies. Recreational hunters and fishermen surpassed commercial and subsistence hunters and fishermen, in numbers and political strength, and succeeded in changing laws and policies to favor recreational interests. Environmentalists secured protection for many previously unprotected non-game species and the ecosystems upon which those species depend. Finally, in the last decade or so, animal rights and animal welfare activists have grown

102. The government spent millions of dollars to build a single remaining colony of black-footed ferrets to a population of 129 in 1984. In spite of these efforts the population contracted canine distemper and dropped to 12. It has since increased to 26. *Stanford Observer*, Jan. 1987, at 6, col. 2.

103. G. ORWELL, *ANIMAL FARM* 123 (1946).

in numbers and strength to the point where they are capable of influencing wildlife law.

All signs point to interesting times ahead. Wildlife and animal welfare issues have captured the interest of an expanding segment of the population. Our knowledge about other species and their interactions is accumulating at a growing rate. Most significantly, however, questions are today being raised that highlight conflicts between constituencies which, until recently, seemed to be pushing the law in the same direction.

A. *What Are Our Obligations to Animals?*

With the emergence of the environmental and animal rights movements in the last few decades, the commonly held assumption that only human beings have moral significance has been seriously challenged. Curiously, however, the notion that animals have rights and responsibilities has flourished before, notably in eighteenth-century England. Englishmen of the time commonly "tried" animals for "crimes" which — if the animal was found guilty — could result in sentences ranging from excommunication to capital punishment.¹⁰⁴ The desire evidenced by eighteenth-century practitioners of animal justice to bring the rest of the animal world within a system of rights and responsibilities also motivates many contemporary proponents of animal rights. Many environmentalists are concerned that, "[t]aken to its extreme, the result of an extension of rights would be to 'humanize,' or domesticate the entire planet. All life would be a human farm."¹⁰⁵ Other possibly unsettling consequences of recognizing the inherent moral value of animals have been conceded by animal rights advocates such as Peter Singer, who worries about "genuine conflicts of interest like rats biting slum children."¹⁰⁶

The environmentalist ethic, which finds moral significance in biotic communities, not individuals, has received criticism from animal rights advocates. Tom Regan has called Aldo Leopold's

104. See generally E. EVANS, *THE CRIMINAL PROSECUTION AND PUNISHMENT OF ANIMALS* (1906).

105. Livingston, *supra* note 88, at 320.

106. Singer, *Animal Liberation*, in *PEOPLE, PENGUINS AND PLASTIC TREES* 31 (1986). Singer suggests that sterilization, rather than eradication of the rats, may be a satisfactory method of resolving "the conflict." *Id.*

holistic ethics (which consider an individual of a species as having value "only [as] a member of a biotic team")¹⁰⁷ "environmental fascism."¹⁰⁸ Regan argues that the environmentalist ethic of Leopold would suggest that it is preferable to kill a human being (a member of a plentiful species) rather than a rare wildflower that, as a "team member," contributes more to the biotic community.¹⁰⁹ Regan's assessment may be accurate for some environmental extremists; Edward Abbey, in his popular book *Desert Solitaire*, says he would sooner shoot a man than a snake.¹¹⁰

Clearly, the atomistic theory of moral value favored by animal rights advocates produces a very different set of priorities than the holistic theory of moral value favored by environmentalists. The animal rights advocate would condemn recreational hunting; the environmentalist need not. The animal rights advocate would denounce our treatment of domestic animals and would find special horror in factory farming; for the environmentalist, the plight of domestic animals is probably a matter of indifference. The animal rights advocate can find little moral justification for keeping animals in zoos; for the environmentalist, zoos may represent the best available means for preserving a species' vitality.

1. A Duty Not To Kill?

The question of whether the taking of certain species should be prohibited — not because populations of those species are endangered, but simply because it is wrong — is not new, but it is being asked with increasing frequency and insistency. This question arises most often with respect to species whose behavior and intelligence produce empathetic responses in humans. It is not, however, a question being asked only about whales, porpoises, chimpanzees, and gorillas. Recently, people are even questioning whether it is wrong to take less popular species such as frogs.

Many animal rights advocates and their sympathizers argue that an ethic and a legal system that favors *Homo sapiens* over other species is no more logically defensible than an ethic and a

107. A. LEOPOLD, *supra* note 5, at 205.

108. T. REGAN, *THE CASE FOR ANIMAL RIGHTS* 372 (1983). Regan states, "[I]ike political fascism, where 'the good of the State' supercedes 'the good of the individual,' what holism gives us is a fascist understanding of the environment." *Id.*

109. Regan, *The Rights View*, in *PEOPLE, PENGUINS AND PLASTIC TREES* 204 (1986).

110. E. ABBEY, *DESERT SOLITAIRE* 17 (1981).

legal system that favors one race over another.¹¹¹ The term “speciesism” has been coined to refer to the belief that humans are deserving of special moral consideration as compared to other species.¹¹² These rights advocates point to experimental evidence suggesting that chimpanzees, for example, not only feel, but are capable of genuine insight.¹¹³ They also point to evidence suggesting that whales and porpoises are — by some measure, at least — as intelligent as humans.¹¹⁴ Some animal rights advocates draw

111. Peter Singer and Tom Regan are the two most prominent ethicists to have written on the subject of our obligations to other species. Their philosophical premises differ. Singer argues that humans have greater obligations to species which have greater capacities for self-awareness and rationality. P. SINGER, PRACTICAL ETHICS 88-90 (1979). Regan argues that all species with the ability to form and satisfy preferences possess equal inherent value. Regan believes that there is no morally sound justification for extending fewer rights to members of a species merely because it lacks the complex reflective capacities of normal, adult humans. T. REGAN, THE CASE FOR ANIMAL RIGHTS 239-41 (1983).

112. Richard Ryder was apparently the first to use the term. R. DAWKINS, THE SELFISH GENE 11 (1976). It has been adopted by many others, including Peter Singer who defines speciesism as “a prejudice or attitude of bias toward the interests of members of one’s own species and against those of members of other species.” P. SINGER, ANIMAL LIBERATION: A NEW ETHICS FOR OUR TREATMENT OF ANIMALS 7 (1975).

113. See, e.g., W. KOHLER, THE MENTALITY OF APES 43 (1957). Jane Goodall, Director of the Gombe Stream Research Center in Tanzania, has been a strong advocate for chimpanzees. Her research has led her to conclude that chimpanzees are highly intelligent:

[Chimpanzees] display cognitive abilities that were, until recently, thought to be unique to humans. They are capable of cross-model transfer of information — that is, they can identify by touch an object they previously have only seen, and vice versa.

They are capable of reasoned thought, generalization, abstraction and symbolic representation. They have some concept of self. . . . They show a capacity for intentional communication that depends, in part, on their ability to understand the motives of the individuals with whom they are communicating.

Chimpanzees are capable of empathy and altruistic behavior. They show emotions that are undoubtedly similar, if not identical, to human emotions — joy, pleasure, contentment, anxiety, fear and rage. They even have a sense of humor.

Goodall, *The Tedious, Unhappy Lives of Research Chimpanzees*, Minneapolis Star and Tribune, May 18, 1987, at 11A, col. 1.

114. It is difficult to compare the intelligence of cetaceans and humans. Measures of intelligence are generally very anthropomorphous. Nonetheless, the high degree of structural similarity between the human cerebral cortex and cetacean cortex strongly suggests the likelihood of high cetacean intelligence. Functions associated with intelligence are controlled within the cerebral cortex of the brain. A high degree of convolution of the cerebral cortex increases the surface area of the cortex and makes possible a high degree of cerebral function. Although the human’s brain is the most convoluted of all land mammals, the cetacean brain is even more convoluted. Additional evidence of a high degree of cetacean intelligence is found in the fact that the cetacean cerebral cortex contains more

parallels to the civil rights movement and predict that future generations will view the hunting of sperm whales or laboratory experimentation on primates with the same horror and disgust that we view the African slave trade or Nazi experimentation on Jews in concentration camps.

There are, however, important differences between racism and speciesism. Although various races have long been thought to constitute distinct subspecies of *Homo sapiens*, academics like Stephen J. Gould argue that the division of a species into several subspecies is arbitrary and misleading, focusing as it does on a single characteristic such as skin pigmentation.¹¹⁵ There is much less argument over division of the animal kingdom into species than there is over division of species into subspecies.¹¹⁶ To call starlings and robins distinct species is not arbitrary or misleading. Differential treatment between species would thus seem to be better justified, in most cases, than differential treatment between "subspecies," such as whites and blacks. Moreover, every species must differentially treat other species if it is to survive, a fact which is obviously not true with regard to race. If we treat a lion as we would a house cat, a toadstool as we would a mushroom, or a malaria-carrying mosquito as we would a butterfly, we invite serious harm. Even the most extreme animal rights advocate does not expect to see the spraying of a mosquito treated, under the law, as a capital offense.

neurons than the human cortex. Levin, *Towards Effective Cetacean Protection*, 12 NAT. RESOURCES L. 549, 557-58 (1979).

Because humans and cetaceans live in very different environments, there remains considerable controversy as to exactly how intelligent cetaceans are. See generally J. LILLY, *THE MIND OF THE DOLPHIN* (1967); K. FICHTELIUS & S. STOLANDER, *SMARTER THAN MAN?* (1972); Jacobs, *The Whale Brain: Input and Behavior*, in *MIND IN THE WATERS* 78 (J. McIntyre ed. 1974); Morgane, *The Whale Brain: The Anatomical Basis of Intelligence*, in *MIND IN THE WATERS* 84 (J. McIntyre ed. 1974).

115. S. GOULD, *EVER SINCE DARWIN* 231 (1977).

116. Each species represents a "real" unit in nature. Gould describes a species as "a population of actually or potentially interbreeding organisms sharing a common gene pool." *Id.* at 232.

Gould points out that subspecies are more arbitrary classifications than species and other taxonomic categories (genus, family, order) because: (1) the boundaries of a subspecies "can never be fixed and definite because, by definition, a member of one subspecies can interbreed with members of any other subspecies in its species" and (2) the subspecies is "a category of convenience" used only when it is judged to help our understanding of variability. *Id.* at 233.

During the past 20 years, the practice of dividing species into subspecies has been gradually abandoned. *Id.* at 231.

The debate over the rights of animals has confused the issue. One can speak of a duck's "right" not to be shot at from December until September, or of a rabbit's "right" not to be blinded in a frivolous laboratory experiment, but the "rights" involved are really much like the "right" of a Rembrandt painting not to be mutilated. All situations involve legislative judgments that certain activities are contrary to the public interest and ought to be punished. Neither an animal, art object, nor a comatose person is capable of expressing interests, let alone capable of "asserting its rights." To ascribe "rights" in these cases is to dilute the meaning of the word "right."¹¹⁷ Construed in this way, "right" becomes nothing more than a shorthand way of saying that an object or an animal is protected by the law from a certain type of injury.¹¹⁸

The problems with conferring rights on animals become overwhelming if "rights" are intended in an affirmative, and not just negative, sense. Whereas a negative right for animals would require only that people refrain from interfering in the lives of animals, an affirmative right would require that people benefit animals in some way. One commentator argues that the ethics of some animal rights advocates oblige us "to prevent and to relieve animal suffering wherever it occurs and however it is caused."¹¹⁹ If he is correct, then some animal rights advocates would insist that a duty may exist to feed, or even to shelter, deer during a harsh winter.

117. Philosopher R.G. Frey argues that animals do not have rights because they do not have "interests." Frey contends that "interests" must be conscious desires. He recognizes that people speak loosely of a "dog having an interest in a bone," but argues that "interest" in the sense used is no different from the "interest" a houseplant has in receiving sunshine or the "interest" a tractor has in being well-oiled. Frey notes that no one would contend that the consequence of a tractor having an interest in being well-oiled is that it has a "right." According to Frey, only entities having the ability to express conscious desires through language have rights. Frey, *Rights, Interests, Desires and Beliefs*, 16 AM. PHILOSOPHICAL Q. 233 (July, 1979).

118. Although it is generally not possible to ascertain animals' wants, it would be possible to ascertain the wants of guardians or trustees who could serve as "institutional embodiments of a perceived obligation to treat the world with respect." Tribe, *Ways of Not Thinking About Plastic Trees*, in WHEN VALUES CONFLICT 83 (1976) (discussing Christopher Stone's proposal to give standing to natural objects). In this special sense, an extension of "rights" to animals might be workable. Our legal system has long recognized "rights" for nonhuman entities such as corporations, unions, and churches. Christopher Stone has suggested that the appointment of guardians or trustees for objects in the environment would counter our tendency to analyze things from a short-sighted, homocentric perspective. Stone, *Should Trees Have Standing? Toward Legal Rights for Natural Objects*, 45 S. CAL. L. REV. 490 (1972).

119. PEOPLE, PENGUINS AND PLASTIC TREES 154 (1986) (quoting Sagoff, *Animal Liberation and Environmental Ethics: Bad Marriage, Quick Divorce*, QQ: REPORT FROM THE CENTER FOR PHILOSOPHY AND PUBLIC POLICY 4, 8 (Spring 1984).

An affirmative notion of animal rights takes us far toward regarding nature as one vast human farm.¹²⁰ We cannot confer affirmative rights upon other species unless those species are put under human control. If we succeed in domesticating the entire planet and adopt a rights-based system, the world will cease to be a surprising, mysterious place. It would instead resemble the depressing landscape painted by Charles Frankel in his essay on "The Rights of Nature":

Do you want a society in which people never have the experience of living with what follows of its own course, quite apart from human knowledge, desire, or hope? Do people want to build cultures and never see, in the background, things and events, processes and lives, that transcend culture, and that show that any culture is limited? Does man — educated man as much as or more than uneducated man — not need a standing warning, constantly and visibly there, reminding him of time spans that dwarf his time, of inexorabilities that mock his experiments, of fertilities that he has not set in motion?¹²¹

The most compelling argument of the animal rights movement is not the circular or religious argument that animals should have "rights." Rather, it is that we have not adequately justified the violence that we inflict on certain other species in the face of knowledge that those species share many of the characteristics we value highly in humans. When it is known that the whale is a gentle, social, intelligent creature, why should there be less outrage over the commercial slaughter of whales than there would be if a government was randomly executing thousands of its citizens? If it is morally acceptable to allow the takings of porpoises so long as their "optimum sustainable population" is maintained, why is it not equally acceptable to "thin out" human populations that have exceeded the carrying capacity of the land?

An extremist might indeed agree that the "thinning out" of human populations and porpoise populations are morally equivalent, and proceed to argue that such actions might be justified in both cases. Paul Ehrlich, a prominent biologist, has urged that

120. The difficulties of extending rights to nonhumans have been noted before. Kant, for example, wrote that "man . . . can have no duty to any being other than man." I. KANT, *METAPHYSICAL PRINCIPLES OF VIRTUE* 105 (Sec. 16) (J. Ellington trans. 1983); see also Passmore, *Removing the Rubbish*, *ENCOUNTER*, April 1974, at 19.

121. Frankel, *supra* note 28, at 111.

advanced nations consider withholding shipments of food to third-world countries where mass starvation is the result of excess population pressure.¹²²

Most environmentalists, however, would not apply the same ecological principles to human and nonhuman species, for reasons they might have trouble articulating. The thought of government rangers shooting Biafrans or Ethiopians to reduce populations to the "optimum sustainable" levels¹²³ would repulse virtually all environmentalists, no less than most other people. The ability to empathize weakens as one moves outward from one's self to one's family and loved ones, to one's community, to one's nation, to the human species, to nonhuman species sharing human behavioral traits, and finally to other species lacking significant human characteristics.¹²⁴ Ecological principles are normally modified when applied to humans precisely because we are human.

Our ability to empathize with other species has not remained static, and therein lies much of the explanation for expanded legal protection for animals. A provision such as one in the Marine Mammal Protection Act, which says that marine mammals may be intentionally killed only by the use of "that method of taking which involves the least possible degree of pain and suffering practicable to the mammal involved,"¹²⁵ is a product of our increased ability to empathize with animals.

Art and religion have increased our ability to empathize more fully with other species. The "Bambi Syndrome," derided by fed-

122. Erlich, *Population Food and Environment: Is the Battle Lost?*, TEX. Q., Summer 1968, at 53. Erlich suggests that the United States announce that it will no longer provide aid to countries which fail to demonstrate that they are doing everything within their power to reduce populations.

123. J. Baird Callicott describes the present population of more than four billion persons as a "global disaster" for the biotic community. Callicott, *supra* note 59, at 191. He contends that as omnivores, the population of human beings should be "roughly twice that of bears, allowing for differences of size." *Id.*

124. Tribe, *supra* note 118, at 84-85. Tribe notes that:

[A]s the evolutionary distance between man and nonhuman rights holders increases, the difficulty of analogizing to human experience mounts. Torturing a dog evokes a strong sympathetic response; dismembering a frog produces a less acute but still unambiguous image of pain; even pulling the wings off a fly may cause a sympathetic twinge; but who would flinch at exterminating a colony of protozoa?

Id. at 85.

125. 16 U.S.C. §§ 1374(b)(2), 1362(4) (1982).

eral resource managers,¹²⁶ is indeed partially attributable to *Bambi*,¹²⁷ a movie that expanded our ability to empathize with deer. There is every reason to believe that artists, writers, and religious leaders will continue to pull us in the direction of more empathetic relations with other species. One need only look as far as recent Hollywood box office hits for confirmation of this.¹²⁸ We are likely to see more and more human qualities ascribed to other species, and, as we do, the public pressure to stop all takings of those species will probably intensify.

2. Do We Owe Animals Our Respect?

On the evening of May 19, 1987, eleven-year-old Juan Perez climbed over a fence separating zoo patrons from two polar bears at Brooklyn's Prospect Park. One of the bears lunged at Juan and dragged him back to its den, where the boy was dismembered. Police were called to the scene, and the polar bears were shot.¹²⁹ Debate ensued over whether the killings were justified. One letter to the *New York Times* called the shootings an "illogical, unfair and meaningless show of force."¹³⁰ Another letter, although acknowledging that the bears "were not morally wrong," argued that the killings were justified:

I don't care a hang about territorial rights. I don't care that the boys threw rocks to frighten the animals. There is within me a primitive emotion — call it species loyalty — that is biased in favor of humans. I feel no pity for those bears, and I think the bears, in their ferocious, amoral, primordial souls, would have

126. See *supra* notes 60–61 and accompanying text.

127. Walt Disney 1942.

128. *Project X* (Twentieth Century Fox 1987), a movie which sympathetically portrays a laboratory worker who deals in stealing (or liberating) monkeys being killed in an experiment designed to test skills after exposure to lethal doses of radiation, was practically an invitation to join the animal liberation movement. *Star Trek IV* (Paramount 1987) appeals for support of endangered whales as much as it entertains people with a tale about the crew of the Enterprise. The Walt Disney movie, *The Secret of NIMH* (Metro-Goldwyn-Mayer 1982), deals with rats who become intelligent after being subjected to harsh laboratory experiments. The rats retell their experiences with human emotion. The English movie, *The Turtle Diary* (Samuel Goldwyn 1985), sympathetically portrays a plot by two kindred spirits to liberate a sea turtle from a city aquarium.

129. N.Y. Times, May 21, 1987, at B1, col. 2. The police saw Juan's dismembered body before they decided to shoot the bears. It is possible that the decision to shoot the bears was based on their belief that another boy might still be somewhere in the cage. *Id.* at B8, col. 5.

130. N.Y. Times, June 4, 1987, at A26, col. 6 (letter of Geraldine Ruthchild).

dimly understood this. They killed a child and I do not want them on this earth.

Those who agonize about bears instead of the children of this city have become utterly distanced from their own humanity.¹³¹

What if the police did *not* shoot the polar bears and the animals remained in their exhibit in Brooklyn? The two polar bears would no longer simply be "two bears," they would be "the bears that killed that little boy." The bears would have become symbols that zoo officials would prefer to avoid. Zoo officials want their exhibits to be a celebration of life's marvelous diversity, not grim reminders of nature's harsh realities.

A decision to ship the two bears to another zoo or to the wilds of Greenland would not have satisfied the letter-writer who did "not want them on this earth." Her reasons for wanting the bears killed had nothing to do with retribution or deterrence. She believes, most likely, that when animals become *symbols* of evil, it is appropriate to eliminate them. Nature is often cruel, but many people want the symbols of nature to express gentleness, courage, and other positive values.

Humans have manipulated nature and its symbols for a long time, but as the controversy concerning the polar bears indicates, there is growing resentment over the objectives and the methods of our manipulation. A few decades ago the shootings might not have produced widespread debate; the fact that they did now testifies to the force of new attitudes concerning nonhumans.¹³²

Environmentalists recognize that humans are part of nature and must manipulate nature in order to survive. Environmentalists argue, however, that nature has an integrity that ought to be respected¹³³ — that there ought to be limits to our manipulation. If killing a member of another species is consistent with the respect we owe nature, then it is justified. Subsistence hunting of the bowhead whale might be an example of killing consistent with an appropriate and respectful role; mass commercial slaughter of

131. N.Y. Times, June 12, 1987, at A30, col. 4 (letter of Susan Carboni).

132. An increased ability to empathize with other species probably also contributed to the intensity of the debate. See *supra* notes 26–27 and accompanying text.

133. See A. LEOPOLD, *supra* note 5, at 225, 240. The duty recognized by environmentalists to preserve the integrity and stability of the ecosystem may arise out of a more general obligation to preserve things of value. See generally Russow, *Why Do Species Matter?*, in PEOPLE, PENGUINS AND PLASTIC TREES 119–26 (1986).

sperm whales by a fleet of factory ships would not be consistent with such a role. Environmentalists argue that people should avoid acts that reinforce contrary beliefs, such as the belief that nature is an evil force, or that it ought to be tamed; people should not shoot polar bears that kill foolish boys.

Modern wildlife law has adopted, in part, the view of environmentalists that takings are only justified when done in a manner properly respectful of nature. Fish and game laws that set strict limits on both takings and the means of takings to preserve sustainable yields are generally consistent with this view. Laws that generally prohibit takings of certain species, but which make exceptions for takings for subsistence, scientific, or conservation purposes also reflect this respect for nature.¹³⁴

Modern wildlife law, however, dramatically reverses the view of nature reflected in earlier law. Until the environmentalists' view gained prominence, legislatures viewed wildlife as deserving of protection only to the extent necessary to preserve it as a source of humankind's greater happiness or economic gain, not because it deserved respect in its own right.

Animal rights advocates support most of the recent changes in wildlife law as steps in the right direction. The fewer takings permitted by law, the better. Animal rights advocates, however, are concerned with individual animals, not the preservation of ecosystem integrity.¹³⁵ For them, the shooting of deer where high deer populations have resulted in excessive competition for food is no more justified than where deer populations are well within the carrying capacity of the land. Similarly, the harpooning of a whale is an immoral act, whether done by an Inupiat Eskimo from his kayak or by the employee of a large Japanese whaling company from a factory ship. Devotion to the cause of animal rights means working tirelessly to eliminate or tighten exceptions for scientific,

134. For example, the Marine Mammal Protection Act generally bans the taking and importation of marine mammals, but creates a number of exceptions to these prohibitions. The Secretary of the Interior is authorized to issue permits for the taking or importation of marine mammals "for purposes of scientific research and public display." 16 U.S.C. § 1371(a)(1) (1982). Another exception applies to the taking of marine mammals by any "Indian, Aleut, or Eskimo who resides in Alaska and who dwells on the coast of the North Pacific Ocean or the Arctic Ocean." *Id.* § 1371(b) (1982). This exemption applies only when the taking is for "subsistence" or "creating and selling authentic native articles of handicrafts and clothing." *Id.*

135. *See supra* notes 58-61 and accompanying text.

conservation, and subsistence takings — exceptions which the environmentalist may find acceptable, or even desirable.

A practice that offends animal rights advocates as well as environmentalists is modern “put-and-take” game management. Put-and-take management consists of raising and releasing non-indigenous species for nearly immediate taking by “sportsmen.” Massachusetts, for example, has no natural brown or rainbow trout, but the state hatcheries produce over 500,000 trout each year for release into ponds and lakes in which they cannot spawn and which, in many cases, are too warm for them even to survive the summer. The trout are bred to eat pelletized “trout chows” instead of live insects, and to thrive in dirty, crowded canals, where they are hunted by fishermen crowded elbow to elbow. Massachusetts operates a similar put-and-take operation with pheasants, in which about 50,000 cock pheasants (less colorful hens are gassed by game farm personnel shortly after hatching) are released, usually to be shot within forty-eight hours.¹³⁶

Aldo Leopold would no doubt have found these programs repulsive. Leopold wrote that “[t]he recreational value of game is . . . inverse to the artificiality of its origin.”¹³⁷ Under Leopold’s analysis, put-and-take game management offers no recreational value.

Environmentalists object to put-and-take management primarily because of the kind of hunter it produces. Leopold saw hunting as a means of developing one’s aesthetic appreciation of nature; put-and-take management might actually weaken one’s ability to appreciate nature in much the same way that the prevalence of plastic trees might weaken one’s appreciation of real trees.¹³⁸

Hunters and fishermen may come to find the products of put-and-take management *preferable* to their wild counterparts, and demand more stocking operations involving more species. The goals of put-and-take game management contrast markedly with those articulated by Leopold, the recognized father of wildlife management. Leopold wrote:

136. Williams, *Who’s Managing the Wildlife Managers?*, ORVIS NEWS, Aug. 1987, at 14.

137. *Id.*

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

The objective of the game management program is to retain for the average citizen an opportunity to hunt. . . . This implies much more than the annual production of shootable surpluses of live birds to serve as targets. It implies a kind and quality of wild game living in such surroundings and available under such conditions to make hunting a stimulus to the esthetic development, physical welfare, and mental balance of the hunter.¹³⁹

“Esthetic development,” which can turn hunters into environmentalists, is hardly facilitated by put-and-take game management.

Increasingly, the question of what constitutes a properly respectful attitude toward nature will generate legal controversy. In some cases, persons espousing “environmental viewpoints” will find themselves on opposite sides. The dispute over the California condor is a recent example. The position taken by the Fish and Wildlife Service, that capture and zoo breeding offered the condor its best hope for survival as a species, is certainly supported by solid evidence.¹⁴⁰ The position of the National Audubon Society, challenging the Service’s plan, placed as much value on species integrity as it did on survival. For the Audubon Society, it was better to have the last wild condors die, and thereby reduce the prospects of a successful captive breeding program, than to reduce the odds that the condor will ever fly again, wild and free.¹⁴¹ When the last of these giant birds was brought in from the wild, an important symbol was lost, probably forever. A wild condor has aesthetic value which a condor, under the control of zoo geneticists and their computers, cannot have.

Zoos and animal parks used to be places where families passed pleasant Sunday afternoons. They still are, but they also are becoming battlegrounds for warring ethics. Many animal liberationists find offensive the very notion of one species holding another

139. Williams, *supra* note 136, at 14.

140. After initially deciding to leave a small flock of condors in the wild, the Fish and Wildlife Service reversed itself in December, 1985, on the basis of three pieces of information. First, one of the birds slated to be captured was courting one of the birds scheduled to remain in the wild. Second, young condors scheduled for release in the wild had grown too tame. Third, one condor inhabiting what had been regarded as a very safe habitat, where “clean” carcasses were provided, nonetheless died of lead poisoning. *National Audubon Soc’y v. Hester*, 801 F.2d 405, 406 (D.C. Cir. 1986).

141. Other reasons suggested for leaving a wild flock of condors included “provid[ing] ‘guide birds’ to lead captive-bred condors ultimately released, facilitat[ing] the improvement of techniques of protecting the birds, and prevent[ing] the erosion in public support for preserving the condor’s habitat.” *Id.* at 406.

species captive even though they are not held for slaughter. John Livingston has suggested that an animal contained in a power relationship "foreign to its psychology" probably experiences greater psychological suffering than the "socialized," domesticated animal.¹⁴² Conflicts will almost certainly increase between animal liberationists, who find the containment of other species morally unacceptable, and others — including many environmentalists¹⁴³ — who see zoos and their captive breeding programs as critical to the preservation of biological diversity on a planet where natural ecosystems are rapidly being destroyed. The recent effort by a citizen's group to block Sea World's plan to capture one hundred orca (killer) whales for research and public display typifies a dispute likely to occur more often in the future.¹⁴⁴

Environmentalists and animal rights advocates, however, do have some common interests. In particular, both groups are likely to favor improving the conditions of confinement for captured animals. The day may never come when courts apply the Eighth Amendment's ban on "cruel and unusual punishment"¹⁴⁵ to animal confinement, but more insistence upon better confinement conditions seems inevitable.

B. Our Obligation to Species: Are All Species Created Equal?

Environmentalists and animal rights advocates differ no less on the issue of our obligations towards species than they do on the issue of our obligations towards individuals of a species. A classical "law" of ecology holds that biological diversity contributes to the stability of ecosystems. As a result, environmentalists

142. Livingston, *supra* note 88, at 314.

143. Not *all* environmentalists ascribe to this view. Mark Sagoff has offered an aesthetic argument against zoos:

To value a species is not to put it in a zoo. It is to appreciate and admire it in nature and as a part of nature. One may think, by analogy, of the value of detail in a work of art. A few pieces of paint may be very little, or they may be important, when taken in isolation, but it is their role in the total painting which counts.

Sagoff, *supra* note 43, at 64.

144. Jones v. Gordon, 792 F.2d 821 (9th Cir. 1986). Another example is the threat by various public interest groups "to sue the Minnesota Zoo if it decides again to capture and display beluga whales." Minneapolis Star and Tribune, July 16, 1987, at 11B, col. 1.

145. U.S. CONST. amend. VIII.

generally give preferential consideration to individuals of a rare species. An environmentalist would sooner shoot a common turkey vulture than a rare California condor.¹⁴⁶ For the animal rights advocate, the choice would not be so easy, as the condor and the vulture would possess equal moral worth. Tom Regan denies that a *species* has moral standing, and although supportive of efforts to preserve endangered species, he is concerned that these efforts “can foster a mentality that is antagonistic to the implications of the rights view”:

If people are encouraged to believe that the harm done to animals matters morally *only when* these animals belong to endangered species, then these same people will be encouraged to regard the harm done to *other* animals as morally acceptable. In this way people may be encouraged to believe that, for example, the trapping of plentiful animals raises no serious moral question, whereas the trapping of rare animals does. . . . The mere size of the relative population of the species to which a given animal belongs makes no moral difference to the grounds for attributing rights to that individual animal or to the basis for determining when that animal's rights may be justifiably overridden or protected.¹⁴⁷

The preservation of biological diversity in the face of rapidly declining habitat is, for the environmentalist, the most pressing of causes. For the animal rights advocate, it is a worthy cause, though not without its dangers. For a person not subscribing to either view, the preservation of biological diversity can also be a cause of particular interest. Even anthropocentric people can appreciate the value of future encounters with individual members of rare species¹⁴⁸ — a possibility which may well be lost unless efforts are made to save them.

The present rate of extinctions is about 400 times the rate recorded through recent geological history and is escalating rap-

146. However, it could be argued that the California condor no longer plays *any* ecological role, as all condors now live in zoos. That being the case, the principles of ecology might actually dictate a preference for the turkey vulture.

147. Regan, *supra* note 109, at 203–04.

148. Russow, *supra* note 133, at 126. Russow values nature as an aesthetic experience. For her, species of substantial aesthetic value (e.g., panda, cheetah, or blue whale) are worth more, and more worth preserving, than species of little aesthetic value (e.g., the snail darter). *Id.* at 124–26. She sees a problem with ecological principles that might force one to conclude that it is wrong, for example, to wipe out the encephalitis-bearing mosquito because of its role in the biological community. *Id.* at 123.

idly.¹⁴⁹ Whereas the background rate of extinctions is slightly under one species per year, we are now losing an average of at least one species *per day*.¹⁵⁰ The current reduction in diversity is the most extreme in 65 million years and, for the first time ever, plant diversity, as well as animal diversity, is being sharply reduced.¹⁵¹ Twenty percent of the species on earth are likely to disappear by the turn of the century,¹⁵² and within the next 5,000 years we may lose many if not most of our large mammals and birds.¹⁵³ A disproportionate percentage of the survivors are likely to be opportunistic species with high reproduction rates, such as rats, raccoons, rabbits, houseflies, weed plants, starlings, and sparrows. Highly specialized species with low reproduction rates, such as giant pandas, rhinoceroses, and cranes face the greatest threat of extinction.¹⁵⁴

The leading cause of extinction is habitat loss. The problem is especially acute in tropical rainforests. Although rainforests cover only seven percent of the earth's surface, they are home to over half of the three to ten million species on earth.¹⁵⁵ Over one-third of rainforest acreage existing at the turn of the century has already been lost, and the pace is accelerating.¹⁵⁶ Most of the loss is attributable to the slash-and-burn subsistence agriculture practiced by rapidly growing populations in developing countries.¹⁵⁷

149. Wilson, *The Biological Diversity Crisis: A Challenge to Science*, ISSUES IN SCI. & TECH., Fall 1985, at 25.

150. Myers, *The Ends of the Lines*, NAT. HIST., Feb. 1985, at 2. Other experts believe the rate of species loss is even higher. Biologist Garrett Hardin estimates that about two dozen species are being lost every hour. G. HARDIN, FILTERS AGAINST FOLLY 37 (1985).

151. Wilson, *supra* note 149, at 25.

152. WORLD RESOURCES INSTITUTE, WORLD RESOURCES 78 (1987).

153. Myers, *supra* note 150, at 10.

154. *Id.* at 8. Myers predicts that unless steps are taken soon to curb species losses, future generations may live with a "pest and weed ecology." *Id.*

155. *Id.* at 2. According to some estimates, up to 70% of all species are found in the tropics. N. MYERS, *supra* note 101, at 22. A single square kilometer in Liberia may have more butterfly species than the entire eastern United States. *Id.* at 23.

156. Myers, *supra* note 150, at 2. The loss of tropical habitat directly affects many American species, especially migratory birds. About one-half of North America's land birds winter in the neotropical regions of Mexico, Central America, or the Caribbean. About 50% of the forest habitat for these birds has already been lost. Substantial declines in populations of species such as the red-eyed vireo and wood thrush have been attributed to loss of Central American forest. Dumanoski, *Loss of Forests Perils Migratory Birds*, Boston Globe, Oct. 27, 1986, at 38, col. 1.

157. Myers estimates that 70% of tropical forest acreage is being lost to slash-and-burn agriculture, 15% is being lost to cattle raising in Latin America (mainly to provide cheap beef for America's fast food restaurants), and 15% is being cut for lumber. Myers, *supra* note 150, at 2.

Moreover, American companies have contributed to the problem by creating markets for agricultural products raised on land cleared of rainforests.¹⁵⁸ The loss of habitat is not easily reversed, and may not be reversible at all because the climatic conditions that allowed the rainforests to develop over thousands of years on the nutrient-poor soil of the tropics may no longer exist.¹⁵⁹

Habitat loss is also the leading cause of lost biological diversity in the United States. This is true despite the fact that the United States and Canada have set aside approximately as much park land as all other countries combined.¹⁶⁰ Unfortunately, from the standpoint of biological diversity, most of the park land consists of coniferous forests. Other areas that support a broad variety of life, such as grasslands and Mediterranean-type zones, are substantially underrepresented in our park system.¹⁶¹

158. N. MYERS, *supra* note 101, at 9. The Rainforest Action Network ("RAN") urged a boycott of Burger King in a May, 1987, brochure mailed to potential supporters:

The earth's tropical rainforests are being bulldozed at the rate of 100 acres every minute. Half are already gone forever.

If this keeps up, there will be virtually no rainforests left on earth by the year 2050. And 50% of the world's life forms will vanish with them. Butterflies, flowers, trees, monkeys, jaguars, birds, fungi — all extinct in the next few short years.

Is it worth losing all this for 5 cents less on a burger? Because that's why the rainforest is being destroyed in Central America — to graze cattle the cheapest way. So that Burger King can charge 5 cents less for a Whopper.

Rainforest Action Network, *Is It Worth Losing One Half of the World's Rainforests for 5 Cents Off a Burger?* (May 1987) (RAN brochure). RAN called off the Burger King boycott after the company announced on July 20, 1987, that it would no longer buy beef from tropical rainforest areas. Rainforest Action Network, Alert No. 18 (Sept. 1987). RAN stated its intention to urge consumer action against other companies using rainforest beef. Among the companies identified by RAN were 7-Eleven, Campbell's Soup Company, and the Marriott Corporation. *Id.*

Advanced countries are responsible for much of the habitat destruction in less developed countries. Advanced countries produce demand for resources (e.g., rosewood), provide instruments of habitat destruction (e.g., DDT), and provide the technological skills that promote destruction (e.g., means of diverting water flows). See P. EHRLICH & A. EHRLICH, *EXTINCTION* 149-57 (1981).

159. P. COLINVAUX, *WHY BIG FIERCE ANIMALS ARE RARE: AN ECOLOGIST'S PERSPECTIVE* 76 (1978).

160. N. MYERS, *supra* note 101, at 222. Just over one percent of the world's 149 million square kilometers of land has been set aside as parks or equivalent reserves. *Id.* Approximately 51 million square kilometers, or one-third of the world's land area, remains wild. Forty-two percent of this wilderness is in the arctic or antarctic, 20% is in the warm deserts, 20% is in the temperate regions, 12% is in the tropics, 4% is in mixed mountain regions, and 2% is spread elsewhere. World Wilderness Congress, *A Preview to the World Wilderness Inventory* 4 (1987).

161. N. MYERS, *supra* note 101, at 222. Myers suggests that grasslands, Mediterra-

Even our largest parks are increasingly becoming "biological islands" that can no longer sustain the diversity of life they once held. New research has shown species losses within parks on a scale previously unimaginable. Parks as vast as Mount Ranier and Yosemite have lost thirty-five to forty percent of their species.¹⁶² Grizzly bears have become extinct in five national parks in the United States, and are in danger of extinction in the remaining seven that they now inhabit.¹⁶³ Essentially, the problem with our park "islands" is that the small, isolated populations they hold are vulnerable during bad times, such as periods of storm or disease. When ninety percent of an originally undisturbed area is developed and the remaining ten percent preserved as park land, about one-half of the species originally found in the area will eventually vanish.¹⁶⁴

Although habitat loss has caused the vast majority of recent extinctions, many other species are more directly threatened by human activity. The black rhinoceros serves as a prime example of a species pushed to the brink of extinction by poachers. In 1970, over 65,000 black rhinoceroses roamed the forests and savannas of Africa;¹⁶⁵ less than two decades later, the population has dropped by over ninety percent.¹⁶⁶ Numerous other species have

near-type zones, and tropical moist forests should constitute about 20% of park reserves instead of their current representation of one percent.

162. Gleick, *Species Vanishing From Many Parks*, N.Y. Times, Feb. 3, 1987, at 15, col. 3.

163. *Id.* at col. 4.

164. N. MYERS, *supra* note 101, at 223. Myers estimates that a single road through a park can doom one-sixth of the species in the park. He argues that the proposed highway across the Amazon basin was one of the most environmentally destructive projects ever proposed. *Id.* at 225.

165. WORLD RESOURCES INSTITUTE, *supra* note 151, at 85.

166. K.C. Star, Oct. 19, 1986, at 42A, col. 3. The rhino's problem is that its horn has great appeal to the men of Yemen and other Arabian peninsula nations because it can be used as the raw material for dagger handles. These people view the horn as a sign of sexual potency, and it is not unusual for a man in Yemen to spend whatever he can to obtain one. There is also great demand for rhino products in certain Asian countries where powder from its horn is considered an aphrodisiac and other body parts are believed to have curative powers. *Id.* As a result of intense demand, the price of a rhino horn rose from about \$23 per kilogram in 1969 to \$875 per kilogram in 1978. 45 Fed. Reg. 47,352 (1980). An African poacher can earn more by killing a single rhino than he otherwise could earn in a year. Unfortunately, rhinos are found in a part of the world where both poverty and corruption are common. The situation for rhinos in African parks has become even more desperate since 1979 when the *Science News* reported: "It's not hard to understand the temptation that a park warden earning \$50 a month faces when he is offered \$200 simply to 'patrol somewhere else tonight.' For honest colleagues, there's the bullet." D. FAVRE, WILDLIFE CASES, LAWS AND POLICY 183 (1983) (quoting J. Raloff, *Stealing A Horn of Plenty*, 116 SCIENCE NEWS 346, 348 (1979)).

suffered drastic population declines because of accidental takings.¹⁶⁷

Those concerned with preserving biological diversity have reached substantial agreement on a course of action. For domestic species, the prohibitions of the Endangered Species Act against habitat destruction,¹⁶⁸ takings,¹⁶⁹ and importation¹⁷⁰ provide a substantial measure of protection. Species not yet officially "endangered" should be protected through acquisition of additional habitat. Acreage devoted to parks, wilderness areas, and wildlife refuges should be expanded. Other important habitats, such as wetlands, should be protected either through outright purchase or easement.¹⁷¹ Projects designed to increase populations of depleted species should be funded and implemented. Environmental threats to species, such as acid rain and the greenhouse effect,¹⁷² should be abated.

Approaches to protecting species in other countries are more limited and often less effective. The growing inclination of western tourists to visit parks in third-world nations, however, has created some economic incentive to set aside more park land in those nations.¹⁷³ In addition, the United States can offer economic, tech-

167. Lead contamination from gunshot in the carcasses that provided the diet for the California condor contributed to its extinction in the wild in 1987. *National Audubon Soc'y v. Hester*, 801 F.2d 405, 406 (D.C. Cir. 1986). Since 1972, motorists have killed a dozen endangered Florida panthers while traveling "Alligator Alley," a state highway that bisects the Everglades. Florida Governor's Office, *Save Our Everglades 25* (Aug. 22, 1986) (Third Anniversary Report Card). Red gate connectors found on electric fences on mid-western farms have attracted and electrocuted great numbers of hummingbirds. Drift nets set for squid have accidentally caught several aquatic species. Drift nets are plastic nets — some 30 miles long — made of monofilament so sheer that it is invisible even to the "sonar" of dolphins. The drift net is the single largest killer of marine mammals in the North Pacific. Greenpeace, *Dolphin Alert!* (Sept. 1987) (unpublished fundraising brochure).

168. The Act requires each federal agency to insure that its actions will not "result in the destruction or adverse modification" of critical habitats. 16 U.S.C. § 1536(a)(2) (1982).

169. The Act makes it unlawful for any person to "take" any endangered or threatened species "within the United States or the territorial sea of the United States." *Id.* § 1538(a)(1)(B). The term "take" is defined broadly to include "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." *Id.* § 1532(19).

170. *Id.* § 1538(a)(1)(A). The Act also prohibits the export, possession, sale, delivery, transportation, or offering for sale of any listed species, subject to certain exceptions. *Id.* § 1538(a)(1)(A), (D), (E), (F).

171. Under the Migratory Bird Conservation Act, the Secretary of Interior is authorized to purchase "small wetland and pothole areas, interests therein, and rights-of-way to provide access thereto." 16 U.S.C. § 718d(c) (1982).

172. For an interesting and detailed analysis of the possible effects of global warming on biological diversity, see Peters & Darling, *The Greenhouse Effect and Nature Reserves*, 1985 *BIOSCIENCE* 707.

173. American conservationists have found it necessary to provide developing coun-

nical, and legal assistance to other nations seeking to preserve biological diversity. It can also use its power and influence in important international development institutions, such as the World Bank, to block or significantly modify proposed projects that would destroy important wildlife habitat.¹⁷⁴

Consensus behind the preservation of biological diversity, however, breaks down with respect to implementation. First, interested parties disagree over whether a "species-by-species" approach to biological conservation is preferable to an "ecosystem" approach. Second, they disagree over how scarce resources should be allocated among the projects designed to preserve the endangered or seriously depleted populations of various species.

The Endangered Species Act largely adopts a species-by-species approach over an ecosystem method, despite some policy statements to the contrary.¹⁷⁵ As the Tellico Dam case demon-

tries with economic justifications for creating parks and reserves. For example, wildlife advocates have argued that hunting preserves and wild-game meat processing plants should be encouraged as the only way of saving wildlife in some African nations. Jay Hair, President of the National Wildlife Federation, quoting Norman Myers, said "[t]he sooner Africans can enjoy gazelle goulash and wildebeest [sic] casserole, and the sooner the trade in zebra skins is regulated and expanded, the sooner a more hopeful era will dawn for African animals." Speech by Jay Hair, President, National Wildlife Fed'n, World Wilderness Congress, Denver, Colorado (Sept. 12, 1987).

"In the past 15 years, Third World countries have more than doubled the area set aside as nature reserves." Unfortunately, "many of the reserves are protected on paper only." Minneapolis Star and Tribune, Nov. 27, 1986, at 35A, col. 1.

174. Pushed by environmental groups and the American Government, the World Bank has begun to reconsider its policies and is increasing the number of ecologists on its staff. Brody, *Concern for Rain Forest Has Begun to Blossom*, N.Y. Times, Oct. 13, 1987, at C1, col. 2. The Council on Environmental Quality ("CEQ") made a number of recommendations for the United States on how biological conservation might be promoted worldwide. Specifically, CEQ suggested that the United States: (1) help develop and support international plans for tropical forest management; (2) make voluntary financial contributions to United Nations food and agricultural organizations for promotion of management programs; (3) increase research on tropical forest biomes and management; (4) develop institutional and technical capabilities to assist programs to manage forest reserves; (5) work with international agencies such as the World Bank to promote conservation; (6) focus on the preservation of entire ecosystems, not just individual species; (7) prepare an international inventory of biological diversity; (8) establish an international fund for the protection of critical areas; (9) enter into bilateral agreements that promote conservation goals; and (10) establish criteria for resource management techniques and design of ecological reserves. COUNCIL ON ENVIRONMENTAL QUALITY, GLOBAL REPORT 68-69 (1981). Some recent developments offer hope. In 1981, the State Department convened an International Strategy Conference on Biological Diversity, and in 1983 Congress passed the International Environment Protection Act, 22 U.S.C. § 2151q (Supp. I 1983), which requires the government to consider the impact of its programs on biological diversity in foreign nations.

175. Congress declared three broad purposes of the Endangered Species Act: (1) "to provide a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved;" (2) to provide "for the conservation of such endangered

strated, even a multimillion dollar project may have to be dropped or modified to prevent harm to an endangered species of no objectively measurable value to humans.¹⁷⁶ The Endangered Species Act nonetheless fails to provide for the smaller expenditures that might prevent a number of species from becoming endangered in the first place.

Species not yet known to exist that will be lost under a species-by-species approach might be preserved through an ecosystem approach. If the success of biological conservation is measured in terms of the number of species preserved, saving natural ecosystems would be the more effective and economical of the two approaches.¹⁷⁷ The advantages of preserving entire biological communities, rather than individual species, are not limited to the greater likelihood of long-term success. Development can proceed more predictably when industry knows in advance where to locate. Under a species-oriented approach, development plans will more often be frustrated despite significant commitments of resources.

Furthermore, a species-by-species approach will result in the devotion of a disproportionate share of available resources to the preservation of species we favor. Although actual allocations of resources to species preservation reflect a compromise between those who would allocate on the basis of species popularity and those who would apply scientific criteria, the popularity of a species seems to be the more significant factor. Considerable energies and resources are expended to preserve American populations of the bald eagle, peregrine falcon, and grizzly bear, despite the fact that these species are not in immediate danger of extinction worldwide. Virtually no efforts beyond those required by law are made to save less popular species found only in the United States.

Moreover, obscure species must contend for government resources with game species favored by recreational hunters, who remain an important constituency shaping wildlife law. According to Defenders of Wildlife, a national conservation group, more than ninety percent of the approximately \$500 million spent annually

species and threatened species;" and (3) "to achieve the purposes of treaties and conventions" designed to protect various species. 16 U.S.C. § 1531(b) (1982).

176. *TVA v. Hill*, 437 U.S. 153 (1978). The dam was eventually completed after Congress passed legislation mandating completion. For a fascinating account of this episode, see M. REISNER, *CADILLAC DESERT* 335-41 (1986).

177. See generally Smith, *The Endangered Species Act and Biological Conservation*, 57 S. CAL. L. REV. 361 (1984).

by federal and state wildlife authorities is devoted to managing game species, even though only ten percent of the 3700 vertebrate species in the United States are classified as game species.¹⁷⁸ Although Congress passed legislation in 1980 requiring states to develop plans for managing nongame species, it never appropriated money to implement the law, and states have been reluctant to redirect their own limited resources.¹⁷⁹ The share of government resources allotted to nongame animals, however, seems bound to increase. The number of hunters has declined since 1980, while the number of "non-consumptive" users of wildlife (such as bird-watchers and wildlife photographers) has sharply increased.¹⁸⁰

The fact that some species are more popular than others is obvious to all, although no precise ranking is possible. One plausible ordering of categories of species would be as follows: (1) large mammals (e.g., humpback whales, gorillas, elephants, giant pandas, rhinoceroses); (2) large birds (e.g., eagles, whooping cranes); (3) most small mammals and birds; (4) butterflies; (5) amphibians, most reptiles and fish; (6) snails, clams, crustaceans, harmless insects, plants, and other invertebrates; and (7) harmful insects, bats, and snakes. Popularity is rooted in symbolism, and symbolism has a great deal to do with how a species has been portrayed in story and song.

Snakes, for example, have long suffered from bad press, beginning with the Book of Genesis.¹⁸¹ Outside of religious reasons, it is difficult to determine why the press has been almost universally negative. Garter snakes, which help control rodent and insect populations while posing no threat to humans, nonetheless have been relegated to "unprotected" status by several state legislatures.¹⁸² The San Francisco garter snake, though on the endangered

178. Shabecoff, *U.S. Spending Priority on Wildlife is Assailed*, N.Y. Times, Nov. 13, 1986, at A27, col. 1.

179. *Id.*

180. *Id.*

181. 3 *Genesis* 14 (Revised Standard Version):

The Lord God said to the serpent, "Because you have done this, cursed you are above all cattle, and above all wild animals; upon your belly you shall go, and dust you shall eat all the days of your life."

182. See, e.g., IOWA CODE § 109.32 (1984). Iowa law protects, among other animals, fish, frogs, and mussels, but not snakes. *Id.*

species list, lacks the vocal defenders enjoyed by many other species.¹⁸³

Another way of establishing priorities for preservation efforts is to favor species "higher" on the evolutionary "scale." Support for the notion that "higher" species deserve more protection comes from many animal rights advocates, who base our moral responsibility to other species on those species' abilities to think and experience pain.¹⁸⁴ Most people, however, are unfamiliar with philosophical tracts on animal rights. For them, the preference for giant pandas over worms is mainly aesthetic, as the panda has an infinitely greater capacity to amuse and delight.

The challenge to species preferences based on aesthetics comes primarily from environmental scientists. Most biologists — although not all — reject notions that nature is purposive, or is moving toward perfection. Thus, they are not inclined to favor "higher order" species. Instead, they prefer to base preferences on more objective measures of a species' contribution to diversity or stability within an ecosystem.¹⁸⁵ A biologist would be inclined, for example, to give a relatively lower value to the snail darter, which has eighty or ninety close relatives, than to a species such as the sequoia, which is highly unique.¹⁸⁶

How to measure "uniqueness" itself might provoke disagreement among biologists, with some giving greater weight to morphological traits and others to behavioral traits. Some within the scientific community have described species diversity as a "non-

183. The Fish and Wildlife Service, however, does defend the garter snake. In 1983, the Service denied a petition from San Mateo County for a permit which would allow the incidental taking of San Francisco garter snakes. The Service refused to allow the incidental taking of the snake within its designated habitat. *Friends of Endangered Species, Inc. v. Jantzen*, 760 F.2d 976, 981 (9th Cir. 1985).

184. Peter Singer, one of the foremost advocates of animal rights, argues that the ability to experience pain and pleasure "is the only defensible boundary of concern for the interests of others." P. SINGER, *supra* note 111, at 50. Singer believes that even the painless deaths of animals possessing self-consciousness should be taken into account in the utilitarian calculation. A being is self-conscious, according to Singer, "if it is aware of itself as an entity, distinct from other entities in the world," and "aware that it exists over a period of time." Singer, *Animals and the Value of Life*, in *MATTERS OF LIFE AND DEATH* 235 (T. Regan ed. 1980). Under Singer's definition, many animals appear to be self-conscious. Singer contends that the value of the life of an animal should be measured by its capacity for reason and self-awareness. P. SINGER, *supra* note 111, at 88-90.

185. See generally Sagoff, *supra* note 43.

186. *Id.* at 49.

concept" and would emphasize instead "species richness."¹⁸⁷ Still other biologists would prefer species that make the greatest contribution to ecosystem stability, itself a rather unstable concept.¹⁸⁸ Giving weight to a species' contribution to ecosystem stability might favor various plant species.

Resources for the preservation of species will always be limited. Choices will be made. Some species will be saved through our efforts. Others will fail to survive because of our lack of effort. To the extent we rely upon a species-by-species approach, the principles of triage should help guide our choices. We should try hardest to preserve those species which have a reasonable chance of survival. We should make the greatest efforts to preserve species which, without our efforts are most likely to be lost, rather than those which probably will survive anyway. Triage principles, however, cannot provide all the answers; politics will play a role. Aesthetic values will probably continue to exert a powerful influence on efforts to preserve a particular species, but biological arguments based on the contribution of the species to ecosystem diversity, stability, and variety will likely receive more weight in the future.

IV. CONCLUSION

Law as it relates to nonhuman species has reached a critical point in its development. From its beginnings as a patchwork of state laws designed to protect sources of food and clothing, it has evolved into a complex body of federal and state laws fashioned to protect not only the interests of humans, but the supposed interests of animals as well. At one time, only a handful of species received any protection under the law. Today, legal protection extends to plants and invertebrates and to species once cast as vicious under a belief system that divided nature into good and

187. Hulbert, *The Nonconcept of Species Diversity: A Critique and Alternative Parameters*, 52 *ECOLOGY* 577 (1971). Species richness is normally measured by the number of species present, however rare some may be. Species diversity is usually measured by both the number of species present and their relative abundance.

188. Sagoff defines ecosystem stability as "the ability of an ecosystem to remain reasonably similar to itself in the presence of perturbations." Sagoff does accept ecosystem stability as an appropriate goal. Sagoff, *supra* note 43, at 62. The problem with the definition concerns the word "similar." Any two things are similar in a number of ways, and it is necessary to specify the respects in which the environment should remain "similar to itself."

evil. Artists and moralists expanded our capacities for empathy and created pressures to change our legal relationships with individual members of other species. Conservationists, including many recreational hunters and fishermen, taught us to appreciate relationships within the environment and created pressures to protect legally the ecosystems which support the diversity of life. In many legal battles, those whose primary interest lies in protecting individual members of other species joined forces with those more interested in protecting the integrity of ecosystems. Now, however, we have reached a juncture in the law's development where these two forces are pointing us in different directions.

The old role of *Homo sapiens* as subjugator of other species is over; a new role must be defined. Should it be the slightly detached role environmentalists favor — that of an optimizer, intervening only when necessary to preserve the diversity, stability, and richness of ecosystems? Or should it be the more involved role favored by animal rights advocates — that of the benevolent friend of animals? There is a growing consensus that other species should be treated with kindness and respect. But should it be the benevolence of the animal rights advocate that would treat the interests of animals as we would our own? Or should it be the environmentalists' approach, which springs from an appreciation of the character of things, and which is manifested in a willingness to respect the integrity of other patterns of life? Are environmentalists correct in not only tolerating, but rejoicing in, nature's often harsh reality? Does J. Baird Callicott have the answer to animal rights advocates when he says, "[t]o live is to be anxious about life, to feel pain and pleasure in a fitting mixture, and sooner or later to die. That is the way the system works. If nature as a whole is good, then pain and death are also good."¹⁸⁹

New, and in many ways troubling, questions have been pushed to the fore and await answers in our legislatures, administrative agencies, and courts. The law that emerges will reflect compromises between the interests of environmentalists, animal rights advocates, and those who would exploit other species for personal or commercial gain.

Both environmentalists and animal rights advocates can take satisfaction in the evolution of the laws defining our relationships with other species. From either group's standpoint, the laws and

189. Callicott, *supra* note 59, at 195.

the public attitudes that shape the laws have improved immeasurably since the day Cotton Mather proclaimed that all that was not useful in nature was vicious. Many of the changes appear permanent, but it is well to remember that battles for hearts and minds are not won only once, but must be fought again with each new generation.