PREDATORS' RIGHTS AND AMERICAN WILDLIFE LAW

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This Article investigates the law governing relationships between humans and those wildlife species generally recognized to be predators.[1] The notoriety of some larger carnivores has sharpened and focused the legal controversies inspired by them to a higher degree than those engendered by most other species;[2] predator law is both prominent in public debate and primitive in legal contemplation.[3] The first section of this Article contains a number of conclusory generalities about the nature of predatory animals and the social nature of American wildlife law. Section II discusses state efforts over nearly three centuries to eradicate undesirable species. The third section traces the growth in federal law relevant to predator populations up to 1960, and section IV then outlines the large but circular changes in federal law and official attitudes from 1960 to the present. Section V recounts a sampling of legal controversies stemming from predator management. The conclusion suggests a national reevaluation of predator policy but does not offer any startling insights.

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1. Dictionaries use words like rapacious, pillaging, and plundering to describe "predatory"; biological "preying upon" is usually the second meaning. The order of meaning is reversed for "predator." *See, e.g.*, THE AMERICAN HERITAGE DICTIONARY OF THE ENGLISH LANGUAGE 1021 (1969).

2. *See infra* section V, at 863. Exceptions to this generality include the infamous snail darters, *see* TVA v. Hill, 437 U.S. 153 (1978), and the unfortunate porpoises, *see* Committee for Humane Legislation v. Richardson, 540 F.2d 1141 (D.C. Cir. 1976).

3. In spite of passionate and repeated congressional calls for strict protection of the grizzly bear, for instance, *see* 119 CONG. REC. 42,913 (1973) (statement of Rep. Dingell), agencies and courts have been unwilling or unable to translate such desire into practice, *see* Cabinet Mountain Wilderness v. Peterson, 510 F. Supp. 1186 (D.D.C. 1981), *aff'd*, 685 F.2d 678 (D.C. Cir. 1981), and grizzly numbers continue to decline. Kansas City Times, Sept. 2, 1982, at A-2, col. 2 (Wash. Post Serv.).

I. IN TENTATIVE DEFENSE OF MURDERING VARMINTS

Nature is cruel. She has decreed that there shall be pyramids of life in which the organisms at the higher end of each pyramid kill and eat those below.[4] Most members of most wildlife species exist to be eaten by some other species. For all but a handful of wildlife species, the great natural imperative is to propagate before suffering violent death.

When a carnivorous animal catches, kills, and eats an herbivorous animal, the process is termed "predation."[5] In popular parlance, certain species are assumed by their habits and demeanor to constitute classes of predators; notable among them on this continent are wolves, bears, mountain lions, panthers, coyotes, eagles, and alligators, all of which are large, fierce flesh-eaters. Technically, however, the predator's club is not so exclusive. All carnivores eat other animals, and other animals eat organisms called plants. At the very apex of the various food chains is the greatest predator of all, *homo sapiens*.

Predation is a natural norm, but the bloody phenomenon often conflicts with human goals. American law, following popular understanding, has gradually categorized wildlife species according to their relationship with human activities. This categorization derives mostly from economic considerations. Scientists classify species by reproductive capacity and similar biological characteristics,[6] but the rest of us, including legislators, usually think of wildlife species in terms of whether they confer a monetary benefit or cause an economic loss.[7] American wildlife law consequently has concerned itself more with economic competition between man and the lower orders than with zoological distinctions.[8]

In the popular mind, the most prominent group of competing species is the large carnivores believed capable of killing people. Wolves, bears, mountain lions, and alligators are the primary North American species that arouse this primal fear. Because most populations of these species

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4. The biological information in this and succeeding paragraphs is taken largely from R. DASMANN, WILDLIFE BIOLOGY (2d ed. 1981) and R. WHITTAKER, COMMUNITIES AND ECOSYSTEMS (1975).

5. Predation is a fundamental biological process: it permits the evolution and accumulation of species and serves to regulate the growth of plant and animal populations. E. WILSON & W. BOSSERT, A PRIMER OF POPULATION BIOLOGY 106, 129 (1971). For an explanation of the differences between "r-selected" and "K-selected" species (roughly predator and prey, respectively), see *id.* at 110-11.

6. *See generally* N. MYERS, THE SINKING ARK (1979).

7. *Cf.* L. PRINGLE, THE CONTROVERSIAL COYOTE 3 (1977):

> [W]hen people call predators "bad," they are usually referring to certain ones that may do them some real or imagined harm—the infamous "big bad wolf," a weasel in the henhouse, a coyote that kills sheep. Some hunters even consider themselves in competition with foxes and other predators. They believe that any rabbit or other game killed by a predatory animal is a personal loss. In fact, another definition of a predator is "any critter that gets something you wanted before you do."

8. For instance, the first species to be protected by federal law were valuable, innocuous species of migratory birds, such as insect-eating songbirds, under the Migratory Bird Treaty Act of 1918 (MBTA), 16 U.S.C. §§ 703-711 (1976). Less popular birds such as predatory hawks did not come under the MBTA wing until 1972. *Id.* § 703. *See, e.g.*, United States v. Richards, 583 F.2d 491 (10th Cir. 1978); United States v. Hamel, 534 F.2d 1354 (9th Cir. 1976); United States v. Blanket, 391 F. Supp. 15 (W.D. Okla. 1975).

have declined precipitously from pre-Columbian levels,[9] human trepidation has lessened and human appreciation of the aesthetic and natural role such species play in the scheme of things has increased. Their menace is still alive, however: grizzly bears occasionally maul and kill people;[10] wolves occasionally kill cows;[11] and alligators more than occasionally kill dogs and other pets.[12]

Carnivores of lesser stature comprise the next group, which includes eagles, coyotes, foxes, snakes, bobcats, hawks, owls, weasels, ferrets, and so forth. Modern predator control controversies often involve members of this group, especially the ubiquitous coyote, because they sometimes prey upon domestic livestock and poultry.

A third group consists of animals not ordinarily thought of as predators which nevertheless compete with human society for scarce resources. For example, harbor seals eat salmon; wild horses and burros can monopolize sparse western forage; sea otters compete with abalone fishermen; and rabbits can strip fields of crops. In addition, many insects and some microscopic life can damage crops, trees, and other resources.[13]

The fourth category, pests, includes crows, rats, mice, roaches, pigeons, skunks, bats, starlings, and some insects. Even though these species do comparatively little economic harm, they are still despised as nuisances. Humans often war upon these pests because they sometimes carry diseases or because their habits are noxious.[14]

The bulk of this Article is concerned only with the first two wildlife categories, the generally recognized predators. Before taking up the law of "predators' rights," however, the place of those creatures in the overall natural scheme of things should be examined to be appreciated. Predators are only components of larger natural systems, and law has had difficulty dealing with either the parts or the whole.

The web of life is bewildering in its diversity and complexity. Estimates of the number of species and subspecies on earth range toward ten million, most yet unclassified and undiscovered.[15] A wildlife species is denominated such because it is significantly different in one or more basic aspects from all other forms of animate life.[16] The evolutionary process, accelerated in recent millenia by human intervention,[17] constantly adds to and subtracts from the list of extant species. The variations in habits,

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9. *See* S. SIMON & P. GEROUDET, LAST SURVIVORS: THE NATURAL HISTORY OF ANIMALS IN DANGER OF EXTINCTION (1970).

10. *See, e.g., infra* note 462.

11. *See infra* notes 429-63 and accompanying text.

12. *See, e.g.*, Ellis, *Florida: A Time for Reckoning*, 162 NAT'L GEOGRAPHIC 172 (Aug. 1982).

13. Tussuck moths, Japanese beetles, Mediterranean fruit flies, boll weevils, and nematodes, for example, can wreak economic havoc, but consideration of insects as pests or predators is beyond the scope of this Article.

14. *See, e.g.*, Society for Animal Rights v. Schlesinger, 512 F.2d 915 (D.C. Cir. 1975).

15. N. MYERS, *supra* note 6, at 16-17.

16. The classification process itself is controversial; in individual cases, "splitter" biologists often disagree with the "lumpers." *See, e.g.*, J. TREFETHEN, AN AMERICAN CRUSADE FOR WILDLIFE 298 (1975).

17. *See, e.g.*, Ripley & Dillon, *Threatened and Endangered Species*, in WILDLIFE AND AMERICA 365, 365-66 (H. Brokaw ed. 1978).

habitat, and characteristics of species and of individuals within them approach the infinite. It is little wonder then that legal treatment of natural phenomena is inconsistent and incomplete. Human knowledge is limited, and human understanding of evolutionary relationships is at best primitive. Although dividing the lower orders into "good" or "bad" species ignores the moral neutrality of the wild kingdom, there is no constant in the natural world that dictates any universal or uniform principle of wildlife law.

Frontier attitudes in this country often decreed that the only good predator was a dead one. Modern human interaction with predatory wildlife usually stands on a different footing, as societal attitudes toward competing wildlife have radically altered. Native wildlife seldom threatens human life nowadays, and humans seldom need the meat or furs from wild animals for survival. Many people now recognize that the effects of predation do not always hurt human pocketbooks and that some "predatory" activities result in economic benefit, directly and indirectly.[18] Nevertheless, fierce predators still rouse local feelings that care little for aesthetic values, changes in circumstances, or advances in scientific opinion.[19]

The predatory species evolved side-by-side with prey species; their mutual dependence is critical to the elusive stasis called the balance of nature. In turn, natural balance is the best safeguard of resource productivity. The virgin living resources of this continent could not have developed without diversity of plant and animal species, and the predator-prey relationships are integral to that diversity.[20] The law governing predator killing has never reflected natural diversity.

Ever since humans first organized into societies, the relationship between man and ferocious wildlife has been in part a function of law.[21] The Bible, Roman law, and English common law especially have circumscribed these relationships in Western societies.[22] Law is a human institution intended primarily for the benefit of human society. To the extent that society deemed certain species threats to human life, property, or convenience, the law typically dictated or tolerated wholesale killing, if not extermination, of those species.[23] To the extent that lawmakers saw other

18. Birds and bats eat insects that would otherwise eat crops. Coyotes keep down pestiferous rodent populations; the ecological and economic good done by competing eagles or coyotes is sometimes ignored in the furor over the loss of a few sheep. Larger predators assist the evolutionary process of prey such as deer by culling the old, weak, and diseased from the herd. Just in purely economic terms, it is often worthwhile to maintain large populations of some carnivores: alligator hides, for instance, are immensely valuable, a circumstance sometimes forgotten in emotional campaigns to eradicate the fearsome reptiles. Some alligator populations recovered strongly in the 1970's, and markets in alligator hides and meat are growing. *See* Ellis, *supra* note 12.

19. *See, e.g.*, Fund for Animals v. Andrus, 11 Env't Rep. Cas. (BNA) 2189 (D. Minn. 1978).

20. *See* R. WHITTAKER, *supra* note 4, at 129.

21. *See* Favre, *Wildlife Rights: The Everwidening Circle*, 9 ENVTL. L. 241 (1979). *See also* R. NASH, WILDERNESS AND THE AMERICAN MIND ch. 1 (1973).

22. *See, e.g.*, G. CARSON, MEN, BEASTS AND GODS: A HISTORY OF CRUELTY AND KINDNESS TO ANIMALS (1974); Favre, *supra* note 21.

23. The North American species which has suffered most visibly from mandates of this sort is the wolf. At one time the gray wolf existed in nearly all parts of the United States. 1 S. YOUNG, THE WOLVES OF NORTH AMERICA 9 (1944). Their distribution is now limited to portions of

species as a source of profit, the law typically encouraged or tolerated unbridled exploitation until the very existence of the profitable resource was clearly threatened.[24] At the time of population crisis—perhaps—legislatures would impose some controls. Those legal controls are called, generically, "conservation." Domestic wildlife conservation law has generally grown in inverse proportion to the well-being of native wildlife populations.[25]

Human interaction with wildlife leaves very few species unscathed.[26] Human activities affecting wildlife are partially controlled by a complex, overlapping set of laws and regulations,[27] but this structure of American wildlife law is jerry-built. Taken together, the statutes lack a consistent rationale and provide little central direction. In some cases, the law encourages exploitation of some species,[28] but, in other cases, the law prohibits it entirely.[29] Members of the same species are partially protected by closed seasons in some states but not in others.[30] One federal statute authorizes the extermination of wolves[31] while millions are spent under another federal law to protect them.[32] Some federal statutes concentrate on individual species,[33] and some on groups or families,[34] while others direct managerial attention to underlying support systems.[35] Some wildlife law and practice is anthropomorphic, some is idealistic, and some is coldly rationalistic. Some is progressive, some archaic. The conflicting legislative and managerial premises about wildlife regulation are evidenced by past and present law governing "predator control" or "animal damage control."

Michigan and Minnesota in the forty-eight contiguous states. Cain, *Predator and Pest Control*, in WILDLIFE AND AMERICA 379, 381-82 (H. Brokaw ed. 1978).

24. *See generally* M. BEAN, THE EVOLUTION OF NATIONAL WILDLIFE LAW (1977); T. LUND, AMERICAN WILDLIFE LAW (1980); J. TREFETHEN, *supra* note 16. The endangerment of eight or more species of whales illustrates this general truth. *See* THE WHALE PROBLEM: A STATUS REPORT (W. Schevill ed. 1974).

25. State fish and game agencies were invented to combat perceived declines in valuable species, and all federal wildlife statutes were enacted because of population crises. The most notable example is the Endangered Species Act of 1973, 16 U.S.C. §§ 1531-1543 (1976 & Supp. IV 1980), and the corresponding list of endangered and threatened species, 50 C.F.R. § 17.11 (1981).

26. Even the innocuous and inedible songbirds, completely protected by federal law, Migratory Bird Treaty Act of 1918, 16 U.S.C. § 703 (1976), still die from exposure to manmade toxicants. *See* M. BEAN, *supra* note 24, at 74; Coggins & Patti, *The Resurrection and Expansion of the Migratory Bird Treaty Act*, 50 COLO. L. REV. 165 (1979). *Cf.* R. CARSON, SILENT SPRING (1962).

27. *See* Guilbert, *Wildlife Preservation Under Federal Law*, in FEDERAL ENVIRONMENTAL LAW 550, 592-94 (E. Dolgin & T. Guilbert eds. 1974); Coggins, *Federal Wildlife Law Achieves Adolescence: Developments in the 1970's*, 1978 DUKE L.J. 753.

28. In one outrageous instance, President Grant vetoed a bill to stop the mass slaughter of bison because he was told that eliminating buffalo would weaken Indian resistance to white settlement. *See* Favre, *supra* note 21, at 249.

29. *See* 16 U.S.C. § 1538(a) (1976).

30. Coyotes, for instance, have more legal protection after the state legislature declares that they are valuable furbearers, but not all states have controlled coyote killing.

31. Animal Damage Control Act of 1931, 7 U.S.C. § 426 (1976). *See infra* notes 130-36 and accompanying text.

32. 16 U.S.C. §§ 1533, 1538 (1976). *See* Fund for Animals v. Andrus, 11 Env't Rep. Cas. (BNA) 2189 (D. Minn. 1978), discussed *infra* at notes 429-63 and accompanying text.

33. *E.g.*, The Bald Eagle Protection Act, 16 U.S.C. §§ 668-668d (1976).

34. *E.g.*, The Migratory Bird Treaty Act of 1918, 16 U.S.C. §§ 703-711 (1976).

35. *E.g.*, The Endangered Species Act of 1973, 16 U.S.C. §§ 1531-1543 (1976 & Supp. IV 1980).

II. THE WAR ON PREDATORS: 1607-1900

Before Europeans came to the North American continent, Indian tribes valued large carnivores as resources and objects of veneration.[36] Indians also sought feathers and other parts from eagles and hawks for religious and artistic purposes,[37] but their weapons were not sufficiently advanced to make serious inroads on raptor populations.[38] The French voyageurs fed the European market for predator furs, but because they were itinerant traders and trappers, their impact on wild populations was relatively minimal.[39] Radical change came with the permanent settlers. From the beginning of settlement, 17th century Americans opted for elimination of competing species, and their anti-predator attitude was shortly translated into law.[40] The settlers had new-found freedom of means to do so, because they were free of common law restrictions on carrying and using firearms.[41]

This section sketches the official measures and systems historically employed to control predatory species. Eradication of predators, however, was a universal goal pursued by private as well as public means. The colonists could and did shoot wolves on sight. On the frontier, bears were a valuable source of fur, meat, and grease; Daniel Boone and Davy Crockett received acclaim for clearing new areas of those animals before the farmers cleared the land. Hunting was a popular passion for many; then, as now, some hunters could not resist shooting animals even if the targets were inedible and unusable. The famed Mountain Men not only decimated the beaver, marten, and other inoffensive furbearers in advance of civilization, but they also made inroads on predator populations, particularly grizzly bears.[42] At this remove, one cannot say whether public or private predator eradication was more effective; both efforts were concurrent and continued unabated until very recently.

The original motivation for predator killing was concern for human safety, and the earliest efforts can be viewed as a form of collective self-defense—even though many of the underlying fears were baseless.[43] The rationale for predator eradication quickly evolved into one of protection of property;[44] the rationale was later justified as a means of increasing prey

36. *See, e.g.*, J. FRAZER, THE GOLDEN BOUGH: A STUDY IN MAGIC AND RELIGION 217-21, 518-32 (1925).

37. *See* F. BOAS, PRIMITIVE ART (1927); G. GRINNEL, CHEYENNE INDIANS: THEIR HISTORY AND WAY OF LIFE 299-307 (1962). *Cf.* United States v. White, 508 F.2d 453 (8th Cir. 1974).

38. Even so, many modern scientists believe that the newly arrived Indians finished off large mammals such as mastodons, sloths, and sabre-toothed tigers that survived the Ice Age.

39. H. DRIVER, INDIANS OF NORTH AMERICA 240-46 (1969). Their harvest was, nevertheless, sizable. By 1743, the pelts of 127,080 beavers, 16,512 bears, 30,325 martens, 12,428 otters, 110,000 raccoons, and 1,267 wolves were landed in the French port of Rochelle. P. MATHIESSEN, WILDLIFE IN AMERICA 81 (1959).

40. *See* T. LUND, *supra* note 24, at 19-20.

41. *Id.* at 20, 32.

42. C. VANDIVEER, FUR-TRADE & EARLY WESTERN EXPLORATION 114-18 (1929).

43. *See* D. ALLEN, OUR WILDLIFE LEGACY 231-33 (2d ed. 1974). There is, for instance, no documented unprovoked wolf attack on and killing of a human in the United States. Cain, *supra* note 23, at 381.

44. *See* Cain, *supra* note 23, at 379.

game populations for the benefit of hunters.[45] Throughout American history, official predator control programs have been remarkably inefficient or highly indiscriminate. For some species, such programs did not work very well;[46] for others, the programs worked so well that certain species were pursued to the brink of extinction.[47] The most common official programs have leaned heavily on bounty systems, government hunters and trappers, and poisons.

A. *Bounty Systems*

The Massachusetts Bay Company created the first American bounty system in 1630, when it offered payment of one penny per wolf killed.[48] The practice spread rapidly; soon several Colonies paid bounties for eagles, bears, mountain lions, and coyotes.[49] County and town governments as well used bounties on disfavored species as a widespread control device for over three centuries.[50] In spite of its demonstrated cost-ineffectiveness—due in part to endemic fraud and corruption[51]—the bounty system still exists in a few places.[52] Most jurisdictions, however, have finally rejected bounties because they are uneconomic, unselective, and problematical.[53]

Various problems always plagued administration of bounty laws. From an early time, those bounty hunters who realized that complete success would leave them jobless practiced a primitive form of conservation. They were quick to calculate that, by sparing female and a few mature male predators, target populations would replenish themselves, ensuring good bounty harvests in the future.[54] To eliminate predators more effectively, therefore, governments had to offer higher bounties for female and mature male predators.[55]

The difference in the bounties offered by various governing bodies prompted even more blatantly fraudulent practices. Even though local authorities decreed that local taxes would be spent only to control predation within the taxing jurisdiction, an unseemly, illegal market in predator artifacts quickly developed, with commerce flowing in the direction of the

45. *See* T. LUND, *supra* note 24, at 73-74.

46. For example, despite three-quarters of a century of intensive control, coyote numbers remain as high or higher than ever. *See* T. LUND, *supra* note 24, at 73; Cain, *supra* note 23, at 388-89. Most evidence suggests that the bounty system never succeeded in getting down to the breeding stock of most species, save for a few notable exceptions such as the slow-breeding bald eagle. D. ALLEN, *supra* note 43, at 267-76.

47. Wolves have been "controlled" almost to the point of extinction. *See* Cain, *supra* note 23, at 389-90; 50 C.F.R. § 17.11 (1981).

48. P. MATTHIESSEN, *supra* note 39, at 57. Bounties were not, however, an American invention. Plutarch noted that five drachma were then paid for a he-wolf. S. YOUNG, *supra* note 23, at 338.

49. *See* Cain, *supra* note 23, at 379.

50. *See* T. LUND, *supra* note 24, at 74-75.

51. *See id.* at 92; *infra* text accompanying notes 56-59.

52. Cain, *supra* note 23, at 387.

53. D. ALLEN, *supra* note 43, at 272.

54. T. LUND, *supra* note 24, at 32.

55. *Id.* at 33.

highest bounty payments.[56]

Proof of the kill, necessary to insure that taxes were not being spent needlessly, was routinely circumvented by inventive bounty hunters. At first, governing bodies required only a statement that the hunter had killed a predator.[57] The inevitable false swearing that ensued generated the later rule that no payment would be made without submission of the ears or head of the dead predator.[58] This requirement also proved to be unsatisfactory: heads or ears were frequently recycled to obtain multiple payments. Finally, governments required cancellation or destruction of submitted body parts—itself, as under modern narcotics laws, an inducement to corruption—or at a minimum required that body parts be fresh to qualify for payment.[59] Tax expenditures increased without benefit to taxpayers.

Eventually wildlife managers came to realize that indiscriminate bounties can be counterproductive.[60] Not all members of a predatory species actually prey on man or livestock; both are acquired tastes.[61] Killing predators en masse does not insure the destruction of the individual livestock killers because those relatively few individuals often have learned to be wary of the hunter's gun;[62] killing the less offensive predators sometimes gives an evolutionary advantage to their brothers with a taste for sheep.[63]

The known fraud, proliferating litigation, and demonstrated ineffectiveness of bounty systems ultimately contributed to their demise.[64] Bounties assisted in ridding wolves, panthers, and most bears from the newly civilized environs of the East,[65] but changes in habitat through clearing the land probably had a more lasting effect on populations of large predators than did the bounty programs.

Bounty systems were curious anomalies. In form they were economic incentives: the taxpayers at large agreed to reward those who rid the community of a menace. In practice they subsidized those on the fringes of civilization and thus had the additional virtue of keeping the rougher human elements out in the forests where they belonged. Bounties were a

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56. *Id.*; D. ALLEN, *supra* note 43, at 270.

57. T. LUND, *supra* note 24, at 33.

58. *Id.*

59. *Id.*

60. Leopold, *et al., Predator and Rodent Control in the United States*, report submitted to Stewart Udall, Secretary of the Interior (Mar. 9, 1964), *reprinted in Predatory Mammals and Endangered Species: Hearings on H.R. 689 and Related Bills Before the Subcomm. on Fisheries and Wildlife Conservation of the House Comm. on Merchant Marine and Fisheries*, 92d Cong., 2d Sess. 495-506 (1972), *and in* TRANSACTIONS OF THE 29TH N. AM. WILDLIFE CONF. 27, 35 (1964) [hereinafter cited as *Leopold Report*].

61. *See* Cain, *supra* note 23, at 391; Lehner, Krumm & Cringan, *Tests for Olfactory Repellants for Coyotes & Dogs*, 40 J. WILDLIFE MGMT. 145, 145 (1976).

62. Wagner, *The Predator-Control Scene as of 1974*, 39 J. WILDLIFE MGMT. 4, 7 (1975).

63. Cain, *supra* note 23, at 389.

64. D. ALLEN, *supra* note 43, at 273.

65. In his *New England Prospect*, writing of wolves, William Wood observed that "there is little hope of their utter destruction, the country being so spacious, and they so numerous" (quoted in P. MATTHIESSEN, *supra* note 39, at 57).

simple answer to what people long thought was a simple, single problem, but the problem was not so simple and the solution did not work.

B. *Government Hunters*

William Penn hired the first government predator control agent, a professional wolf hunter, for the Pennsylvania colony in 1705.[66] This approach of hiring professional government hunters still dominates predator control policies.[67]

Like bounty systems, the use of professional predator killers aims at the total elimination of predator populations; the two methods differ, however, in their underlying premises as well as their means. Bounties reflect governmental willingness to pay for only as much predator population reduction as private citizens desire to accomplish themselves. As a method of protecting private property, bounty systems did not rise to the level of fire or police protection. But by employing hunters, governments implicitly recognize that the damage to private property from predation is of sufficient magnitude to warrant affirmative government action and the routine expenditure of public funds. The practice of hiring government predator control agents thus is closer to an exercise of the police power. Further, since government agents engage in systematic destruction of predators in given areas, as opposed to random bounty hunting, the elimination of the target species is a more realistic goal.[68]

Neither the payment of bounties nor the use of government hunters accommodated predation as a natural phenomenon. Occasionally, some advocated less drastic means of avoiding predator damage, but most such efforts died stillborn.[69] Throughout the 19th century, bounties and hunters remained the two major public means of predator killing. Their central role was later replaced by wide use of chemical toxicants.

C. *Poisons*

The third primary method of predator control began with the advent of strychnine use in 1847.[70] This persistent poison was ideal for programs designed to eliminate predators. When incorporated into small tallow pellets and broadcast throughout the environment, strychnine insures death to

66. D. ALLEN, *supra* note 43, at 264.

67. *Hearings Before the Senate Subcomm. on Appropriations, Predator Control, and Related Problems*, 92d Cong., 1st Sess. 185-86 (1971).

68. *See* Cain, *supra* note 23, at 387.

69. One early contemplated predator control method did back away from the concept of predator elimination as a solution, inherently recognizing predation as a normal biological process. In 1717, a project to make outer Cape Cod a livestock sanctuary inaccessible to wolves was seriously considered. P. MATHIESSEN, *supra* note 39, at 57-58. The idea was to build a fence across Cape Cod from Sandwick to Wareham. People living on the "wrong" side of the proposed fence feared that they would have a greater concentration of wolves, however, so the project was abandoned. *Id.*

70. FISH AND WILDLIFE SERVICE, U.S. DEP'T OF THE INTERIOR, PREDATOR DAMAGE IN THE WEST: A STUDY OF COYOTE MANAGEMENT ALTERNATIVES 54 (1978) [hereinafter cited as PREDATOR DAMAGE IN THE WEST].

any predator that eats the tallow.[71] Carcasses of domestic animals laced with strychnine were also used to kill carrion-eating predators.[72] Strychnine toxicity persists in the environment for years, adding both to its utility and to its dangers. Killing predators with strychnine is quicker, easier, and cheaper than bounty or government hunting. Control by poison does not pose the dangers associated with hunting near human populations, but strychnine's economic and environmental drawbacks made its use questionable even in the 1800's. Domestic animals and wildlife other than predators also are killed by the tallow and other strychnine baits; furthermore, the general poisoning of the environment that occurs when strychnine is widely distributed causes adverse ecological consequences.[73]

Poisons of various types were nevertheless destined to become the preferred method of predator and pest control in the 20th century.[74] Relatively little labor is required to broadcast many poisons, and, although largely unselective, they kill effectively. Poisons can be used equally as well by individuals and governments. The prevalence of poison use represented a wholehearted commitment to predator extermination by both public and private sectors.

D. *Results of Predator Control Programs to 1900*

The war against large carnivores carried on by the eastern states for three centuries eventually succeeded. Wolves were eliminated from New England by 1788, and mountain lions disappeared from all but the most remote areas of the Appalachians and the Everglades.[75] Bears, eagles, foxes, and other predatory species declined greatly and persisted only in straitened circumstances. Except for isolated populations, the region east of the Mississippi was safe from the ravages of carnivorous competitors by the turn of the 20th century.

The virtual eradication of eastern predators coincided with the creation of state wildlife management agencies and the related advent of official controls over wildlife exploitation.[76] The new state agencies could not have saved the wolf even if they wanted to—and they did not want to—because human attitudes were hardened, the land had been converted to agricultural and urban use, and wolf populations were too low. But the late 1800's were watershed years for wildlife law and management nonetheless. In reaction to the extinction of the passenger pigeon, the near demise of the bison, and the decimation of other species, private citizens

71. Cain, *supra* note 23, at 388. Tallow is the hard fat obtained from cattle, sheep, and other livestock.

72. Carrion is a component in the diets of many predatory animals. For example, carrion sometimes constitutes 35% of a coyote's diet. R. EWER, THE CARNIVORES 152-57 (1973).

73. Interestingly, some have postulated that after initial success of strychnine baiting in an area, coyotes learn to detect the strychnine in the baits and to avoid them. PREDATOR DAMAGE IN THE WEST, *supra* note 70, at 55. Strychnine poisoning has often been used on a grand scale. In 1970 alone, over 800,000 strychnine-poisoned tallow pellets were dropped from planes and jeeps. Cain, *supra* note 23, at 388.

74. *See infra* notes 164-73 and accompanying text.

75. P. MATTHIESSEN, *supra* note 39, at 58. A small number of panthers are thought to remain in the Everglades. Ellis, *supra* note 12.

76. *See generally* T. LUND, *supra* note 24; J. TREFETHEN, *supra* note 16.

created organizations devoted to wildlife welfare, supported the enactment of new wildlife conservation laws, and urged the reexamination of old maxims.[77] The various seasons, bag limits, and other limitations on legal shooting imposed by the new game agencies, together with controls on wildlife commerce, drove market gunners out of business (or into poaching).[78]

At the same time that the predator problem was disappearing in the East, it was becoming prominent in the West. By 1900, livestock grazing had overtaken crop agriculture as the dominant land use beyond the 100th meridian.[79] Ranchers turned great herds of cattle and sheep loose to graze, caring little whether they foraged from private or public lands.[80] The public land disposal laws would not allow ranchers to acquire legally the large amounts of land necessary for successful livestock operations in a semi-arid climate.[81] At the same time, lands available for homesteading constantly shrank: between 1872 and 1934, large blocks of western land were reserved as parks, forests, and refuges.[82] The Taylor Grazing Act of 1934[83] finally formalized long-standing arrangements whereby established western livestock operators were given preference for grazing on the remaining public lands that could not be given away.[84] The Taylor Act marked the closing of the public domain[85] and gave permanent shape to federal land holdings.[86] Consequently, about half of the land in the West remains in federal ownership.[87] The significance of federal ownership in this context is that the public lands have been the focal point of predator control efforts in this century. Those control efforts have shifted from local and state originated programs to a primarily federal program.

III. FEDERAL PREDATOR CONTROL: 1900-1960

This section traces the growth of federal responsibility for predator control. Federal pre-emption of state duties in this area appears historically anomalous and possibly adventitious because the United States was slow to involve itself in most aspects of wildlife management. Although the federal predator statute was limited and nonspecific, the federal agency that implemented it was by 1960 conducting a comprehensive, unselective eradication effort.

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77. *See* J. TREFETHEN, *supra* note 16, at 65.
78. *See* T. LUND, *supra* note 24, at 63, 105.
79. *See generally* P. FOSS, POLITICS AND GRASS ch. 2 (1960).
80. *See* Buford v. Houtz, 133 U.S. 320 (1890).
81. *See generally* G. COGGINS & C. WILKINSON, FEDERAL PUBLIC LAND AND RESOURCES LAW 119-38 (1981).
82. *See generally* P. GATES, A HISTORY OF PUBLIC LAND LAW DEVELOPMENT (1968).
83. 43 U.S.C. §§ 315-315r (1976).
84. *See generally* E. PEFFER, THE CLOSING OF THE PUBLIC DOMAIN 214-24 (1951).
85. *Id.* at 224.
86. *See* Coggins & Lindeberg-Johnson, *The Law of Public Rangeland Management II: The Commons and the Taylor Act*, 13 ENVTL. L. 1, 55-58 (1982).
87. *See* PUBLIC LAND LAW REVIEW COMMISSION, ONE THIRD OF THE NATION'S LAND 19 (1970). In 1970, the United States owned a total of 755,368,055 acres. As the Alaska National Interest Lands Conservation Act of 1980, 43 U.S.C. §§ 1631-1641 (Supp. IV 1980), is implemented, the number of acres in federal ownership will decrease.

The federal government first entered the area of general wildlife law around the turn of this century.[88] Initial involvement took several forms, one of which was creation of the Biological Survey within the Department of Agriculture. (Over the years, the Survey would be shifted and renamed: its administrative descendent is the present U.S. Fish and Wildlife Service.) In 1900 Congress passed the Lacey Act,[89] outlawing interstate commerce in species taken illegally in the state of origin.[90] The United States was also in the land management business by 1900: the Forest Service was chartered pursuant to the 1897 Organic Act[91] to manage timber and associated resources, including wildlife, in the new National Forest System;[92] and in 1916 the National Park Service was given life and a preservation mandate.[93]

For the most part, however, wildlife law was then thought to be within the near-exclusive prerogative of the several states. That exclusivity theory stemmed from narrow readings of the 1893 decision in *Geer v. Connecticut*[94] and from dicta in a 1912 opinion.[95] The theory rested on three grounds: the states had inherited the sovereign prerogative of the King;[96] the states owned all resident wildlife as trustees for the people;[97] and the federal establishment had been delegated no equivalent powers by the Constitution.[98]

The idea that state power over wildlife is exclusive never had solid foundation in law or fact.[99] Later opinions, notably *Missouri v. Holland*[100]

88. Before 1900, Congress occasionally enacted rules governing wildlife exploitation in the Territories. *See, e.g.*, North American Comm. Co. v. United States, 171 U.S. 110 (1898); The James G. Swan, 50 F. 108 (D. Wash. 1892). Hunting was outlawed in Yellowstone National Park by the Act of May 7, 1894, ch. 72, 28 Stat. 73.

89. 16 U.S.C. § 667e, 18 U.S.C. §§ 42-44 (1976).

90. *See* M. BEAN, *supra* note 24, at 111-25.

91. 16 U.S.C. §§ 472-482 (1976) (as amended).

92. *See generally*, Huffman, *A History of Forest Policy in the United States*, 8 ENVTL. L. 239 (1978).

93. 16 U.S.C. § 1 (1976). *See generally* W. EVERHART, THE NATIONAL PARK SERVICE (1972).

94. 161 U.S. 519 (1896).

95. The Abby Dodge, 223 U.S. 166 (1912).

96. In Martin v. Waddell, 41 U.S. (16 Pet.) 367 (1842), the Supreme Court placed the states in the position of successors to the royal prerogative, but Chief Justice Taney qualified that holding: the powers assumed by the states were "subject . . . to the rights since surrendered by the Constitution to the general government." *Id.* at 410. *See* M. BEAN, *supra* note 24, at 12-14.

97. In Geer v. Connecticut, 161 U.S. 519 (1896), the Supreme Court held that a state could forbid the export of game taken illegally within its boundaries and indicated that wildlife was owned by the states in trust for the people. *Id.* at 522, 526, 528. *Geer* was misread for the proposition that by virtue of their ownership, states had an exclusive wildlife management prerogative. The Supreme Court, however, has never held that the federal government was powerless to manage wildlife. *See generally* Coggins, *Wildlife and the Constitution: The Walls Come Tumbling Down*, 55 WASH. L. REV. 295, 313-21 (1980).

98. This proposition was suggested in dicta by the Supreme Court in The Abby Dodge, 223 U.S. 166 (1912). There the Court upheld application of a federal statute regulating the taking of sponges to areas beyond Florida's territorial waters while stating that Congress had no authority to regulate wildlife within a state's jurisdiction. *Id.* at 175. The *Abby Dodge* decision, however, was the first and last statement by the Supreme Court that the state ownership theory precluded federal wildlife regulation. *See* M. BEAN, *supra* note 24, at 23; Coggins, *supra* note 97, at 307.

99. Coggins, *supra* note 97, at 305.

100. 252 U.S. 416 (1920). The Supreme Court upheld the constitutionality of the Migratory Bird Treaty Act of 1918, 16 U.S.C. §§ 703-711 (1976), as a valid exercise of the treaty power and

in 1920, *Hunt v. United States*[101] in 1928, and *Kleppe v. New Mexico*[102] in 1976, upheld federal power over wildlife regulation in several contexts based on several constitutional powers.[103] The jurisdictional allocation issue nevertheless has been heated throughout this century. States have protested against nearly every federal regulatory initiative,[104] and Congress, while eroding state primacy, has been careful to proclaim that states retain primary responsibility for fish and game regulation.[105] In two areas of wildlife regulation, however, an early and pervasive federal presence was not only tolerated, but ardently welcomed, by state agencies. One area was funding: since the mid-1930's, federal excise tax receipts have been rebated directly to state game agencies under certain stipulations.[106] The other was predator control, especially on the public lands in the West.

At the turn of the century, cattle and sheep raisers in the West estimated their livestock losses to predators at millions annually.[107] Before 1909, the Biological Survey operated as an advisory service, publishing bulletins on trapping wolves and poisoning coyotes.[108] Not satisfied with a limited backup function, Survey personnel concluded that the predation problem could be solved only by a concentrated interstate campaign of predator destruction.[109]

The Survey first favored a control method known as denning—hunting out wolf and coyote dens in the spring and killing the young pups in them.[110] Denning does not protect livestock from depredations by older, experienced individuals in the interim, but it is a relatively efficient way to

established that, under the Supremacy Clause, a treaty and its implementing legislation take precedence over conflicting state regulation. *See* M. BEAN, *supra* note 24, at 24-25.

101. 278 U.S. 96 (1928) (Secretary of Agriculture may remove excess deer on national forest land to reduce overbrowsing and need not comply with state game laws).

102. 426 U.S. 529 (1976). In *Kleppe*, the Supreme Court upheld the constitutionality of the Wild and Free-Roaming Horses and Burros Act, 16 U.S.C. §§ 1331-1340 (1976), on federal lands, even when it conflicted with state law and management practices. The Court's rationale was based upon an expansive reading of the Property Clause to include congressional power to regulate and protect wildlife living on federally owned lands.

103. *See also* United States v. Helsley, 615 F.2d 784 (9th Cir. 1979); Cerritos Gun Club v. Hall, 96 F.2d 620 (9th Cir. 1938). *See generally* Coggins, *supra* note 97; Coggins & Hensley, *Constitutional Limits on Federal Power to Protect and Manage Wildlife: Is the Endangered Species Act Endangered?*, 61 IOWA L. REV. 1099 (1976).

104. *See* cases cited *supra* notes 100-02; New Mexico Game Comm'n v. Udall, 410 F.2d 1197 (10th Cir. 1969), *cert. denied*, 396 U.S. 961 (1969) (Secretary of Interior may have deer killed on national park lands for research purposes without compliance with state game laws).

105. *See, e.g.*, The Federal Land Policy and Management Act of 1976, 43 U.S.C. § 1732(b) (1976).

106. The Federal Aid in Wildlife Restoration (Pittman-Robertson) Act, 16 U.S.C. §§ 669-669i (1976), and the Federal Aid in Fish Restoration (Dingell-Johnson) Act, 16 U.S.C. §§ 777-777k (1976), provide the principal means for providing federal assistance to states for acquisition, restoration, and maintenance of wildlife and fish habitat. Under both acts, funds derived from federal excise tax on the sale of firearms, ammunition, and fishing gear are apportioned among the states on the basis of geographic area and the number of hunting and fishing license holders in the states. *See generally* M. BEAN, *supra* note 24, at 236-54.

107. P. MATTHIESSEN, *supra* note 39, at 194.

108. Note, *Predator Control and the Federal Government*, 51 N.D.L. REV. 787, 801 n.116 (1975).

109. P. MATTHIESSEN, *supra* note 39, at 194-95.

110. Cain, *supra* note 23, at 387.

eliminate predators entirely. At some point, with the younger generations eliminated, the remaining population cannot perpetuate itself.

The Survey also recommended that rangers in the national forests begin widespread predator trapping operations.[111] Indiscriminate trapping,[112] however, sometimes kills or maims the pets and livestock which predator killing is intended to protect.[113] Trapping is also less efficient than some other methods because a great number of hours must be spent in setting the traps and in retrieving trap victims. Further, although traps can be set on trails frequented by predators and at places where a predator is most likely to enter a livestock range, the more efficient predators learn to avoid traps.[114] The trapped individuals thus tend not to be the problem predators, even if they belong to the predatory species.[115]

Until 1909 federal participation in predator control was only advisory.[116] The Biological Survey's lack of funds and authority to lead a more active role forced it to refuse private requests for more concrete assistance.[117] Even so, predator killing by denning, trapping, poisoning, and hunting proceeded apace in the West: in 1907 over 1800 wolves and 18,000 coyotes were killed pursuant to public programs.[118] Nearly all states still offered bounties on wolves, coyotes, bears, mountain lions, and foxes,[119] although bounty programs still were tarnished by wide-scale fraud and complicated by litigation over the validity of appropriations and payments.[120]

In ways that now appear to have been largely inadvertent, the federal government gradually superseded, subsumed, or co-opted state and local predator control programs. The usual adamant state resistance to federal

111. P. MATTHIESSEN, *supra* note 39, at 194-95. Livestock grazing is allowed in parts of national forests. *See* 36 C.F.R. §§ 222.1-222.11 (1981).

112. Traps can be made for specific animals, but are still generally indiscriminate in killing wildlife species. Cain, *supra* note 23, at 386.

113. *Painful Trapping Devices, Hearings Before the Subcomm. on Fisheries and Wildlife Conservation and the Environment, House Comm. on Merchant Marine and Fisheries*, 94th Cong., 1st Sess. 1-4 (1975). *Cf. Leopold Report, supra* note 60, at 36.

114. U.S. FISH AND WILDLIFE SERVICE, U.S. DEP'T OF INTERIOR, FINAL ENVIRONMENTAL IMPACT STATEMENT, MAMMALIAN PREDATOR DAMAGE MANAGEMENT FOR LIVESTOCK PROTECTION IN THE WESTERN UNITED STATES 22 (1979) [hereinafter cited as PREDATOR EIS]. *Cf.* PREDATOR DAMAGE IN THE WEST, *supra* note 70, at 52.

115. An enormous number of victims were not targets. For example, in 1977 trapping by the Fish and Wildlife Service under the Animal Damage Control Program conducted in the West killed 1,369 badgers, 2,698 opossums, 1,367 porcupines, 3,345 raccoons, 6,348 skunks, 11 armadillo, 682 beaver, 20 deer, 273 dogs, 73 cats, 49 goats, 4 groundhogs, 100 kit foxes, 52 muskrat, 154 nutria, 98 rabbits, and 14 swift foxes, among others. PREDATOR EIS, *supra* note 114, at 113. In 1977, 44,982 animals were taken with steel traps, only 25,026 of which were the target coyotes. *Id.*

116. *See id.* at 20, 113.

117. The Biological Survey did not receive its first appropriation from Congress until 1909. Act of Mar. 4, 1909, ch. 301, 35 Stat. 1051.

118. P. MATTHIESSEN, *supra* note 39, at 195.

119. *See, e.g.*, 1891 Cal. Stats. 280, ch. 198; 1901 Idaho Sess. Laws 205; 1899 S.D. Sess. Laws, ch. 135, ¶ 1; 1903 Mont. Laws 166, ch. 94.

120. Although the western states had laws providing for the payment of bounties, appropriations from the states' general funds for bounty payments were sometimes lacking. In California, large numbers of claims were not paid because the legislature had not made a specific appropriation for such claims as required by the California Constitution until 1901. 1901 Cal. Stats. 646, ch. 214, authorized suits against the state for bounty claims. *See* Bickerdike v. State, 144 Cal. 681, 78 P. 270 (1904).

wildlife management never surfaced as long as the United States paid most of the cost.

A. *Federal Legislative Action*

In 1909 Congress appropriated money to the Department of Agriculture for "experiments and demonstrations in destroying noxious animals."[121] The Biological Survey appropriation was increased in 1914 to $115,000 for more research on ways to kill wolves, prairie dogs, and other animals injurious to agriculture and animal husbandry.[122] Congress then doubled the appropriation in 1915, specifying that $125,000 be used on the public domain and in national forests to destroy injurious animals.[123] These appropriation statutes reflected the view that predation was any damage to private property, and that destruction of the culprits was the solution.[124]

The Branch of Predator and Rodent Control (PARC) was created as a subdivision of the Biological Survey in 1915.[125] PARC divided the West into districts and appointed in each a supervisor to direct groups of field agents in mass strychnine poisoning campaigns.[126] By about 1924, wolf populations had declined precipitously in the West, but officials still regarded mountain lions, coyotes, foxes, bears, and eagles as major problems.[127]

In 1930 PARC requested an appropriation of one million dollars to kill predators and rodents, prompting a bitter attack on the federal poisoning program by the American Society of Mammalogists.[128] Congress responded by conditioning the 1931 fiscal year appropriation on PARC's promises to reduce the scope of the killing program and to avoid destruction of non-target species.[129] Less than a year later, it became apparent that Congress did not intend to make these promises a permanent national policy.

Statutory authority for predator control activities undertaken by the Department of Agriculture was unclear until 1931, when Congress authorized and directed the Secretary of Agriculture to engage in predator control.[130] Pursuant to the Animal Damage Control Act of 1931 (ADC

121. Act of Mar. 4, 1909, ch. 301, 35 Stat. 1051.

122. Act of June 30, 1914, ch. 131, 38 Stat. 415, 434. Appropriations were increased in 1914 due to the increased demand for beef to feed the Army in World War I. Note, *supra* note 108, at 801 n.116.

123. Act of Mar. 4, 1915, ch. 144, 38 Stat. 1086, 1105.

124. Congress also directed that these early appropriations be used to investigate the food habits of birds and mammals in relation to agriculture, forestry, and horticulture, Act of Mar. 4, 1915, ch. 301, 38 Stat. 1086, 1105, but the Biological Survey focused instead on the authorization to destroy predatory animals.

125. Note, *supra* note 108, at 801.

126. *Id.* (citing F. MCNULTY, MUST THEY DIE! 13-14 (1971)); P. MATTHIESSEN, *supra* note 39, at 195.

127. *See* P. MATTHIESSEN, *supra* note 39, at 195-97.

128. Note, *supra* note 108, at 802.

129. *Id.* The fiscal appropriation for predator control was reduced from $1,000,000 to $680,000. *Id.* at 802 n.125. *See* Act of May 27, 1930, ch. 341, 46 Stat. 392, 414-15.

130. Prior to the 1931 Act, the Organic Act of 1897, 16 U.S.C. § 551 (1976) (as amended) may have been the basis of authority for control operations. M. BEAN, *supra* note 24, at 263 n.3. The

Act),[131] the Department could eradicate, suppress and control animals injurious to agriculture, horticulture, forestry, animal husbandry, game, furbearers, or birds on private as well as public lands.[132] Ground squirrels, prairie dogs, jack rabbits, and gophers were singled out in the legislation, along with the carnivorous animals that prey on them.[133] Congress accepted the principle that human economic goals ought to be protected from nonhuman competition. Hunters and fur trappers as well as ranchers were the beneficiaries of this federal initiative; other interested persons without a monetary stake—such as wildlife biologists and birdwatchers—were not accommodated.[134]

The constitutionality of the 1931 Act was never challenged, probably because of universal relief in state agencies that this burden was lifted from them. It would otherwise seem to have been a significant intrusion into the traditional state prerogative. Although the 1931 Act would almost certainly be upheld today,[135] the question was less clear in the 1930's, especially since any connections between the terms of the Act and federal power under the treaty, commerce, or property clauses are obscure.[136]

The ADC Act of 1931 apparently was a hasty afterthought that has endured only because of its obscurity. The species it singled out do not include some of the better known predators such as bears, eagles, or alligators, and it does not specifically mention certain pests such as crows or rattlesnakes. The Act spells out no central aim or purpose; its implicit premise is that all "injurious" species should be destroyed. The authorization for actual destruction is a short rider to the text on investigations and experiments. No competing considerations are dealt with, and no caveats or provisos (other than one urging cooperation) are appended. Congress

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Organic Act applied to national forests and directed the Secretary of Agriculture to "make provisions for the protection against destruction by fire and depredations upon the public forests." 16 U.S.C. § 551 (1976).

131. 7 U.S.C. § 426 (1976).

132. M. BEAN, *supra* note 24, at 264.

133. The Act authorized the Secretary

> to conduct such investigations, experiments, and tests as he may deem necessary in order to determine, demonstrate, and promulgate the best methods of eradication, suppression, or bringing under control on national forests and other areas of the public domain as well as on State, Territory, or privately owned lands of mountain lions, wolves, coyotes, bobcats, prairie dogs, gophers, ground squirrels, jack rabbits, and other animals injurious to agriculture, horticulture, forestry, animal husbandry, wild game animals, fur-bearing animals, and birds, and for the protection of stock and other domestic animals through the suppression of rabies and tularemia in predatory or other wild animals; and to conduct campaigns for the destruction or control of such animals: *Provided*, That in carrying out the provisions of this section the Secretary of Agriculture may cooperate with States, individuals, and public and private agencies, organizations, and institutions.

7 U.S.C. § 426 (1976).

134. The Act authorized destruction of animals injurious to "agriculture, horticulture, forestry, animal husbandry, wild game animals, fur-bearing animals, and birds." *Id.* The Act's reference to bird protection likely was added to provide the Secretary of Agriculture with authority to enforce bird preservation treaties with other nations. *See* Migratory Bird Treaty Act of 1918, 16 U.S.C. §§ 703-711 (1976); Coggins & Patti, *supra* note 26, at 170-74.

135. Congressional power under the commerce clause alone probably would suffice. *See, e.g.*, Palila v. Hawaii Dep't Land & Natural Resources, 471 F. Supp. 985 (D. Hawaii 1979), *aff'd*, 639 F.2d 495 (9th Cir. 1980); cases cited *supra* notes 100-03.

136. *See generally* Coggins & Hensley, *supra* note 103, at 1122-43.

in 1931 paid little heed to then-emerging notions of biological diversity or to aesthetic wildlife values.

In 1940, Congress repealed the ADC Act insofar as it authorized killing bald eagles; the Bald Eagle Act[137] sought to protect the declining national symbol by outlawing bald eagle killing without federal permission.[138] More fundamentally, events in the 1920's led to reappraisals of federal predator programs, which in turn would later swing popular and legislative sentiment away from all-out war on competing species.

B. *Federal Predator Control in Action*

During the period from 1900 to 1924, two interest groups began to put additional pressures on federal predator control administrators. The livestock raisers had been the major force behind predator control policy, and they redoubled their efforts. At the same time, however, conservationists too began urging the Agriculture Department to accommodate their conflicting interests. Some wildlife conservationists still thought of predators as evil, bloodthirsty animals (such as wolves) who killed kind, gentle animals (such as deer).[139] Some sport hunters saw predation as a threat to their recreational enjoyment; many felt that the reduction or elimination of natural predators would result in more wild game for human exploitation.[140] Both attitudes retarded for decades scientific progress toward understanding ecological relationships.

Early state and federal wildlife professionals learned the hard way that predator control programs had ecological as well as economic costs. Their Kaibab Plateau program is still cited as an instructive example of the harm caused by ignorant tampering with natural balances. Early game conservation groups convinced the President in 1906 to designate the Kaibab portion of the Grand Canyon Forest Reserve as the Grand Canyon National Game Preserve.[141] But the management policies governing the Preserve turned that conservation victory into disaster. At the time of reservation, the deer herd on the Kaibab Preserve numbered around 4,000.[142] To increase the deer population, the managers then prohibited deer hunting, and government hunters systematically eliminated all predators.[143] By 1924 over 6,000 wolves, coyotes, and mountain lions—and an uncounted number of golden eagles—had been killed on the preserve.[144] In the absence of both natural and human predators, the deer population exploded to an estimated 100,000.[145] The Kaibab was also supporting some 20,000 sheep and cattle, and available browse was quickly

137. Act of June 8, 1940, §§ 2-5, 54 Stat. 251 (current version at 16 U.S.C. §§ 668-668d (1976)).
138. *Id.* § 668. *See infra* notes 219-27 and accompanying text.
139. P. MATTHIESSEN, *supra* note 39, at 198. *Cf.* C. AMORY, MAN KIND? (1974).
140. P. MATTHIESSEN, *supra* note 39, at 195.
141. *See* D. ALLEN, *supra* note 43, at 235; P. MATTHIESSEN, *supra* note 39, at 197. The area comprises approximately one million acres. D. ALLEN, *supra* note 43, at 235.
142. D. ALLEN, *supra* note 43, at 235; P. MATTHIESSEN, *supra* note 39, at 198.
143. D. ALLEN, *supra* note 43, at 235.
144. P. MATTHIESSEN, *supra* note 39, at 197.
145. D. ALLEN, *supra* note 43, at 235; P. MATTHIESSEN, *supra* note 39, at 198.

depleted. Attempts to control the deer population by shooting were aborted by public sentiment and state injunctions.[146]

> In the winter of 1924 the vegetation made its last stand and went down in defeat. Deer died by the thousands and . . . those that lived ate every leaf and twig till the whole country looked as though a swarm of locusts had swept through it, leaving the range (except for the taller shrubs and trees) torn, gray, stripped, and dying. In many areas, 80 to 90 percent of the forage was gone.[147]

Deer hunting was later resumed, but the deer population was so unhealthy and the environment so barren that the population continued to decline; in 1940 only about 10,000 deer remained.[148] The productivity of the area has never recovered.

The Kaibab disaster is not the only early example of adverse ecological consequences stemming from intensive predator elimination. When Congress created the National Park System in 1916, it authorized the Secretary of the Interior to "provide in his discretion for the destruction of such animals and of such plant life as may be detrimental to the use of any said parks, monuments, or reservations."[149] The Park Service exterminated wolves and mountain lions in Yellowstone National Park early in this century,[150] and excess elk have been a problem there ever since. As recently as 1957, 7,000 elk (half the northern Yellowstone herd) had to be killed because the mistakes made many years earlier could not be corrected.[151]

Wildlife management remains largely a primitive art with only tenuous foundations in the biological sciences.[152] The management art is more a century's trial-and-error experience than a body of independent knowledge, and it is more ideological and political than theoretical.[153] Its historically narrow aims have been broadened greatly in recent years, but in some ways the past still holds the present in thrall. Past professional lore has its own strong inertia; managers are more prone to tinker with methods than to reexamine their basic premises. Even after the Kaibab disaster, PARC not only failed to alter its goals or methods, it even expanded its poisoning campaign.[154] The winds of change, however, had by then begun to blow.

Research in the 1930's demonstrated that much predator control was ineffective and unnecessary to game animal management.[155] From new

146. D. ALLEN, *supra* note 43, at 235; P. MATTHIESSEN, *supra* note 39, at 198.
147. D. ALLEN, *supra* note 43, at 235.
148. *Id.* at 236.
149. 16 U.S.C. § 3 (1976).
150. P. MATTHIESSEN, *supra* note 39, at 198-99.
151. *Id.*
152. *See generally* Coggins & Ward, *The Law of Wildlife Management on the Federal Public Lands*, 60 OR. L. REV. 59 (1981). *Cf.* Poole & Trefethen, *The Maintenance of Wildlife Populations*, in WILDLIFE AND AMERICA 339 (H. Brokaw ed. 1978).
153. *See* Poole & Trefethen, *supra* note 152, at 348. *Cf.* Coggins & Ward, *supra* note 152, at 64-75; Dingell & Potter, *Federal Initiatives in Wildlife Management*, in WILDLIFE AND AMERICA 302 (H. Brokaw ed. 1978).
154. Note, *supra* note 108, at 801-02.
155. Connolly, *Predators and Predator Control*, in BIG GAME OF NORTH AMERICA 369, 370-71 (J. Schmidt & D. Gilbert eds. 1978).

"ecosystem" concepts taught in universities, the feeling grew among wildlife biologists and managers that predator control for the prevention of damage to other wildlife was a futile, destructive enterprise.[156] The father of modern wildlife management, Aldo Leopold, had previously fought the war against "varmints,"[157] but he now led the movement toward new academic and managerial directions.[158]

The National Park Service (NPS) was the first agency to heed the biological studies of predation. In the 1930's, the NPS officially adopted the policy that "every species shall be left to carry on its struggle for existence unaided, as being to its greatest ultimate good, unless there is real cause to believe that it will perish if unassisted."[159] To implement that policy, the NPS decreed that "no native predator shall be destroyed on account of its normal utilization of any other park animal, excepting if that animal is in immediate danger of extermination, and then only if the predator is not itself a vanishing form."[160]

Neither the Department of Agriculture nor other divisions in the Department of the Interior followed the NPS to any great extent, and extermination remained the policy on many public lands other than national parks. The federal PARC continued its predator poisoning campaign, although the responsibility for carrying out the provisions of the 1931 Act was transferred to the Department of the Interior in 1939.[161] Because of their entrenched position, livestock interests gained an even more powerful voice in the federal predator control program by the transfer.[162]

During the 1930's and 1940's, many states still operated their own predator control programs. As federal predator control efforts increased, however, the states partially withdrew from direct operations and assumed a cooperative role in the federal program, contributing funds and administrative assistance.[163]

In 1944 PARC began using a new poison, sodium monofluoracetate (compound 1080), in the federal poisoning program.[164] Like strychnine, compound 1080 can be incorporated into baits and broadcast throughout the environment, and it also remains effective for long periods of time.[165]

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156. *Id.*

157. In 1919 Leopold contended that "game protection makes the killing of varmints necessary." Leopold, *Varmints*, 12 PINE CONE, Jan. 1919, at 1, *reprinted in* S. FLADER, THINKING LIKE A MOUNTAIN: ALDO LEOPOLD AND THE EVOLUTION OF AN ECOLOGICAL ATTITUDE TOWARD DEER, WOLVES AND FORESTS (1974). By 1930 Leopold still favored general predator control. M. BEAN, *supra* note 24, at 265 n.7.

158. *See* Poole & Trefethen, *supra* note 152, at 341-42.

159. P. MATTHIESSEN, *supra* note 39, at 198.

160. *Id.*

161. Apparently the Department of the Interior had created its own Division of Predator and Rodent Control (PARC) within the predecessor to the Fish and Wildlife Service in 1925. This PARC division then assumed responsibilities under the 1931 Act that had been transferred to the Department of the Interior. PREDATOR DAMAGE IN THE WEST, *supra* note 70, at 36.

162. The Taylor Grazing Act of 1934, 43 U.S.C. §§ 315-315r (1976), directed the Secretary of the Interior to establish grazing districts on the public domain and to regulate their occupancy and use. Ranchers quickly assumed control of the grazing program through advisory boards. *See, e.g.*, P. Foss, *supra* note 79, at 136.

163. Cain, *supra* note 23, at 380.

164. Note, *supra* note 108, at 803.

165. Cain, *supra* note 23, at 388.

From 1944 to 1972, PARC used the poison to kill untold thousands of coyotes, pocket gophers, ground squirrels, prairie dogs, and field mice. As many as 15,000 compound 1080 baits were set out each year in the mountains and rangelands of the West, including many places where livestock was not grazed.[166] Compound 1080 is a somewhat selective poison in that some species are more tolerant to it,[167] but it is lethal to carrion eaters, thus selecting in favor of predators who seek live food.[168]

At about the same time that use of compound 1080 became widespread, the controversial "coyote-getter" was also employed as a predator control method.[169] The coyote-getter is a mechanism loaded with a cartridge containing poison (usually sodium cyanide); it is partially buried in the ground, with an attractant such as rabbit fur attached to the top and a luring scent smeared on it.[170] Any curious or hungry animal that pulls on the bait receives a discharge of poison directly in its mouth. The poison acts rapidly, and death is almost immediate.[171] Because coyote-getters kill and injure animals other than predators, including human beings, there has been considerable opposition to their use.[172]

In addition to strychnine, sodium cyanide, and compound 1080, PARC also used the poison thallium sulfate in its predator control program.[173] The use of thallium sulfate was terminated in the late 1940's, however, because it was hazardous and because it was replaced by the more effective compound 1080.[174] Aerial hunting of predators also became popular as a control method; it is more species-specific than poisons and does less damage to the environment.[175]

By 1960 the federal government had assumed primary responsibility for killing competitor species, a jurisdictional incursion oddly welcomed by the states. Nevertheless, conflicting cross-currents swirled around the various federal wildlife management programs. On one hand, the NPS (and, to a lesser extent, other land management agencies) followed emerging academic opinion that predator control as practiced was ecologically counterproductive and economically inefficient. On the other hand, however, PARC continued its extermination efforts with new, more convenient, and more lethal technologies. All the while, Congress took no active part.

IV. SHIFTING FEDERAL PREDATOR CONTROL POLICIES: 1960-1982

This part begins by outlining the problems of unselectivity, tort liabil-

166. *Id.*
167. Note, *supra* note 108, at 803.
168. Cain, *supra* note 23, at 388-89.
169. *Id.* at 380.
170. Robinson, *The "Humane Coyote-Getter" vs. the Steel Trap in Control of Predatory Animals*, 37 J. WILDLIFE MGMT. 179, 180 (1973).
171. *Id.*
172. Cain, *supra* note 23, at 388; Robinson, *supra* note 170, at 184-85; *Leopold Report*, *supra* note 60, at 36. *See also infra* notes 197-204 and accompanying text.
173. PREDATOR DAMAGE IN THE WEST, *supra* note 70, at 54.
174. *Id.* Thallium sulfate was not officially cancelled as an operational method until 1967. *Id.*
175. Cain, *supra* note 23, at 387; *Leopold Report*, *supra* note 60, at 35-36.

ity, and cost-effectiveness of conventional predator killing means that were evident by 1960. Thereafter, it traces the shifting federal policies up to the present. Section A sketches the statutory changes that affect predators without ever dealing with them as a class. Section B summarizes two independent studies of animal damage control programs. Section C describes the circular executive response to the studies and statutes, and section D criticizes the administrative refusal to use the new approaches suggested by the scientific studies.

The seeds of doubt planted in the 1930's began to bloom in the minds of wildlife managers during the 1960's. Aldo Leopold's popular and professional repute insured that his predator control position views would be influential.[176] Other prominent wildlife management theorists, notably Durwood Allen,[177] undertook deep and sometimes scathing investigations into the history and practice of predator control.[178] Popular books by informed conservationists helped to focus public opinion on wildlife management.[179] Panels of eminent scientists were highly critical of federal programs,[180] and Congress took several tentative steps toward protection of some notorious predators.[181] All of these developments contributed to significant changes in the attitudes, practices, and law associated with predator control. The reevaluation, however, is not complete.

In spite of sporadic criticism, federal predator control programs had few major opponents until the 1960's.[182] By that time yearly expenditures had grown dramatically.[183] PARC still favored poisoning, trapping, denning, and aerial shooting as primary control methods. In 1963 alone, PARC set 39,910 traps, broadcast 151,942 pounds of poison grain, set 708,130 poisoned baits, and distributed 64,921 coyote-getters.[184] The 1963 operations in the western states caused the deaths of at least 842 bears, 20,780 bobcats, 89,653 coyotes, 2,771 red wolves, eight gray wolves,[185] and 294 mountain lions.[186] Also, 76,415 "nontarget" animals, including badgers, beavers, foxes, opossums, porcupines, raccoons, and skunks, were recorded casualties of PARC poisons.[187] The eradication campaign clearly had not lost its momentum.

These figures do not tell the whole story, however, because they represent only animals confirmed as PARC victims. Other nontarget animals killed by PARC's indiscriminate poisons and traps may have included

176. *See* Poole & Trefethen, *supra* note 152, at 341-42; *supra* notes 157-58 and accompanying text.

177. *See* D. ALLEN, *supra* note 43, at 239-57.

178. *See also* P. MATTHIESSEN, *supra* note 39, at 192-200.

179. *E.g.*, T. ALLEN, VANISHING WILDLIFE OF NORTH AMERICA (1974). *Cf.* C. AMORY, *supra* note 139; R. CARSON, *supra* note 26.

180. *See infra* section IV, B, at 848-52.

181. *See infra* section IV, A, at 843-48.

182. M. BEAN, *supra* note 24, at 264.

183. In 1940 expenditures were $2,714,023; by 1950 they had increased to $4,629,053. Note, *supra* note 108, at 803 n.130.

184. *Id.* at 803 n.137 (citing T. ALLEN, *supra* note 179, at 111).

185. By 1963, gray wolves had been eradicated from most areas in the lower forty-eight states. *See* P. MATTHIESSEN, *supra* note 39, at 196-97.

186. Cain, *supra* note 23, at 391, table 2.

187. *Id.*

songbirds and endangered species such as the California condor, the blackfooted ferret, the bald eagle, and the San Joaquin kit fox.[188] Further, these body counts do not reflect the large toll on predator populations taken legally and otherwise[189] by other federal agencies, states, counties, private organizations, and individuals.[190] Many states still offered bounties in 1963, and some had their own predator control programs.[191] The value of predator furs in the fashion industry provided additional monetary incentives,[192] and landowners continued to kill certain species on sight. Progressive wildlife management theorists realized that the killing was getting out of hand.

The federal predator control efforts were undercut in the 1960's by growing awareness of economic and biological facts: not only were the programs becoming very costly, but, in terms of controlling coyotes, the main targets, they were ineffective as well. In some instances, the efforts may have been counterproductive. While killing rose steadily during the 1950's and 1960's,[193] coyote numbers in the West remained relatively constant.[194] Predation on sheep actually increased during this period, however, and many felt that the predation problem was worse than ever. Subsequent studies pinned the blame for increasing predation on the predator control program itself; the increase was obviously due not to coyote population size, but rather to the behavior of individual coyotes.[195] Unselective use of carcasses poisoned with compound 1080 tended to kill coyotes with a predilection for carrion instead of for live lamb, thus giving immediate and evolutionary advantages to the more aggressive individuals.[196] In other words, by killing disproportionately large numbers of relatively benign coyotes, PARC was in effect assisting in the breeding of a superpredator coyote.

Yet another problem faced by PARC was the growing realization that its predator control devices were dangerous to humans as well. A small but growing body of law under the Federal Torts Claims Act[197] and state statutes tended to impose liability on the agency when its negligence caused human injury. One of the first cases involved a hunter in Oregon, whose dog was attracted to the meat bait for a coyote-getter.[198] In pulling the dog away, the hunter received a discharge of potassium cyanide in his face, causing him eye and chest injuries. PARC had placed the coyote-getter on unfenced lands and had neglected to put up warning signs. The

188. *See id.* at 389-90.

189. *See, e.g., Hearings Before the Senate Subcomm. on Appropriations, Predator Control, and Related Problems*, 92d Cong., 1st Sess. 185-86 (1971) (illegal bald eagle killing).

190. *Leopold Report, supra* note 60, at 29-30.

191. D. ALLEN, *supra* note 43, at 274-75.

192. Coyotes as well as bobcats, cougars, wolves, and foxes are now a very valuable resource. *See* Henderson & Boggess, *A Public Education Program of Predator Damage Control*, 42D N. AM. WILDLIFE CONF. 323, 328 (1975).

193. *See* PREDATOR DAMAGE IN THE WEST, *supra* note 70, at 39, figure D-1.

194. Cain, *supra* note 23, at 388.

195. *Id.* at 388-89.

196. *Id.* at 389.

197. 28 U.S.C. §§ 2674, 2680(a), 1346(b) (1976).

198. Worley v. United States, 119 F. Supp. 719 (D. Or. 1952).

court found that PARC's actions were negligent per se, especially in view of the Oregon law prohibiting spring or set-guns,[199] and rejected the defense that the hunter was merely a licensee.[200]

A somewhat similar case in 1963 resulted in a verdict for $62,500 in favor of a boy who lost an eye to a coyote-getter.[201] PARC had placed the coyote-getter to kill foxes that preyed upon turkeys and told the landowner that it was not dangerous unless tampered with.[202] The boy investigated some dead foxes, as boys will do, and accidentally stepped on the device (of which only an inch or so was visible). The court held that placement of the coyote-getter violated the North Dakota law prohibiting spring guns or other such trap devices.[203] It further found that the PARC agent was negligent in inadequately posting the area with caution signs when he knew or ought to have known that the land on the farm was hunted, and that the loss of the boy's eye was due to the agent's negligence.[204]

These cases, and similar instances which did not result in reported judicial opinions,[205] helped professional managers realize that the most convenient methods of killing are not necessarily the best in the long run. Taken together, the lack of selectivity, the cost-ineffectiveness, and the human dangers inherent in PARC's eradication program contributed to critical reevaluations of the program. Before recounting the findings of the prominent studies of predator control, the growth of federal wildlife law should be explored in order to define the legal context in which predator control operates.

A. *The Law: Congress Approaches Predators Gingerly*

New wildlife priorities in the federal statutory schemes slowly emerged during the 1960's. Congress often recognized wildlife in general as a valuable resource, but not until the 1970's did Congress begin dictating detailed management rules. Even then, the species singled out for special treatment included the large carnivores only by population happenstance.[206] Congress has not acted favorably on any of the "predators' rights" bills introduced during the past two decades.[207]

In the Multiple-Use, Sustained-Yield Act of 1960,[208] Congress elevated "wildlife and fish" to equal status with other renewable resources in

199. OR. COMP. L. ANN. § 23-1201 (1940).
200. *Worley*, 119 F. Supp. at 721-22.
201. Fritz v. United States, 216 F. Supp. 156 (D. N.D. 1963).
202. *Id.* at 157-58.
203. *Id.* at 159 (citing N.D. CENT. CODE § 12-27-26).
204. *Id.* at 160. In Molohan v. United States, 206 F. Supp. 388, 393 (D. Mont. 1962), an earlier case, the Montana Federal District Court denied recovery to a trespasser on fenced land for the loss of two hunting dogs that died after eating from a horse carcass laced with compound 1080, holding that warning signs were sufficient to avoid an imputation of negligence.
205. For example, in 1976 a Boy Scout on a backpacking trip accidentally set off a coyote-getter and received a face full of cyanide. Cain, *supra* note 23, at 388.
206. Except for bald eagles, Congress has not directly protected any predatory species by name; instead, federal protection is given to wolves, bears, etc., only when they are administratively determined to be endangered or threatened. *See infra* notes 245-52 and accompanying text.
207. *See* M. BEAN, *supra* note 24, at 269; Note, *supra* note 108, at 815-19.
208. 16 U.S.C. §§ 528-531 (1976).

the management of the national forests.[209] The public domain was placed under a similar mandate in 1964.[210] In 1966 Congress consolidated the miscellaneous parcels previously withdrawn as wildlife areas into the National Wildlife Refuge System.[211] Other statutes, such as the Fish and Wildlife Coordination Act,[212] emphasized wildlife, but usually in a cursory or hortatory fashion.[213]

The Airborne Hunting Act of 1971,[214] passed in response to a crusade to save wild horses,[215] originally prohibited only the shooting of those feral beasts from airplanes and motorized vehicles. Congress extended its reach to all species by an amendment in 1971.[216] Federal and state governments may allow such hunting by permit, however, and predator control personnel routinely receive such permits.[217]

In two other federal statutes enacted during the 1960's, Congress intended to protect predatory species.[218] The Bald Eagle Protection Act of 1940[219] had previously made criminal the taking or possession of any bald eagle or any of its parts, eggs, or nests.[220] As bald eagles feed primarily on carrion and fish, they seldom constitute a threat to livestock.[221] But because immature bald eagles are difficult to distinguish from golden eagles, which do occasionally kill newborn goats and sheep, bald eagles continued to suffer from mistaken or illegal taking.[222] To further buffer the national symbol from supposed cases of misidentification, Congress in 1962 extended to golden eagles the protections previously accorded bald eagles

209. *See* Coggins, *Of Succotash Syndromes and Vacuous Platitudes: The Meaning of "Multiple Use, Sustained Yield" for Public Land Management*, 53 COLO. L. REV. 229 (1981).

210. Classification and Multiple Use Act of 1964, 43 U.S.C. §§ 1411-1418 (expired 1970). The Bureau of Land Management later received permanent multiple use, sustained yield planning and management authority in the Federal Land Policy and Management Act of 1976, 43 U.S.C. §§ 1701-1782 (1976).

211. National Wildlife Refuge System Administration Act of 1966, 16 U.S.C. §§ 668dd-668ee (1976).

212. 16 U.S.C. §§ 661-667e (1976). *See* Veiluva, *The Fish and Wildlife Coordination Act in Environmental Litigation*, 9 ECOLOGY L.Q. 489 (1981).

213. *See, e.g.*, The Anadromous Fish Conservation Act of 1965, 16 U.S.C. § 757 (1976).

214. 16 U.S.C. § 742j-1 (1976).

215. The 1959 predecessor law made it a crime to use aircraft or motor vehicles to hunt wild horses and burros on the public land, 18 U.S.C. § 47 (1970), but the prohibition of such hunting was not sufficient protection for wild and free-roaming horses and burros. M. BEAN, *supra* note 24, at 105. Later Congress extended protection by passing the Wild Free-Roaming Horses and Burros Act of 1971, 16 U.S.C. §§ 1331-1340 (1976 & Supp. IV 1980).

216. The Act now makes it a crime to shoot "any bird, fish or other animal" while the shooter is airborne. 16 U.S.C. § 742j-1(a)(1) (1976). The Act's constitutionality was upheld in United States v. Helsley, 615 F.2d 784 (9th Cir. 1979). *Accord* United States v. Bair, 488 F. Supp. 22 (D. Neb. 1979).

217. *See* Guilbert, *supra* note 27, at 582; Casenote, *Federal Commerce Power Over Wildlife Gets an Airlift: United States v. Helsley*, 60 OR. L. REV. 343 (1981).

218. The Bald Eagle Protection Act, 16 U.S.C. §§ 668-668d (1976), *see infra* notes 219-27; the Endangered Species Preservation [later Conservation] Act, 80 Stat. 926, *repealed*, 87 Stat. 903 (1973); *see infra* notes 228-34.

219. 16 U.S.C. §§ 668-668d (1976).

220. 16 U.S.C. § 668(a) (1976). As originally enacted, punishment for a violation was imprisonment for up to six months or a $500 fine, or both. *Id.* Currently, potential punishment is one-year imprisonment or a $5,000 fine, or both. *Id.* See M. BEAN, *supra* note 24, at 92.

221. Note, *supra* note 108, at 794.

222. *Id.* at 795.

under the Act.[223] The 1962 amendment, however, allowed the governor of any state to authorize the taking of golden eagles "for the purpose of seasonally protecting domesticated flocks and herds."[224] Holders of blanket permits issued during the 1960's to kill depredating golden eagles probably killed "look-alike" bald eagles as well.[225] Other abuses, including instances of wholesale eagle slaughter by ranchers, prompted Congress to tighten the Act again in 1972.[226] In 1978, the Fish and Wildlife Service conceded the ineffectiveness of the Bald Eagle Act by declaring the bald eagle endangered.[227]

The Bald Eagle Act was an ad hoc response to the population problem of one notable species. Its failure was at least partially attributable to its narrowness; the Act dealt only with one cause of the eagle's decline, and then somewhat tentatively. Congress laid the foundations of a broader approach by passing the Endangered Species Preservation Act (ESPA) in 1966.[228] Although notably devoid of substance or detail,[229] the ESPA reflected congressional intent to protect, conserve, and restore species of fish and wildlife that were threatened with extinction.[230] Prominent among species obviously qualified for that dubious designation were, of course, several notorious predators such as gray and red wolves, grizzly bears, and eagles. The 1966 ESPA directed the Secretary of the Interior to further its purposes and to encourage other federal agencies to do likewise.[231] The Department of the Interior failed to implement that directive.[232] As amended in 1969,[233] the Act strengthened the controls over commerce in listed species but added little to domestic protection of endangered predators.[234] All the while, PARC continued on its path of creating endangerment: the agency intentionally destroyed grizzlies and wolves until their official listing,[235] and it made nontarget victims of other endangered animals (California condors, black-footed ferrets, San Joaquin kit foxes).[236]

The few tentative federal intrusions into wildlife regulation of the

223. Act of Oct. 24, 1962, Pub. L. No. 87-884, 76 Stat. 1246.
224. 16 U.S.C. § 668a (1976).
225. *See* M. BEAN, *supra* note 24, at 93-94; Cain, *supra* note 23, at 389; Note, *supra* note 108, at 795.
226. The Act of Oct. 23, 1972, Pub. L. No. 92-535, 86 Stat. 1065 (codified at 16 U.S.C. § 668(a) (1976)), provides that in second and subsequent convictions for violation of the Act's prohibitions, punishment shall be up to two years imprisonment or a $10,000 fine, or both. The Act also provides for forfeiture of all bald and golden eagle parts taken and of all guns, traps, nets, and other equipment, vessels, vehicles, aircraft, and other means of transportation used in the taking of bald and golden eagles. 16 U.S.C. § 668b(b) (1976).
227. 43 Fed. Reg. 6233 (1978) (codified at 50 C.F.R. § 17.11 (1981)).
228. 80 Stat. 926, *repealed*, 87 Stat. 903 (1973).
229. *See* Palmer, *Endangered Species Protection: A History of Congressional Action*, 4 ENVTL. AFF. 255, 258-62 (1975).
230. 80 Stat. 926, § 1(a), *repealed*, 87 Stat. 903 (1973).
231. 80 Stat. 926, § 2(d). *repealed*, 87 Stat. 903 (1973).
232. *See generally* Coggins, *Conserving Wildlife Resources: An Overview of the Endangered Species Act of 1973*, 51 N.D.L. REV. 315 (1974); Palmer, *supra* note 229.
233. Endangered Species Conservation Act of 1969, 83 Stat. 275 (1969), *repealed*, 87 Stat. 903 (1973).
234. *See* Coggins, *supra* note 232, at 317; Palmer, *supra* note 229, at 263-65.
235. Cain, *supra* note 23, at 390, table 1; 32 Fed. Reg. 4001 (1967).
236. Cain, *supra* note 23, at 389.

1960's exploded into new, comprehensive statutory systems in the 1970's. The National Environmental Policy Act (NEPA)[237] became effective on January 1, 1970. NEPA does not mention wildlife, but its requirement that federal agencies assess in writing the consequences of their actions before acting[238] has forced the involved agencies to look more closely at wildlife habitat damage while giving wildlife organizations a means to fight destructive projects.[239] The indiscriminate killing of feral animals that competed economically with domestic livestock was largely halted by the Wild, Free-Roaming Horses and Burros Act of 1971.[240] In 1972 Congress enacted stringent, wide-ranging legislation for protection of all marine mammal species.[241] In 1974, the Sikes Act, requiring cooperative planning in wildlife management, was extended to federal multiple use lands.[242] The legislature acted similarly to benefit the more obscure species in the "Nongame Act" of 1980.[243] All of these statutes conceivably could affect some predatory or economically competitive wildlife species in some fashion, but, in terms of predators, all pale in comparison to the Endangered Species Act of 1973 (ESA).[244]

The 1973 ESA is critical to protection of several predatory species because it absolutely forbids the killing and harassment of listed species;[245] it prohibits adverse modifications of their "critical habitat;"[246] and it imposes affirmative duties on all federal agencies to protect and enhance their populations.[247] The ESA does not apply, however, until the species are officially listed,[248] and the listing process has been slow and controversial.[249] Further, the full panoply of ESA protections apply automatically only to species listed as endangered; for those designated only as "threatened," protection is limited to the particular measures promulgated by the Fish and Wildlife Service.[250] Finally, the uproar generated by the Snail Darter litigation[251] persuaded Congress in 1978 to weaken some

237. 42 U.S.C. §§ 4321-4361 (1976).

238. *Id.* § 4332(2)(C).

239. A good example is Foundation for N. Am. Wild Sheep v. United States, 681 F.2d 1172 (9th Cir. 1982). *See generally* F. ANDERSON, NEPA IN THE COURTS (1973); W. RODGERS, ENVIRONMENTAL LAW ch. 7 (1977).

240. 16 U.S.C. §§ 1331-1340 (1976). *See generally* M. BEAN, *supra* note 24, at 104-08, 168-75.

241. The Marine Mammal Protection Act of 1972, 16 U.S.C. §§ 1361-1407 (1976). Protected by it is the polar bear, a notorious if remote predator.

242. 16 U.S.C. §§ 670g-670o (1976). *See generally* M. BEAN, *supra* note 24, at 155-57, 165-66; Bean, *The Developing Law of Wildlife Conservation on the National Forest and National Resource Lands*, 4 J. CONTEMP. L. 58 (1977).

243. The Fish and Wildlife Conservation Act of 1980, Pub. L. No. 96-366, 94 Stat. 1322 (Sept. 29, 1980) (to be codified at 16 U.S.C. §§ 2901-2910).

244. 16 U.S.C. §§ 1531-1543 (1976 & Supp. IV 1980).

245. *Id.* § 1538.

246. *Id.* § 1536.

247. *Id. See generally* Coggins & Russell, *Beyond Shooting Snail Darters in Pork Barrels: Endangered Species and Land Use in America*, 70 GEO. L.J. 1433 (1982).

248. 16 U.S.C. § 1533 (1976).

249. *See* Coggins, *supra* note 27, at 803-04. The Reagan Administration has frozen virtually all new listings.

250. 16 U.S.C. § 1533(d) (1976). This administrative leeway has already redounded to the possible detriment of wolves and grizzly bears. *See infra* sections V, A, C, at 863-68, 871-74.

251. TVA v. Hill, 437 U.S. 153 (1978).

ESA provisions.[252]

The spate of new federal wildlife law eased the pressures on the existence of some predatory and competitor species. Wild horses and burros responded to legal protection by propagating wildly, leading to severe managerial programs[253] and then to statutory revision.[254] Killer whales, harbor seals, polar bears, and sea otters, all of which eat other valuable organisms, are responding favorably, if more slowly, to the protective umbrella of the Marine Mammal Protection Act.[255] Hawks, owls, and like carnivorous raptors were denominated migratory birds within the meaning of the Migratory Bird Treaty Act of 1918 (MBTA)[256] in 1972 and thus protected against unpermitted taking.[257] A few lesser carnivores, such as kit foxes and black-footed ferrets, were listed as endangered.[258] The grizzly bear, however, was listed only as threatened, the gray wolf and alligator have been down-listed to that status, and bears and wolves in Alaska were not listed at all.[259] Yet other species, notably bobcats and lynx, received indirect protection in the form of export limitations imposed pursuant to an international convention.[260]

Thus, by the mid-1970's, federal and state laws had inadvertently segregated the various native predator species into four rough categories. The highest degree of legal protection was accorded those species listed as endangered, a category including several foxes, black-footed ferrets, red wolves, bald eagles, peregrine falcons, and a few others.[261] The next category was comprised of species entitled to considerable legal protection—subject, however, to human discretion. Included were those designated as "threatened" under the Endangered Species Act (e.g., alligators, gray wolves in Minnesota, grizzly bears),[262] those protected by the MBTA (raptors), and those qualifying for indirect ESA benefits (bobcats). The third group included predatory species partially protected as "game" under state law. Species of bear, mink, fox, and so forth can only be hunted at certain times of the year and only a certain number may be taken.[263] Finally,

252. *See, e.g.*, 16 U.S.C. § 1536 (Supp. IV 1980). *See* Goplerud, *The Endangered Species Act: Does It Jeopardize the Continued Existence of Species?*, 1979 ARIZ. ST. L.J. 487; Rosenberg, *Federal Protection of Unique Environmental Interests: Endangered and Threatened Species*, 58 N.C.L. REV. 491 (1980).

253. *See, e.g.*, Schectman, *The "Bambi Syndrome": How NEPA's Public Participation in Wildlife Management is Hurting the Environment*, 8 ENVTL. L. 611 (1978); *cf.* American Horse Protection Ass'n v. Andrus, 608 F.2d 811 (9th Cir. 1979).

254. The Wild Free-Roaming Horses and Burros Act was amended by provisions of The Public Rangelands Improvement Act of 1978, 43 U.S.C. §§ 1901-1908 (Supp. IV 1980).

255. *See, e.g.*, Norris, *Marine Mammals and Man*, in WILDLIFE AND AMERICA 321, 332-34 (H. Brokaw ed. 1979). Successful protection of sea otters, for instance, has generated new conflicts with abalone fishermen as otter populations expand. *Id.* at 333.

256. 16 U.S.C. §§ 703-711 (1976).

257. *See* United States v. Richards, 583 F.2d 491, 493 (10th Cir. 1978); Coggins & Patti, *supra* note 26, at 178.

258. *See, e.g.*, 32 Fed. Reg. 4001 (1967); 35 Fed. Reg. 8495 (1970); 50 C.F.R. § 17.11 (1981).

259. 50 C.F.R. § 17.11 (1981).

260. *See* Defenders of Wildlife v. Endangered Species Scientific Auth., 659 F.2d 168 (D.C. Cir. 1981), discussed *infra*, section V, D, at 874-77.

261. *See* 50 C.F.R. § 17.11 (1981).

262. *See id.*

263. *See generally* T. LUND, *supra* note 24, at 64-67.

several state legislatures have refused to protect a few species, notably coyotes, at all; literal "open seasons" on them prevail year-round.[264]

The new, expanded structure of federal wildlife law is fragmented, incomplete, and sometimes inconsistent. While Congress still agrees that all species are of—nearly—"incalculable" value,[265] it still treats some as far more valuable than others. The national legislature has accorded protection to individual species[266] and to groups of species[267] but not to all species.[268] Congress has intruded because it found state management efforts absent or impotent,[269] but at the same time and in the same legislation it has redeferred—usually partially and always ambiguously—to state prerogatives.[270] Congress has never directly protected any controversial predatory carnivore except eagles, but it has authorized federal agencies to protect nearly all of them—with the notable exception of the coyote.

Much attention from other quarters has been lavished on the coyote, however. Scientists and managers have waxed, waned, and waffled in a twenty-year search for the answer to the coyote problem.

B. *The Studies: The Scientists Come Half-Circle*

From 1963 to 1978, various official bodies carried out comprehensive studies of predation and predator control. Each resulting report had commonality and differences with the others; differences apparently were dependent upon the degree of self-interest in the reporting body. The studies in the aggregate should serve as starting points for legislative and administrative reform. The first two investigations, described below, were undertaken by outside scientists; the administrative studies are discussed in section D.

1. *The Leopold Report*

In 1963 the Secretary of the Interior created a five member Advisory Board on Wildlife Management and appointed A. Starker Leopold as its chairman.[271] Among other tasks,[272] the Secretary charged the Advisory

264. That is the case in Kansas, for instance, where the coyote remains a legal target at all times.

265. *See* TVA v. Hill, 437 U.S. 153, 173, 184 (1978). The wording construed in *Hill* was not materially altered by later amendments. 16 U.S.C. § 1536(a) (Supp. IV 1980). *See* Coggins & Russell, *supra* note 247, at 1436.

266. *E.g.*, Bald Eagle Protection Act of 1940, 16 U.S.C. §§ 668-668d (1976).

267. *E.g.*, Migratory Bird Treaty Act, 16 U.S.C. §§ 703-711 (1976).

268. A proposal by the Federal Republic of Germany for an international Convention on the Conservation of Migratory Species of Wild Animals would, if adopted by the United States, extend federal jurisdiction to all members of any species which cross international boundaries, thus greatly expanding federal wildlife law coverage. Second Revised Draft Convention on the Conservation of Migratory Species of Wild Animals (W. Ger. 2d rev. draft Dec. 1978) (with explanatory notes).

269. *See, e.g.*, American Horse Protection Ass'n v. Dep't of the Interior, 551 F.2d 432, 438 (D.C. Cir. 1977).

270. *See* Coggins & Ward, *supra* note 152, at 75-85.

271. *See* Cain, *supra* note 23, at 381.

272. The Board's first task was to study the problem of overpopulation of elk in Yellowstone National Park that had resulted from earlier reductions in predators that were capable of taking elk. *Id.* The National Park Service later carried out the Board's recommendation to reduce the

Board with examining the predator control program conducted by PARC. In the 1964 *Leopold Report*,[273] the Board began with two basic tenets:

> 1) All native animals are resources of inherent interest and value to the people of the United States. Basic governmental policy therefore should be one of husbandry of all forms of wildlife.
>
> 2) At the same time, local population control is an essential part of a management policy, where a species is causing significant damage to other resources or crops, or where it endangers human health or safety. Control should be limited strictly to the troublesome individuals, and in any event to the localities where substantial damage or danger exists.[274]

The Advisory Board criticized both the philosophies and details of existing predator control programs. It found that predator control was being conducted at excessive and unwarranted levels, thereby unnecessarily killing many animals which had never offended private property or public resource values.[275] PARC had assumed the benefits of predator control without giving realistic consideration to actual need.[276]

The Leopold Committee also found serious fault with the financial structure of the program. PARC supplied about forty percent of the total cost, and states, counties, livestock associations, and individuals contributed the balance.[277] To perpetuate their program, PARC agents propagandized against predators to solicit funds. The Board determined that substantial disadvantages were inherent in such a system, which amounted to a protective subsidy for livestock interests,[278] the most serious of which was the control that contributors exerted in determining where, when, and how much animal control was to be accomplished.[279]

The coyote had become the primary target for PARC control at the time the *Leopold Report* was submitted. Interestingly, the Board found that the western sheep industry had continually declined, even though coyote control remained constant. It opined that the industry's shift to pastured sheep without herders counteracted any apparent conclusion that coyote control could be reduced.[280]

In its evaluation of the predator control methods then in use, the Board found that the most efficient coyote control method was poisoning by carcasses laced with compound 1080; this method has little damaging effect on other wildlife.[281] Aerial and ground shooting were also labeled desirable because of their specificity. Coyote-getters, while effective, pose

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Yellowstone elk herd. *Id.* In response to the Secretary's request for a solution to bear management problems in Yellowstone, the Advisory Board recommended closing of campgrounds and garbage dumps to bears. This was also carried out, and the bears began reverting to their natural foods. *Id.*

273. *Leopold Report, supra* note 60.
274. *Id.* at 29.
275. *Id.*
276. *Id.* at 34.
277. *Id.* at 30.
278. *Id.* at 31.
279. *Id.* at 30-31.
280. *Id.* at 32.
281. *Id.* at 35.

dangers to humans and other animals, and the Board recommended their use only where more selective methods are inappropriate.[282] The steel trap was the most widespread but least selective method of control. The Board forcefully recommended that the broadcast of poison baits and the use of bounties be deleted entirely from the predator control arsenal.[283]

In the end, the *Leopold Report* summarily recommended that:

—The Advisory Board should be a continuing body to act as a forum for opinions on predator control.[284]

—PARC should reassess its goals and functions in light of changing attitudes toward wildlife.[285]

—PARC should strive for control of animal damage at the absolute minimum basis premised upon proven need for control.[286]

—PARC should document the need for predator control and should specify the criteria governing control decisions.[287]

—PARC's research program should be greatly amplified.[288]

—PARC should adopt a new name that would connote a management function broader than just killing.[289]

—Legal controls over the use of poisons should be instituted.[290]

The *Leopold Report* concluded by remarking that the PARC program had become an end in itself; the program was no longer a balanced component of an overall scheme of wildlife management and husbandry; and it caused the unnecessary destruction of wildlife.[291]

Although PARC was renamed the Division of Wildlife Services (DWS) as a result of the *Leopold Report*, and a few minor administrative changes were made, the DWS did not appreciably alter prior PARC field practices.[292] Gradually, however, the level of killing subsided somewhat. In 1965 the DWS stopped intentionally killing red wolves, and the known mortality of bears, bobcats, coyotes, gray wolves, and mountain lions decreased visibly by 1970.[293]

But PARC's increasing selectivity was too little and too late. The general public opinion and the wave of environmentalism then sweeping the country led the Secretary of the Interior and the Chairman of the Council on Environmental Quality to appoint in 1971 a committee to study the predator control issue.[294] The Committee functioned under the chairmanship of Dr. Stanley Cain[295] and in 1972 released the *Cain Report*.[296]

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282. *Id.* at 36.
283. *Id.*
284. *Id.* at 43.
285. *Id.* at 44.
286. *Id.*
287. *Id.* at 45.
288. *Id.* at 46.
289. *Id.*
290. *Id.*
291. *Id.* at 47.
292. *See* Cain, *supra* note 23, at 381.
293. *Id.* at 390, table 1.
294. *See* Note, *supra* note 108, at 805.
295. Dr. Cain once served as Assistant Secretary of the Interior and was a member of the board that issued the *Leopold Report. Id.*
296. CAIN, *et al.*, PREDATOR CONTROL—1971, REPORT TO THE CEQ AND THE DEPARTMENT

2. *The Cain Report*

The Cain Committee found that the average losses of livestock to predation were relatively small and that only a very small percentage of ranchers sustained heavy predation losses.[297] The *Cain Report* recommended alleviating the economic burden of the latter,[298] but this suggestion has not been carried out.[299] The Committee also found that coyote populations fluctuate constantly: food availability determined population size as much as control efforts.[300] From those findings, it concluded that the overall effect of control on coyote populations was small[301] and that there was little correlation among coyote densities, predator control, and livestock losses.[302]

The Committee consequently opted against the widespread use of non-selective control methods such as poisons and traps, and in favor of removing from registration and use all toxic chemicals used in predator control programs.[303] The Committee recommended that PARC shift its emphasis from control of general coyote populations to control of the individual animals known to cause heavy losses.[304]

The *Cain Report* concluded that the structural and financial problems identified in the *Leopold Report*[305] could be solved only if program funding was limited to federal and state contributions.[306] This recommendation has not been implemented.[307] The Committee also found that the DWS staff lacked adequate training.[308] Although the supervisory staff was well qualified, the Civil Service pay scale would not support professionally trained field agents. Because the field agents usually lived and worked in the regions where they served, they tended to be unduly responsive to the wishes of resident ranchers.[309] The Committee recommended that all DWS field staff undergo professional training;[310] such a requirement has not become universal.[311]

The *Cain Report* also suggested that the Department of the Interior begin controlling the use of predator control methods by private individu-

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OF THE INTERIOR BY THE ADVISORY COMM. ON PREDATOR CONTROL (1972) [hereinafter CAIN REPORT].

297. *Id.* at 45.

298. *Id.* at nn.7-8.

299. PREDATOR DAMAGE IN THE WEST, *supra* note 70, at 3.

300. CAIN REPORT, *supra* note 296, at 44. Coyotes also have higher population densities in southern climes. *Id.*

301. *Id.* at 42. Populations can decline by as much as 50% but then will reach new equilibriums. *Id.* at 44.

302. *Id.* at 55. The CAIN REPORT evinces considerable uncertainty on these points. It says that only some coyotes may be active predators, but also suggests that "such offending animals may be some relatively constant fraction of the population." *Id.* The authors also dealt inconsistently with possible remedies.

303. *Id.* at 5-7.

304. *Id.* at 55.

305. *See supra* text accompanying notes 277-80.

306. CAIN REPORT, *supra* note 296, at 6.

307. PREDATOR DAMAGE IN THE WEST, *supra* note 70, at 3.

308. CAIN REPORT, *supra* note 296, at 6.

309. *Id.*

310. *Id.*

311. *See* PREDATOR DAMAGE IN THE WEST, *supra* note 70, at 3.

als. Specifically, the Committee favored inclusion of provisions in federal grazing permits allowing the Department to suspend or revoke grazing rights for violations of DWS predator control regulations.[312] The DWS still does not have written regulations regulating private predator control activities.[313]

After publication of the *Leopold Report*, Congress enacted the Wilderness Act of 1964.[314] This Act created a new lands system devoted to preservation of natural systems.[315] Congress also stipulated, however, that livestock grazing, where established prior to enactment, could continue in wilderness areas, subject to reasonable regulations.[316] The *Cain Report* noted that the wilderness concept and predator elimination do not seem reconcilable, and recommended that predator control should be prohibited in wilderness areas.[317] That recommendation, too, has not been carried out.[318]

In short, most of the recommendations on predator control reform, made by the two most prestigious bodies ever to address the question, went for naught. The major exception for a decade was indiscriminate predator poisoning on the public lands, but it too is now in jeopardy.

C. *The Executive Response: The Presidents Come Full Circle*

By 1972, the official coyote killers relied heavily on poisons to the relative exclusion of more selective control techniques.[319] President Nixon outlawed the practice, then President Ford relaxed the ban. Finally, in 1982, President Reagan removed most limitations on renewed use of poisons.

1. *Controls on Predator Poisons: Executive Order 11,643*

In response to the *Cain Report*, President Nixon in 1972 issued Executive Order 11,643, barring the use of poisons for predator control on federal lands.[320] The accompanying Presidential message stated that "Americans today set high value on the preservation of wildlife. The old notion that 'the only good predator is a dead one' is no longer accepta-

312. CAIN REPORT, *supra* note 296, at 6. Before 1976, the BLM had implicit authority to do so, Diamond Ring Ranch v. Morton, 531 F.2d 1397 (10th Cir. 1976). This authority was made explicit by the Federal Land Policy and Management Act of 1976 (FLPMA), 43 U.S.C. §§ 1732(c), 1733(a), 1752(a) (1976).

313. The FWS considers the Predator EIS to be the equivalent of predator control regulations. *See* PREDATOR EIS, *supra* note 114, at 13.

314. 16 U.S.C. §§ 1131-1136 (1976).

315. *See generally* McCloskey, *The Wilderness Act of 1964: Its Background and Meaning*, 45 OR. L. REV. 288 (1966).

316. 16 U.S.C. § 1133(d)(4) (1976). The Wilderness Act also retains general state jurisdiction over game management. *Id.* § 1133(d)(8).

317. CAIN REPORT, *supra* note 296, at 6.

318. PREDATOR DAMAGE IN THE WEST, *supra* note 70, at 4.

319. In 1970 alone, over 800,000 tallow pellets containing strychnine were "broadcast over the landscape." Cain, *supra* note 23, at 388.

320. Executive Order No. 11,643, 37 Fed. Reg. 2875 (1972). The Order recited that it was issued in part to further the purposes of the Endangered Species Conservation Act of 1969, 16 U.S.C. §§ 668aa-668ee (1970), *repealed*, 87 Stat. 903 (1973), and the National Environmental Policy Act, 42 U.S.C. §§ 4321-4335 (1976).

ble."[321] The President also explicitly rejected any notion that predator control should be practiced as an end in itself.[322] The federal establishment finally and officially recognized that predatory species ought not to be killed simply because their nature requires killing other animals for food. The President also noted, however, that predators can threaten sheep and other domestic animals, and he directed that more selective methods of control be used to preserve ecological values while continuing to protect livestock.[323] Thus, although preservation of wildlife was seen as an important objective, the President's statement also contemplated continuance of predator control programs to avoid private property damage.

Executive Order 11,643 directed agency heads to take whatever actions were necessary to prevent future use of any chemical toxicants, including toxicants which have secondary poisoning effects, on any federal lands under their jurisdiction.[324] It also forbade the use of such poisons in federal predator control programs conducted on state, county, and private lands in cooperation with the owners of those lands.[325]

The Order did authorize use of toxicants in emergencies, but it hedged this authorization with procedural and substantive restrictions. First, the agency invoking the emergency provision was required to consult with Secretaries of the Interior, Agriculture, and Health, Education, and Welfare, and the Administrator of the Environmental Protection Agency (EPA), and then find that the emergency could not be resolved without the use of chemical toxicants.[326] Second, the consulting agency heads were also required to find the use of toxicants essential to protect the health or safety of human life, to preserve at least one endangered or threatened wildlife species, or to prevent substantial irretrievable damage to nationally significant natural resources.[327] Whether the Order was intended to authorize emergency use to abate threats of livestock losses alone is unclear; even if sheep are considered a "natural resource," widespread and substantial losses to depredations apparently would have to be shown before the threat of irretrievable damage could be established. Debates on later legislative proposals, however, indicate that some legislators thought the authorization encompassed "major damage" to livestock.[328]

Executive Order 11,643 initiated prompt changes in the DWS predator control program. Coyote-getters and poisoned bait stations previously set out by the DWS were collected and destroyed.[329] There was an immediate outcry from the sheep industry that the coyote population was exploding, but the complaints began well before the first year in which there could have been any significant change in coyote numbers due to the

321. H.R. Doc. No. 92-247, 92d Cong., 2d Sess. 10 (1972).
322. *Id.*
323. *Id.*
324. Exec. Order No. 11,643, 37 Fed. Reg. 2875, 2875 (1972).
325. *Id.*
326. *Id.* at 2876.
327. *Id.*
328. *See* Note, *supra* note 108, at 815 n.235, 817 n.252, 821 n.280.
329. H.R. Rep. No. 92-1218, 92d Cong., 2d Sess. 7 (1972).

toxicant ban.[330] The Fish and Wildlife Service (FWS) later estimated that the coyote population in the West increased by ten percent in 1973 and 1974, followed by five and seven percent decreases in 1975 and 1976.[331] These figures tended to confirm the *Cain Report*'s conclusion that the overall effect of control on constantly fluctuating coyote populations is small.[332]

2. *Retreat From the Ban*

Executive Order 11,643 directed all heads of executive agencies to issue regulations necessary to carry out the policies and provisions of the Order.[333] The Administrator of EPA thereupon suspended and cancelled the registration of the three toxic chemicals most widely used in predator control[334] (sodium cyanide, strychnine, and compound 1080), under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA).[335] FIFRA prohibited the interstate sale or transport of any "economic poison" unless the poison had been registered by the Administrator of EPA;[336] EPA could suspend or cancel that registration whenever necessary to prevent an imminent hazard to the public.[337] The EPA found that (1) these are among the most toxic chemicals known to man; (2) the widespread and indiscriminate use of these poisons poses a serious threat to nontarget species, directly and through secondary poisoning; (3) the impact from use of the poisons could not be determined; (4) economic and other benefits to be gained at the expense of damage to wildlife and the environment were at best uncertain; and (5) non-chemical control methods could be implemented.[338] The EPA also cancelled the registration of all products containing thallium sulfate in the same proceedings.[339] The cancellation of sodium cyanide, strychnine, and compound 1080 extended only to their use as predacides. Consequently, "boot-legging" of these poisons from allowable uses to private predator control operations lessened the effectiveness of the ban.[340]

FIFRA was amended by the Federal Environmental Pesticide Control Act of 1972 (FEPCA).[341] The amended Act allows the EPA Adminis-

330. Cain, *supra* note 23, at 389.
331. *Id.*
332. CAIN REPORT, *supra* note 296, at 44-47.
333. Exec. Order No. 11,643, 37 Fed. Reg. 2875, 2876 (1972).
334. PREDATOR DAMAGE IN THE WEST, *supra* note 70, at 54.
335. 7 U.S.C. §§ 135-135k (1976) (as amended).
336. *Id.* § 135a.
337. *Id.* § 135b(c). A hazard may be imminent "even if its impact will not be felt for many years, and fish and wildlife are included as part of the public to be protected from an imminent hazard." Note, *supra* note 108, at 809 (citing Environmental Defense Fund v. Ruckelshaus, 439 F.2d 584 (D.C. Cir. 1971)).
338. 37 Fed. Reg. 5718-20 (1972). *See* Note, *supra* note 108, at 810.
339. Thallium sulfate was never registered as a predacide, but was registered as a rodenticide. The use of "boot-legged" thallium for predator poisoning was prevalent and this, plus the extremely lethal characteristics of thallium, prompted the Administrator to prohibit its use for any purpose. Note, *supra* note 108, at 810 n.186 (citing 37 Fed. Reg. 5718-19 (1972)).
340. *See supra* note 339. Wyoming belatedly challenged the ban, but the Tenth Circuit dismissed the suit, holding that the EPA did not have to file a formal environmental impact statement under the circumstances. Wyoming v. Hathaway, 525 F.2d 66 (10th Cir. 1975).
341. 7 U.S.C. §§ 136-136y (1976).

trator to issue experimental use permits for toxicants if necessary to compile registration information,[342] and to exempt any federal or state agency from the Act if emergency conditions so require.[343] In 1974 several states received experimental use permits for a refined coyote-getter called the M-44.[344] Proponents claimed that the M-44 was not hazardous to humans and nontarget animals,[345] but, like its predecessor, the M-44 already has been responsible for cyanide discharges into the face of a Boy Scout and remains a trap for unwary recreationists.[346]

Texas received the first experimental use permit for the M-44, and other states then modeled their "experiments" on the Texas program.[347] Texas justified its request on research grounds: the program would determine (1) the effectiveness of M-44 use in reducing livestock losses; (2) the effects of the M-44 on nontarget species; (3) the cost of controlling coyotes with M-44s compared to the cost of other control methods; (4) the hazards M-44s pose to human safety; and (5) the amount of M-44 control that could be used without causing unreasonable adverse environmental effects.[348] The first wave of experimental use permits authorized states to use 15,640 M-44 devices and 153,300 sodium cyanide capsules.[349] Thus, predator poisoning continued, but on a lower, more controlled scale.

The Bureau of Sport Fisheries and Wildlife in the Department of the Interior also received an experimental use permit for the use of 20,000 M-44s and 200,000 sodium cyanide capsules in 1974.[350] The federal experiment sought to test the effectiveness of the M-44s in areas where preferred control methods such as aerial hunting could not be used.[351] The permit allowed the experiment to be carried out anywhere in the United States except in areas containing endangered or threatened wildlife.[352]

The grant of these state and federal experimental use permits arguably violated the purposes of Executive Order 11,643. The Order's exception was limited to emergencies,[353] and experimental use is not an emergency. The experimental permits apparently also ran counter to FEPCA, because the experimentation authorized by law is far more circumscribed than the extensive programs actually authorized.[354]

The arguable illegality of the experimental permits was alleviated in 1975, when President Ford modified Executive Order 11,643 to permit ex-

342. *Id.* § 136c(a). The Administrator may authorize states to issue experimental use permits. *Id.* § 136c(f).
343. *Id.* § 136p.
344. 39 Fed. Reg. 7617, 16,920, 17,884, 22,978, 27,185, 39,315, 40,195 (1974). The M-44 differs from the conventional coyote-getter in that the M-44 uses a mechanical spring instead of an explosive charge to shoot the poison. *See* Note, *supra* note 108, at 813 n.217. Most of the experimental use permits were to expire in 1975. *Id.* at 813.
345. Note, *supra* note 108, at 812.
346. Cain, *supra* note 23, at 388.
347. Note, *supra* note 108, at 813.
348. 39 Fed. Reg. 7617, 7618-19 (1974).
349. *Id.* at 7618, 16,920, 17,886, 22,979, 27,187, 39,316, 40,196.
350. *Id.* at 20,633, 41,761.
351. *Id.* at 20,634.
352. *Id.* at 20,633-34.
353. Exec. Order No. 11,643, 37 Fed. Reg. 2875, 2876 (1972).
354. Note, *supra* note 108, at 814.

perimental use of sodium cyanide on federal lands and in federal programs.[355] After EPA then registered the M-44 for predacide use,[356] the President again liberalized the Executive Order to allow M-44 use subject only to EPA proscriptions.[357] The use of sodium cyanide was now prohibited (1) in areas where endangered or threatened species might be adversely affected; (2) in national parks, monuments, wildlife refuges, and wilderness; (3) on federal lands specifically set aside for recreational use, (4) in prairie dog towns, and (5) in areas where exposure to the public and family pets is probable.[358]

3. *Back to Square One*

Matters of predator poisons remained in this posture throughout the decade. Ranchers lobbied for more poisoning and wildlife organizations argued for less. At this writing, the ranchers are winning. In January 1982, without public discussion, explanation or even warning, President Reagan revoked Executive Order 11,643 in its entirety.[359] The EPA Administrator then announced that the earlier registration cancellations would be reopened.[360] Federal policy on predator poisoning has thus come nearly full circle since 1972, but it is unlikely that the wheel of policy has stopped turning.

D. *The Administrative Response: The Agencies Go Around in Circles*

Predator control remained controversial after the initial poisoning ban. The Interior Department responded with more studies which did little to clarify policy or to illuminate issues.

1. *Predator Damage in the West*

In 1978 the Secretary of the Interior established a Policy Study Advisory Committee to examine what the Department now called its Animal Damage Control (ADC) Program.[361] The Secretary wanted to know how to balance requests from livestock interests for intensified predator control with environmental concerns and budgetary constraints.[362] After nearly a year of study, the Advisory Committee issued a lengthy report entitled *Predator Damage in the West*. This report addresses the environmental impacts of the predator damage control program, the economic effects of livestock losses on consumers and producers, the proper role of the federal government in predator control, and public opinion concerning predator control. Its discussion, however, lacks the forthrightness of the earlier *Leopold* and *Cain Reports*.

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355. Exec. Order No. 11,870, 3 C.F.R. § 1008 (1975).
356. PREDATOR DAMAGE IN THE WEST, *supra* note 70, at 54.
357. Exec. Order No. 11,917, 41 Fed. Reg. 22,239 (1976).
358. *Id.*
359. 47 Fed. Reg. 4223 (1982).
360. *See* Jones, *U.S.-Banned Poison May Rejoin War Against Coyote*, L.A. Times, May 15, 1982, at 1.
361. PREDATOR DAMAGE IN THE WEST, *supra* note 70, at 1.
362. *Id.* at 2.

One of the new report's contributions was clarification of common terminology in the area.[363] The Committee pointed out that "animal damage control" or "predator damage control" differs in concept from "predator control." "Predator control" refers to practices that reduce entire populations of predatory animals without regard to whether the individuals being killed actually prey on livestock.[364] In contrast, "predator damage control" proceeds from the philosophy that predators have both positive and negative economic and social values and from the belief that most livestock damage is caused by relatively few animals.[365] In a "predator damage control" program, the prevention of livestock damage through improvements in livestock management and facilities is stressed, and individual offending animals are located and killed.[366] The Advisory Committee referred to Interior's ADC program as a "predator damage control" program,[367] but the characterization was and is questionable.[368]

The Advisory Committee concentrated on the relationship between coyotes and sheep. That focus was appropriate because the ADC program was conducted largely for the benefit of the sheep industry.[369] In 1977, $7,983,000 in federal funds and $5,569,517 in contributed funds were spent in the ADC program;[370] about sixty-four percent of the total was distributed for control of predators in sheep country.[371] The Committee found that the sheep industry in the West has continually declined since 1960 despite these expenditures,[372] but it carefully avoided exploring the reasons for this decline. Significantly, however, the Committee did not even hint that predation contributed substantially to the decline. The Committee also found that the western sheep industry had stabilized economically, and that from 1974 to 1977, industry profitability actually increased.[373] In effect, its findings refute the common claim that predators are driving the sheep ranchers out of business.

Predator Damage in the West further concluded that the cradle-to-grave sheep-raising subsidies have not been adequate to combat the market forces operating against the domestic sheep industry. Predator control is only one of these subsidies. Pursuant to the National Wool Act of 1954,[374] sheep ranchers receive federal payments when the support price for wool exceeds the national average price received by producers, a subsidy of twenty-eight to thirty-two million dollars annually.[375] The sheep

363. In wildlife and land management generally, definitions of the most common terms (including "management") are often inadequate or nonexistent. *Cf.* Coggins & Ward, *supra* note 152, at 68-69.

364. PREDATOR DAMAGE IN THE WEST, *supra* note 70, at 1.

365. *See* Henderson & Boggess, *supra* note 192, at 324.

366. *Id.*

367. PREDATOR DAMAGE IN THE WEST, *supra* note 70, at 36-39.

368. *See infra* notes 390-401 and accompanying text.

369. *See* PREDATOR EIS, *supra* note 114, at 43, table 1-11.

370. PREDATOR DAMAGE IN THE WEST, *supra* note 70, at 39, table D-1.

371. *Id.* at 42, table D-4.

372. *Id.* at 5, 119. Even with predator control programs in full force, the domestic sheep industry still declined over 80% in 30 years. Cain, *supra* note 23, at 388.

373. *See* PREDATOR DAMAGE IN THE WEST, *supra* note 70, at 17.

374. 7 U.S.C. § 1781 (1976).

375. PREDATOR DAMAGE IN THE WEST, *supra* note 70, at 13.

industry also receives a federal subsidy in the form of inexpensive grazing leases: in 1974 federal rangelands provided forage for about half of the commercial sheep stock in the West at a fee substantially below market value.[376]

Predator Damage in the West indicated that some improvement in sheep husbandry practices would reduce the risk of losses to predation. Only nine percent of all western sheep producers used full-time herders in 1974, and only forty-four percent of their ewes had full-time herders.[377] The Advisory Committee conceded that the use of full-time herders provides more protection from predators than other methods. It was unable to predict the extent of predation on domestic livestock, however, noting that the actual extent has never been ascertained with any precision:[378] the surveys traditionally used to measure livestock losses were merely opinion polls with inherently biased respondents.[379] The Advisory Committee estimated that four to eight percent of lambs and one to two and one-half percent of ewes are lost annually to coyotes in the western states.[380]

In its discussion of the predator control methods used in the ADC program, the Advisory Committee concluded that the effectiveness of any method depends on the nature of the damage situation and the skill shown in implementing the method.[381] The Committee then ranked control methods according to humaneness and species selectivity. In descending order, the most humane methods were found to be (1) ground shooting; (2) M-44; (3) aerial shooting; (4) denning; (5) steel traps; and (last) snares. In descending order, the most species selective control methods were (1) aerial and ground shooting, (2) denning, (3) M-44, (4) steel traps, and (5) snares.[382]

The Advisory Committee was unable to determine conclusively whether the ADC control methods were effective in reducing livestock losses due to predation. Limited case studies, the professional opinions of ADC biologists, and the experiences of livestock producers were deemed to be convincing evidence that coyote control can reduce livestock loss. The Committee admitted, however, that there were too few valid studies to permit statistically valid generalizations.[383] The Advisory Committee also had trouble defining public attitudes toward predator control. It concluded, for example, that "[t]he public values sheep much more highly than coyotes; however, people appear just as concerned about the taking of coyotes as they are that coyotes kill sheep."[384] Even so, the Committee's

376. *Id.* at 9. In 1976, the grazing fee on BLM land was only thirty cents per sheep per month. *Id.* at 11.

377. *Id.* at 14.

378. *Id.* at 13.

379. Cain, *supra* note 23, at 386. An FWS official has noted that if the stockmen surveys are to be believed, no sheep ever died a natural death.

380. PREDATOR DAMAGE IN THE WEST, *supra* note 70, at 120.

381. *Id.* at 53-61, 121.

382. *Id.* at 121.

383. *Id.* Thus, despite the experiments in the six-year interim, *see supra* notes 342-54 and accompanying text, the inconclusiveness of available information bemoaned by the Cain Committee still existed.

384. PREDATOR DAMAGE IN THE WEST, *supra* note 70, at 122.

recognition that non-livestock interests have a legitimate voice in management of national wildlife resources is a belated breakthrough into modern administrative reality.[385]

2. *The Animal Damage Control EIS*

Predator Damage in the West was the primary data source for an environmental impact statement (EIS) issued by the FWS for the Animal Damage Control program in 1979.[386] In the statement, the Department of the Interior for the first time analyzed the extent of actual livestock losses to predators and confronted the question whether control actually reduces the losses. The FWS's final environmental impact statement on the ADC program is full of facts and suppositions, but it is largely devoid of new approaches: it reflects the tendency of the Interior Department to muddle along as before.

The draft EIS had been severely criticized by virtually all affected or interested parties. The response of the Defenders of Wildlife is representative:

> This environmental impact statement (EIS) on the Animal Damage Control (ADC) program is without question the least useful National Environmental Policy Act document ever to emerge from the U.S. Department of the Interior. It is replete with errors, omits major components required by NEPA, and fails to present an adequate or accurate environmental analysis necessary for governmental decision-making.[387]

Other agencies of the federal government, including the Council on Environmental Quality and the EPA, also recommended that the FWS prepare an entirely new draft EIS.[388] The National Wool Growers Association faulted the draft for failing to propose re-registration of compound 1080.[389]

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385. *Cf.* Coggins & Patti, *supra* note 26, at 196-205.

386. PREDATOR EIS, *supra* note 114. The EIS was prepared under the National Environmental Policy Act of 1969 (NEPA), 42 U.S.C. §§ 4321-4335 (1976). NEPA requires federal agencies to prepare an EIS for recommendations or reports on proposals for legislation and other major federal actions significantly affecting the quality of the human environment. *Id.* § 4332(2)(C).

387. Letter from Toby Cooper, Program Director, Defenders of Wildlife, to Lynn Greenwalt, Director, U.S. Fish and Wildlife Service (Feb. 12, 1979), *reprinted in* PREDATOR EIS, *supra* note 114, at 433.

388. Letter from James Yarn, Council on Environmental Quality, to Robert Herbst, Assistant Secretary for Fish, Wildlife, and Parks, Interior Dep't (Feb. 12, 1979), *reprinted in* PREDATOR EIS, *supra* note 114, at 269, 270; Letter from Alan Merson, Regional Administrator, Environmental Protection Agency, to Lynn Greenwalt, Director, U.S. Fish and Wildlife Service (Feb. 12, 1979), *reprinted in* PREDATOR EIS, *supra* note 114, at 321.

389. Before the draft EIS was prepared, sheep raisers requested that the FWS take steps to have compound 1080 registered as a predacide under FEPCA. PREDATOR DAMAGE IN THE WEST, *supra* note 70, at 1. Registration of 1080 was not included in any of the alternative actions discussed in the draft EIS. FISH AND WILDLIFE SERVICE, U.S. DEP'T OF INTERIOR, DRAFT—ENVIRONMENTAL IMPACT STATEMENT, U.S. FISH AND WILDLIFE SERVICE'S MAMMALIAN PREDATOR DAMAGE MANAGEMENT FOR LIVESTOCK PROTECTION IN THE WESTERN UNITED STATES (1978) [hereinafter DRAFT EIS]. Comments by the National Wool Growers Association called this omission to the attention of the FWS and the registration of compound 1080 was included in the final Predator EIS as a part of an alternative to the proposed action. PREDATOR EIS, *supra* note 114, at 199.

In response to the comments quoted above, the FWS admitted that "[y]ou are right, the information and calculations presented in the [draft EIS] were wrong."[390] Despite this and other conceded problems with the draft EIS, the FWS issued a final *Predator EIS* without further opportunity for public comment or participation.[391]

In the *Predator EIS*, the FWS prefers to continue the existing ADC program, directed at both individual mammalian predators and local depredating populations.[392] The stated goal is to "[a]ssist in reducing wildlife caused damage in a manner which minimizes impacts on wildlife resources."[393] Initially, FWS preferences appear to be inconsistent with the policy of the Administration at the time the EIS was prepared. In his 1977 environmental message to Congress, President Carter specifically addressed the problem of predation:

> The public's interest in wildlife specifically includes predators, which have in the past sometimes been regarded as competitors for livestock or game, leading to their destruction (and in the case of some larger predator species, to their extermination). Because we now realize the importance of the role that predators play in various ecosystems, our goal should be not to destroy them but to reduce the occasion for their conflict with livestock. My Administration will continue to support the existing Executive Order which prohibits the routine use of poisons for killing predators on the public lands. If control is necessary, it should focus on the individual predators causing the problem—not the species as a whole.[394]

After quoting Mr. Carter's message, the *Predator EIS* stated that "the Service's ADC program attempts to reduce the occasion for conflicts between predators and man."[395] The discussion in the EIS of five operational control strategies used in the ADC program, however, evinces an FWS bias against highly selective control methods.[396]

The *Predator EIS* approved corrective control of local depredating target populations.[397] This control method is intended "to solve problems after depredations have occurred such as coyote depredations upon poultry or newborn calves, and bobcat or fox depredations upon livestock or poultry;" it "usually requires the immediate spot removal of individuals or

390. Response of the FWS to Defenders of Wildlife, PREDATOR EIS, *supra* note 114, at 469.

391. "We believe we have corrected the draft in good faith and to the extent reasonably possible with information known to us. We therefore see no practical benefit from reissuing a revised draft statement and delaying Secretarial decision further." Response of FWS to letter from the Council on Environmental Quality, PREDATOR EIS, *supra* note 114, at 271.

392. PREDATOR EIS, *supra* note 114, at 1.

393. *Id.* at 4.

394. President's Environmental Message to Congress, May 1977, *reprinted in* PREDATOR EIS, *supra* note 109, at 11.

395. PREDATOR EIS, *supra* note 114, at 11. The FWS, however, was careful not to state that this is the single goal or policy of the ADC program. FWS statements concerning the methods of control used by ADC establish that selectivity is a subsidiary goal, at best.

396. The first strategy is general reduction in local carnivore populations to control an epizooic situation such as rabies. PREDATOR EIS, *supra* note 114, at 16. Fifteen years earlier, the *Leopold Report* had firmly disapproved reduction of wildlife populations to control rabies because it was ineffective. *Leopold Report, supra* note 60, at 37.

397. PREDATOR EIS, *supra* note 114, at 16.

small numbers of the target species causing the problem."[398] The FWS did not specify the method or the amount of depredation necessary, but the ambiguity disappeared with the third operational strategy: preventive control, or general suppression of local populations and target species. This method contemplates destruction of predator populations, the course of action disapproved in the presidential message.[399] The last item on the list of operational strategies was management of offending animals. This method would clearly be consistent with the presidential message, but the FWS kills specific individuals only in response to complaints about black bears and mountain lions.[400]

The *Predator EIS* discusses nonlethal and individual-specific control methods, but the discussions are limited to the context of research abstracts.[401] The FWS did not choose to implement these types of controls in the proposed action.

The *Predator EIS* is, essentially, an advocacy document. Its numbers, charts, tables, and statistics cloak, in a morass of apparent factual information, the political choice to continue the status quo. A close reading reveals that its main purpose is perpetuation of the positions and duties of its drafters. New ideas and approaches are often mentioned but seldom discussed in depth or without preconceptions:[402] the *Predator EIS* is useful as a source of informed estimates, but it has little utility as a policy guide. Had it been timely challenged, a good case could have been made for the inadequacy of the EIS.[403]

The foregoing studies show that leading professional views on predator control had changed radically but not completely by the 1980's. Fear of personal harm from fierce carnivores had virtually disappeared from American society. The notion that killing predators ought to be an integral part of game management was pretty thoroughly discredited. Predators now are seen as intrinsically valuable, not only for their value as an economic resource, but also for the functions they serve in the natural order. The sticking point is still direct and indirect competition with human economic aims; and the disputes have been narrowed mostly to coyote predation on sheep. Nearly all wildlife managers concede that claims of damage to sheep have been greatly exaggerated and that unselective control methods are ineffective if not counterproductive.

Strong and politically powerful sentiment, however, still favors mass,

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398. *Id.*

399. *Id.* The fourth strategy is buffer zone management which in part encompasses the goal of "predator damage control." *Id.*

400. *Id.*

401. *See id.* at 30-37.

402. The FWS rejected, more or less summarily, the following alternatives: eliminating the federal ADC program, *id.* at 175-77; transferring ADC activities to Agriculture, *id.* at 178-80; contracts with states to carry out ADC activities, *id.* at 181-84; nonlethal control, *id.* at 185-88; use of only selective methods, *id.* at 189-92; initiation of a compensation program, *id.* at 196-98; reduction of coyote populations, *id.* at 199-201; and focus on offending individuals, *id.* at 202-04.

403. In addition to its inconsistency with presidential policy existing at the time of issuance, *cf.* National Wildlife Fed'n v. Morton, 393 F. Supp. 1286 (D.D.C. 1975), the PREDATOR EIS appears to violate NEPA. *See* Natural Resources Defense Council v. Hughes, 437 F. Supp. 981 (D.D.C. 1977).

unselective coyote killing, even if contrary to biological fact. Most evidence indicates that coyote control as practiced is the wrong approach to the wrong question. First, coyote populations naturally undergo extreme fluctuations which apparently are affected little by the amount of predator control endeavors.[404] Second, stockmen routinely overestimate losses to coyote predation, allegedly leading to control measures where none in fact are necessary.[405] Third, trained biologists have observed that the major causes of lamb deaths are premature birth, starvation, and disease; ewes often die of birth complications, stress, infection, and disease. All of these are consequences of poor livestock management.[406] Because the lack of good livestock management is a primary cause of sheep loss, the federal funds now spent on predator control might be better used to assist the sheep industry in other ways. Finally, because most ranchers sustain low depredation losses and only a small number sustain large losses,[407] it is arguably poor economics to attempt overall coyote population reduction in the western United States.[408]

A multitude of alternative approaches could be applied to the "coyote problem." Lethal control can be replaced by nonlethal or more selective control methods such as olfactory repellents,[409] antifertility agents or chemosterilants,[410] aversive conditioning,[411] anti-coyote electric fencing,[412] toxic collars on sheep to selectively control coyotes that attack sheep,[413] synthetic, sonic, and visual coyote repellants,[414] and coyote-frightening devices.[415] The best, and certainly the most reasonable, alternative to lethal control of coyote populations is better livestock management, including the use of full-time sheep herders and guard dogs.[416]

Several tentative conclusions may be garnered from the foregoing discussion of shifting predator control policies in America. First, biologists mostly agree that if the killing of competitors is truly necessary, it ought to be done selectively because general population suppression is cost-inefficient, ecologically harmful, and sometimes counterproductive. Second, the decision to authorize or forbid levels of predator control activities is intensely political: the most recent presidential order on predator poisons, for instance, was clearly a political payoff; the Administration did not even

404. *See* Balser, *An Overview of Predator-Livestock Problems With Emphasis on Livestock Losses*, 39TH N. AM. WILDLIFE CONF. PROCEEDINGS 282 (1969).
405. Cain, *supra* note 23, at 389.
406. *Id.*
407. *See supra* notes 297-302 and accompanying text.
408. *See* McCabe & Koxicy, *A Position on Predator Management*, 36 J. WILDLIFE MGMT. 382, 390-91 (1972). "In some cases, the cost of predator control to protect sheep exceeds the on-the-hoof value of the livestock killed by predators." *Id.*
409. *See* Lehner, Krumm & Cringan, *Tests for Olfactory Repellents for Coyotes and Dogs*, 40 J. WILDLIFE MGMT. 145 (1976).
410. *See* Balser, *Management of Predator Populations with Antifertility Agents*, 28 J. WILDLIFE MGMT. 352 (1964).
411. PREDATOR EIS, *supra* note 114, at 33-34.
412. *See* Gates, *et al.*, *Development and Evaluation of Anti-coyote Electric Fencing*, 31 J. RANGE MGMT. 151 (1978).
413. PREDATOR EIS, *supra* note 114, at 32.
414. *Id.*
415. *Id.* at 34.
416. *See* PREDATOR DAMAGE IN THE WEST, *supra* note 70, at 13-16.

attempt to furnish any other justification. Third, Congress has enacted a series of "non-predator" wildlife statutes that nevertheless offer some legal protection to some predators, depending largely, however, on administrative discretion. Fourth, there is no consistent theme, philosophy, or overall trend.

Judicial involvement in the predator law and policy debates has been conspicuously absent from the recitation thus far. But judges increasingly have been called upon to decide predator-related cases in recent years, and, as the following part shows, the decisions are mixed.

V. PREDATOR CASES AND CONTROVERSIES

By the mid-1970's, predator law had become more protective, complex, and ambiguous. Shifts in public opinion exacerbated old emotional positions on both sides of the predator question. Several state and federal agencies, notably the Fish and Wildlife Service, had to implement the new statutes and directives in an atmosphere of controversy and hostility. A law student published the first legal study of predator law in 1975,[417] but his recommendations concerning proposed new legislation were ignored and no predator bill was enacted.[418]

But as federal wildlife law grew, legal disputes revolving around predator populations began reaching the courts. Some such lawsuits challenged the conventional wisdom of wildlife management, and often the litigation revealed flaws in management philosophy and practice. This section describes several predator cases and controversies that arose between 1972 and 1982. In general, the judicial opinions in this area are at best uneven and often shallow.

A. *Wolves in Minnesota*

Wolves once inhabited nearly all of the United States.[419] All that now remain are gray wolf populations in portions of Alaska, Michigan, and Minnesota,[420] and a few red wolves in the Southwest.[421] Since the FWS listed the red wolf as endangered in the late 1960's,[422] the main threat to its survival has been genetic swamping: that is, red wolves interbreed with coyotes, thereby gradually eliminating the few remaining genetically pure red wolves.[423] Management for red wolf recovery necessarily involves keeping the two species separate, but habitat changes and the spread of coyotes may have made the decline irreversible.[424]

The gray wolf is listed as endangered in all forty-eight continguous

417. Note, *supra* note 108.
418. *See id.* at 815-25; *see also* M. BEAN, *supra* note 24, at 269.
419. 1 S. YOUNG, *supra* note 23, at 9.
420. Cain, *supra* note 23, at 382.
421. 50 C.F.R. § 17.11 (1981). *Cf.* Cain, *supra* note 23, at 390, table 1.
422. 50 C.F.R. § 17.11 (1981).
423. Ripley & Lovejoy, *Threatened and Endangered Species*, in WILDLIFE AND AMERICA 365, 375 (H. Brokaw ed. 1978).
424. *Id. See also* Note, *supra* note 108, at 791 n.31.

states except Minnesota.[425] Wolves in Alaska are not listed at all. In response to longstanding contentions by the state that there were too many wolves doing too much damage, the FWS in 1978 downlisted the species in Minnesota from "endangered" to "threatened."[426] A threatened species is entitled only to the protection accorded it by special regulations promulgated by the Secretary of the Interior.[427] While the regulations for wolves in Minnesota generally outlaw their killing, they also authorize employees of the FWS, other federal land management agencies, or the Minnesota Department of Natural Resources to "take" wolves if necessary to (1) aid a sick, injured or orphaned specimen, (2) dispose of a dead specimen, (3) salvage a dead specimen for scientific study, or (4) remove from specified zones "a gray wolf committing significant depredations on lawfully present domestic animals, but only if the taking is done in a humane manner."[428]

The fourth exception to the taking prohibition was at issue in *Fund for Animals v. Andrus*,[429] the *Minnesota Wolf* case. A farmer in northern Minnesota previously had instituted an action to compel the Secretary of the Interior to protect the farmer's cattle from the wolves or else invalidate the ESA as applied.[430] The FWS had for some time been trapping wolves near that and other farms; litigation produced an agreement that the FWS would increase its trapping in the vicinity.[431] The Fund for Animals then filed suit to enjoin the expanded trapping and killing program and to require the Secretary of Agriculture to provide areas into which trapped wolves could be transplanted.[432] Plaintiff Fund for Animals alleged, among other things, that general "preventive" trapping and killing violated the FWS regulations for protection of the wolf because the FWS program was not limited to actual cowkillers.[433] The court agreed that only specific, individual depredating wolves and limited local populations could be taken:[434]

> 'Significant depredations' as stated in these regulations means, 'the killing or serious maiming of one or more domestic animals by wolves where the imminent threat of additional domestic animals being killed or maimed by wolves is apparent. *The wolf or wolves controlled must be, in the opinion of the designated Federal or State animal control agent, the animal or animals that are believed to be responsible*

425. 50 C.F.R. § 17.11 (1981).
426. *Id.* § 17.40(d)(2).
427. 16 U.S.C. § 1533(d) (1976).
428. 50 C.F.R. § 17.40(d)(2) (1981).
429. 11 Env't Rep. Cas. (BNA) 2189 (D. Minn. 1978). The opinions in the case were written by the U.S. Magistrate and adopted by the judge.
430. *Id.* at 2191. There was no documentation of the number of cattle which the farmer may have lost to wolves prior to 1977; in that year he allegedly lost one cow to a wolf, and "suspects the loss of another." *Id.*
431. *Id.*
432. *Id.* at 2189. Before 1978, captured wolves were relocated in the Superior National Forest as part of the FWS trapping program. The Department of Agriculture then refused to allow transplants, and the FWS began to kill the captured animals. *Id.* at 2191.
433. *See id.* at 2192. The FWS did not seek out individual offenders but rather trapped any wolves that happened along. *Cf.* 50 C.F.R. § 17.40(d)(2) (1981), *quoted supra* at text accompanying note 428.
434. *See* 11 Env't Rep. Cas. (BNA) at 2196.

for the depredations."[435]

The court was aware that the regulations imposed a difficult "burden of proof" on the FWS to prove the "guilt" of individual wolves, and watered down the requirement to allow localized trapping within "a few feet" of the farm property line.[436] The court accepted the common assumption that the responsible wolf could not be identified after the fact, although the assumption has been shown to be questionable in other circumstances.[437]

Less than a month after the decision was handed down, the FWS filed a motion seeking to clarify the decision.[438] The agency had extended its trapping limits from one-half to one mile from the farm, but the court ordered the FWS to restrict trapping to a zone within one-quarter mile from the farm.[439] The FWS proposed a rule that would allow the taking of gray wolves without waiting for a depredation to occur,[440] but the rule was never made effective.[441]

The *Minnesota Wolf* litigation spurred hearings in the U.S. House of Representatives.[442] The House Subcommittee chairman observed that the issue is "how do we balance our concern for wildlife against the need for continued economic growth and development in this country?"[443] With all due deference, the authors of this Article submit that the real issue is deeper and more subtle. Economic growth is not really in question, for if all of the wolves in the contiguous states were to dine exclusively on beef and veal, the national loss of meat and milk production, if any, would hardly be noticed.[444] At odds are a strong national policy[445] and very strongly opposed local preference.[446] The FWS, in choosing to keep wolves completely away from cows, premised its decision on local political reaction, not on legal or biological factors.[447] The court also saw the dis-

435. *Id.* at 2195 (quoting a directive from the Director of the FWS, Apr. 12, 1978) (court's emphasis).

436. *Id.* at 2200.

437. One of the most successful predator control programs is in Kansas, where one specialist tracks down the offending animal after complaint. *See* Henderson & Boggess, *supra* note 192.

438. 11 Env't Rep. Cas. (BNA) at 2201.

439. *Id.* at 2202-03.

440. H.R. REP. No. 95-50, *Subcomm. on Fisheries and Wildlife Conservation and the Environment, Comm. on Merchant Marine and Fisheries*, 95th Cong., 2d Sess. 213 (1978).

441. The regulation still uses the problematic phrase, "a grey wolf." 50 C.F.R. § 17.40(d) (1981).

442. *Hearings, supra* note 440, at 193.

443. *Id.* (statement of Rep. Leggett).

444. If every wolf in Minnesota, including pups, were to kill one cow every day for a year, a rather unlikely event, less than one-third of one percent of the Nation's 100 million-plus cattle would die.

445. From Missouri v. Holland, 252 U.S. 416 (1920), to TVA v. Hill, 437 U.S. 153 (1978), and Andrus v. Allard, 444 U.S. 51 (1979), courts have agreed that wildlife preservation is a high national priority. *See also* Palila v. Hawaii Dept. of Land & Nat. Res., 471 F. Supp. 985, 993-95 (D. Hawaii 1979), *aff'd*, 639 F.2d 495 (9th Cir. 1981).

446. The local and personal reaction to predation on livestock is artfully dissected in economic terms in Rodgers, *Building Theories of Judicial Review in National Resources Law*, 53 COLO. L. REV. 213, 223-24 (1982).

447. Fund for Animals v. Andrus, 11 Env't Rep. Cas. (BNA) 2189, 2193 (D. Minn. 1978) (although instructed to render a nonpolitical, biological opinion, the Recovery Team premised its recommendations on accommodating local hostility).

pute in terms of avoiding or moderating wolf/livestock conflicts and tried to impose an accommodation that disregarded the policies behind, and several provisions of, the governing statute.

In the *Minnesota Wolf* case, the local solution was to kill encroaching wolves to keep a large buffer between them and cattle; by so doing, the agencies hoped to serve the conservation purposes of reducing human/wolf conflicts and perhaps of abating the large illegal wolf kill. The FWS tried to reconcile national policy with inconsistent local desires.[448] The national policy, however, is stronger than parochial hatred of wolves: while local objections should be met to the extent possible, the federal directive clearly takes precedence over local inconvenience when the two conflict.[449] The national legislature had earlier made the judgment that a healthy population of this native species justified the imposition of substantial cost on society at large: the premature demise of a few domestic cows is but a small part of that price. In recognizing the potential value of species in danger, federal legislators implicitly acknowledged that all salvage measures have costs, and that the costs are often distributed unequally. All taxpayers share the burden of biological recovery teams for listed species, a particular region may suffer disproportionately if a dam is not built,[450] and a few farmers may be the only ones to lose cattle to wolves. Independent local reactions to wolves over three centuries had nearly eradicated this fierce predator; such reactions were the *cause* of the condition Congress wanted to ameliorate. The crude remedy of killing competing species, though sanctioned by time, is inadequate under the ESA. If the nation is to have a healthy population of wolves, there will be economic loss; the loss allocation could be handled more equitably in other ways.[451]

Although the Minnesota dairy farmer received partial satisfaction at best from the lawsuit, livestock and poultry operators in general probably gained from the litigation. Plaintiff had demanded that the FWS stop killing the trapped wolves and instead relocate them to new areas.[452] The court rejected this claim, holding that the wolves had to be killed for their own good.[453] It also termed "clearly permissible" the Recovery Team plan

448. *See generally* Gottschalk, *The State-Federal Partnership in Wildlife Conservation*, in WILDLIFE AND AMERICA 290 (H. Brokaw ed. 1978).

449. *E.g.*, Kleppe v. New Mexico, 426 U.S. 529 (1976).

450. *Cf.* TVA v. Hill, 437 U.S. 153 (1978).

451. *See infra* notes 461-63 and accompanying text.

452. *See supra* note 432 and accompanying text. An earlier attempt to transplant wolves to northern Michigan failed; the four introduced wolves were all killed, three by guns and one by a car, within a few months. *See* Note, *supra* note 108, at 793 n.46.

453. 11 Env't Rep. Cas. (BNA) at 2199: "At first glance, the proposition that killing wolves is consistent with conserving the species appears difficult to accept. However, this is precisely the fact of the matter." The court acknowledged the ESA affirmative obligation to increase the wolf population, but thought that conservation was possible only by "minimization of human conflict." *Id.*

This odd proposition is consistent with much wildlife management theory and practice; "direct reduction"—a euphemism for shooting—is a common if crude solution to many population problems. *See generally* Schectman, *supra* note 253.

to kill 100 wolves the first year and 60 wolves each year thereafter.[454] The court based its holding on findings that present wolf habitat is "saturated," that wolves would not be accepted as transplants anywhere else in the country, and that they should not be left to languish in captivity.[455]

Accomplished with citation neither to the record nor to the law, this dual holding is nearly breathtaking in its sweep. It contravenes the ESA's conservation goal of increasing endangered and threatened species populations to the point where the Act's protections would no longer be necessary.[456] The court inferentially held that the "optimum" wolf population is limited to the existing population at most, a notion at variance with all biological and legal definitions of "optimum."[457] The opinion restricts wolf habitat to its present limited range even though there are millions of wilderness acres in the lower forty-eight states where wolves once flourished.[458] The decision condemns to death, annually, a large number of these hitherto protected animals. The court's resolution of the case appears simple and reasonable, but it is in fact profoundly dissatisfying from any perspective broader than one seeing the issue as simply a few cows versus a few wolves.

In the four years prior to the *Minnesota Wolf* decision, seventeen cows on fourteen farms in northern Minnesota had fallen prey to wolves; in that same period, the FWS took 151 wolves.[459] (The farmer who initiated the litigation had lost "one or two" cows; forty-one wolves were taken to avert this threat.)[460] Thus over ten percent of the estimated 1200 wolves still living in the contiguous states were trapped and killed to protect against a loss of perhaps .000002 percent of domestic cattle. Congress most emphatically did not intend such a result. The court's opinion, therefore, while apparently "reasonable" in the circumstances, in fact gave too much credence to local and administrative politics and too little to the beleaguered wolves.

Many thousands of dollars were spent on the litigation, for recovery teams, and to support the administrative apparatus responsible for this apparent overreaction. There ought to be a better way to resolve such disputes. In the absence of an insurance scheme,[461] or of official federal assumption of financial responsibility,[462] a private relief bill in Congress

454. 11 Env't Rep. Cas. (BNA) at 2199. The FWS planned its legal kill to complement the illegal kill of similar estimated magnitude and to keep the wolves from expanding their range.

455. *Id.*

456. *See* 16 U.S.C. §§ 1531(b), 1532(2) (1976). All federal agencies are required to pursue this goal in all decisionmaking. *Id.* § 1536(a). *See* Defenders of Wildlife v. Andrus, 429 F. Supp. 167 (D.D.C. 1977); Coggins & Russell, *supra* note 247, at 1469.

457. *See, e.g.*, M. BEAN, *supra* note 24, at 335-42 and authorities cited therein (optimum sustainable marine mammal populations).

458. Rumors occasionally surface to the effect that a remnant wolf population still exists in Yellowstone National Park.

459. 11 Env't Rep. Cas. (BNA) at 2198.

460. *Id.*

461. Such a proposal has been made by many, including the CAIN REPORT authors. *See supra* notes 297-318 and accompanying text.

462. The Supreme Court declined to decide the property issue in Kleppe v. New Mexico, 426 U.S. 529, 537 (1976), but the court in Palila v. Hawaii Dept. of Land & Nat. Res., 471 F. Supp. 985, 995 n.40 (D. Hawaii, 1979), *aff'd*, 639 F.2d 495 (9th Cir. 1981), was inclined to take that step,

would be preferable.[463]

B. *Wolves in Alaska*

Livestock protection remains the raison d'etre of predator programs. In the wake of the Kaibab and similar disasters, game managers generally rejected predator control as a means of increasing game animal propagation.[464] But the idea that more shootable game animals will be available if their natural predators are eliminated did not die completely. In the mid-1970's, the State of Alaska instituted massive annual wolf killing programs on both federal and state lands to increase caribou and moose populations. At least five law suits, collectively called the *Alaska Wolf Kill Litigation*, resulted. Their resolution to date is also unsatisfactory.

After two inconclusive court skirmishes,[465] the major issues in the litigation became whether, under the then newly enacted Federal Land Policy and Management Act (FLPMA),[466] the Secretary of the Interior could prevent the killing of wildlife on federally owned lands, and if so, whether, under National Environmental Policy Act (NEPA),[467] he was required to prepare an impact statement on his decision not to intervene in the state wildlife program.[468] Section 302(b) of FLPMA directs the Secretary to regulate the use, occupancy, and development of the public lands[469] to achieve multiple use, sustained yield management goals.[470] Wildlife is one of the major resources to be managed for such purposes.[471] The same section of FLPMA, however, contains a caveat relevant to wildlife management: nothing in the Act shall be construed to "enlarge or diminish the responsibility and authority of the states for management of resident fish and wildlife."[472] Even so, the Secretary may designate areas of the public lands where no hunting and fishing are permitted for reasons of "public safety, administration, or compliance with provisions of applicable law."[473] If the latter language of FLPMA vested the Secretary with author-

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although it was unnecessary in the circumstances. *See* Coggins, *Wildlife and the Constitution: The Walls Come Tumbling Down*, 55 WASH. L. REV. 295, 324-25 (1980).

That the federal government should assume liability for the damage done by animals it would protect has struck some responsive chords. In THE PUBLIC TRUST DOCTRINE IN NATURAL RESOURCES LAW AND MANAGEMENT 26 (H. Dunning ed. 1981) [hereinafter cited as PUBLIC TRUST DOCTRINE], a former Park Service Director recounted: "about a year ago I was called before a Senate Committee on a relief bill. A man had unfortunately been mauled and killed . . . . [Senator Allen] said, 'Mr. Whalen I want to know and I want an answer, was it a government bear that et him.' I said, 'Yes sir.' He said, 'If a government bear et him, government has to pay the damages.' " This principle—if such it is—might be equally applicable to livestock losses.

463. *See supra* note 462.

464. *See supra* text accompanying notes 141-51.

465. *See* M. BEAN, *supra* note 24, at 245.

466. 43 U.S.C. §§ 1701-1782 (1976).

467. 42 U.S.C. §§ 4321-4343 (1976).

468. The questions arose in Defenders of Wildlife v. Andrus, 627 F.2d 1238 (D.C. Cir. 1980); Alaska v. Andrus, 429 F. Supp. 958 (D. Alaska 1977), *aff'd*, 591 F.2d 537 (9th Cir. 1979); Defenders of Wildlife v. Andrus, 9 Env't Rep. Cas. (BNA) 2111 (D.D.C. 1977).

469. 43 U.S.C. § 1732(b) (1976).

470. *Id.* §§ 1701(a)(7), (a)(8), 1702(c), 1732(a).

471. *Id.* §§ 1701(a)(8), 1702(c).

472. *Id.* § 1732(b).

473. *Id.*

ity to halt the Alaska wolf kill program, was his acquiescence in the state program a "major federal action" sufficient to trigger the EIS requirement of NEPA?[474]

In *Alaska Wolf Kill III*,[475] the District Court for the District of Columbia directed the Secretary to halt the killing. The court ruled that FLPMA section 302(b) and the Act in general authorized the Secretary to close the federal lands to the wolf kill,[476] citing numerous congressional statements affirming a secretarial duty to safeguard the public lands and resources.[477] It further held that his failure to do so was a major federal action with significant adverse effects on the Alaskan ecosystems.[478] In essence, the district court held that the Secretary could not acquiesce in the destruction of a federal resource without at least evaluating the consequences in an environmental impact statement.[479] After the injunction was issued, the Secretary ordered the Governor of Alaska to halt the wolf kill on federal lands.[480]

Alaska then brought suit in the United States District Court for the District of Alaska, claiming that the Secretary's order violated the Alaska Statehood Act[481] and had no basis in FLPMA.[482] The Alaska court in *Alaska Wolf Kill IV* found that although the Secretary did have the power under FLPMA to close federal lands to state wildlife management programs, the nonexercise of that power is not affirmative conduct requiring EIS preparation.[483] The Court of Appeals for the Ninth Circuit affirmed on the second point,[484] while declining to "reach the intriguing question of statutory construction and application that would lurk" in the first.[485] Meanwhile, the Secretary had appealed from the injunction granted by the District of Columbia Court and, in an unpublished order, the Court of Appeals for the District of Columbia vacated the injunction for "want of equity."[486]

In *Alaska Wolf Kill V*,[487] the Court of Appeals for the District of Columbia held that the Secretary's silent acquiescence in the state program

474. *See* 42 U.S.C. § 4332(2)(C) (1976).

475. Defenders of Wildlife v. Andrus, 9 Env't. Rep. Cas. (BNA) 2111 (D.D.C. 1977) [hereinafter cited as *Alaska Wolf Kill III*]. The two earlier decisions referred to *supra* note 465 were handed down prior to the enactment of FLPMA.

476. *Id.* at 2117-18.

477. *Id.* The court demonstrated that the seemingly dispositive conference report on the bill did not accurately state the general congressional understanding. Instead, as Chairman Melcher declared, "The intent of the bill . . . is to assure that wildlife habitat management, and wildlife itself, are included in the management of our federal lands." *Id.* at 2117 (citing 122 CONG. REC. H12009 (daily ed. Sept. 30, 1976)).

478. 9 Env't Rep. Cas. (BNA) at 2118-19.

479. *Id.* at 2119-20.

480. *See* Defenders of Wildlife v. Andrus, 627 F.2d 1238, 1241 (D.C. Cir. 1980) [hereinafter cited as *Alaska Wolf Kill V*].

481. 48 U.S.C. ch. 2, § 6(e) (1976).

482. Alaska v. Andrus, 429 F. Supp. 958, 961 (D. Alaska 1977), *aff'd*, 591 F.2d 537 (9th Cir. 1979) [hereinafter cited as *Alaska Wolf Kill IV*].

483. 429 F. Supp. at 962.

484. *Alaska Wolf Kill IV*, 591 F.2d 537, 541-42 (9th Cir. 1979).

485. *Id.* at 538.

486. The disposition is noted in *Alaska Wolf Kill V*, 627 F.2d 1238, 1242 (D.C. Cir. 1980).

487. *Id.*

was inaction and not federal "action" for purposes of NEPA.[488] Borrowing—perhaps incongruously—from the law of criminal conspiracy, the court reasoned that federal "action" exists only when the agency has performed an "overt" act.[489] Had it stopped there, the decision would have been unremarkable, albeit shallow.[490] For reasons it never articulated, however, the court went on to discuss the meaning of FLPMA section 302(b) and its legislative history.[491] It reached no definitive conclusions except that FLPMA did not affect its NEPA holding. Along the way, the court agreed that FLPMA imposes a general duty on the Secretary "to plan for and manage federal land and resources;"[492] it also stated, however, that states were given primary responsibility for the management of wildlife within their borders.[493] This premise is arguable because section 302(b) says that it neither enlarges nor diminishes federal or state powers, leaving the question of existing authority open.[494] From that premise, the court went on to describe possible secretarial action as "intervention" and even waffled over whether the Secretary had such power.[495]

The *Alaska Wolf Kill V* decision has been dispositive so far, but it is riddled with false certainty. The court left open more important questions, and it ignored the potential dangers it created.[496] The basic jurisdictional allocation between federal and state governments remains in limbo because the court unnecessarily confused the issue.[497] The effect of the decision on predator management could be disastrous for federal managers and the federal resource legacy. The *Alaska Wolf Kill III* court documented in great detail the harm that the state was about to wreak on its own and the federal natural systems,[498] findings that comport with progressive wildlife management theory.[499] The appellate court did not overturn the findings or deny their implications, but instead rested—almost apologetically—on narrow legal abstractions.[500] Almost certainly, the court would have been moved to act if the Secretary, relying as he did on an incorrect understanding of his own powers,[501] refused to prevent the

488. *Id.* at 1243-47.

489. *Id.* at 1244.

490. The line between "action" and "inaction" in various circumstances of federal decisionmaking is not always as clear or bright as the court apparently assumed. *See* authorities cited in G. COGGINS & C. WILKINSON, *supra* note 81, at 615 n.3. The court's attempt to distinguish the CEQ regulation dealing with a "failure to act" is also at best strained and unpersuasive. *See* 627 F.2d at 1247 n.6.

491. 627 F.2d at 1249-50 n.8. The court's discussion of the legislative history was superficial and misleading. The district court in *Alaska Wolf III*, 9 Env't Rep. Cas. (BNA) at 2115-17, had earlier undertaken a broader and deeper investigation into the statutory meaning.

492. 627 F.2d at 1248.

493. *Id.*

494. 43 U.S.C. § 1732b (1976), *quoted supra* at text accompanying note 472. The court's citation of similar federal statutes is less than conclusive because they too mirror the same ambiguity. *See* Coggins & Ward, *supra* note 152, at 77-85.

495. *See* 627 F.2d at 1250.

496. *See infra* text accompanying notes 501-02.

497. *See* Coggins & Ward, *supra* note 152, at 83.

498. 11 Env't Rep. Cas. (BNA) at 2112-13, 2118.

499. *E.g.*, D. ALLEN, *supra* note 43, at 235-36.

500. *See* 627 F.2d at 1245. The court noted—correctly—that "Our reading of [NEPA] and our insistence of an 'overt act' may seem literal and formalistic." *Id.*

501. The Secretary claimed in earlier litigation that he lacked any power to halt the hunt; after

State of Alaska from killing every wolf or every caribou within its borders. In such a case—which, with respect to wolves, is by no means inconceivable—an important public land resource would have been irrevocably destroyed, a result FLPMA was enacted to prevent.[502] And yet a literal reading of the *Alaska Wolf Kill V* decision would seem to countenance just such an ecological disaster.

In the court's final opaque footnote, it noted that plaintiffs may have had other claims under FLPMA, but it neglected to identify or address them.[503] Perhaps this cryptic reference will serve as the judicial escape hatch from the consequences of the otherwise shortsighted opinion in future controversies. If Alaska remains adamant, and no other legal remedy is devised, however, the Alaska wolves could join their relatives in Minnesota on the official list of endangered and threatened species.

C. *Grizzly Bears*

Grizzly bears remain only in three remote mountainous areas of the northwest[504] and are listed as threatened with extinction in the forty-eight contiguous states.[505] These bears require vast expanses of undisturbed habitat to survive.[506] Unless Yellowstone and Glacier National Parks and the wilderness complexes in between are kept free of human disruption, grizzly bears face a dubious future.[507]

Regulations protecting the bear allow its "taking" if done in self-defense or in defense of others, if a bear constitutes a demonstrable threat to human safety, or if it is committing significant depredations on livestock.[508] In the last instance, the bear can be killed only if it has not been possible to eliminate the threat of depredation by capturing the problem bear and releasing it unharmed in a remote area.[509] In its ADC program, the FWS uses leg snares and live traps to capture problem grizzlies; occasionally, specially trained bear dogs are used to harass problem bears out of an area.[510] The FWS believes that removal of a problem grizzly will reduce danger to local bear populations from nonselective illegal takings by antagonistic stockmen.[511] When there is an absence of suitable transplant habitat, or the bear is known to be aggressive toward man (or when other relocation problems such as stress are present), the FWS may kill the captured bear instead of relocating it.[512] Less selective ADC devices, such as coyote-getters and poisoned baits, should be forbidden in the remote

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vigorous admonitions from the Justice Department, the Secretary "conceded" that FLPMA bestowed such power. *See Alaska Wolf Kill IV*, 591 F.2d at 539.

502. *E.g.*, 43 U.S.C. § 1711(a) (1976).
503. 627 F.2d at 1250 n.10.
504. Cain, *supra* note 23, at 381.
505. 50 C.F.R. § 17.11 (1981).
506. Swanson, *Wildlife on the Public Lands*, in WILDLIFE AND AMERICA 428 (H. Brokaw ed. 1978).
507. *Id.*
508. 50 C.F.R. § 17.40(b) (1981).
509. *Id.*
510. PREDATOR EIS, *supra* note 114, at 124.
511. *Id.*
512. *Id.*

areas where grizzlies are known to reside.[513]

Preservation of grizzly bears will be very expensive if it is to be effective. The bears sparsely occupy millions of acres in the "overthrust belt," an area now regarded as a significant potential source of oil and gas.[514] This region is also highly popular for backcountry recreation. Prior management efforts, notably in Yellowstone National Park, have illustrated the truth that the bears cannot be managed;[515] rather, humans must be managed to keep them away from the bears.[516] The FWS once proposed designating several million acres as critical habitat for the bears, but backed away in the face of adverse political reaction.[517] The grizzly may someday force politicians to face the central question of balance in a paradigmatic instance: how much is the nation willing to spend or forego in order to save this remnant population of a species it has so long warred against?[518]

In *Cabinet Mountain Wilderness v. Peterson*,[519] a dispute involving mineral exploration in a national forest wilderness area in northwest Montana, the possible presence of grizzly bears has confused the question whether mineral development should proceed. A mining company with a block of unpatented claims proposed to conduct an extensive drilling program to assess the extent of copper and silver deposits.[520] The FWS concluded that the venture, when taken together with other activities in the area, was "likely to jeopardize" the bears.[521] To avoid jeopardy, the FWS also recommended various safeguards to mitigate possible harm.[522] The Forest Service adopted the FWS mitigation recommendations, added conditions of its own, and concluded that no EIS was required because the venture, as modified, would have no significant adverse effect.[523] The district court accepted at face value the biological opinion, which confessed ignorance of the bears' presence in the area, and dismissed the suit, stating that matters having to do with remote bears are beyond judicial competence and inappropriate as a judicial function.[524] That holding appears erroneous as a matter of law because the ESA rejects the unfettered man-

513. *See id.* at 123-24.

514. *See* Comment, *The Interrelationships of the Mineral Lands Leasing Act, the Wilderness Act, and the Endangered Species Act: A Conflict in Search of Resolution*, 12 ENVTL. L. 363, 397 (1982).

515. "Basically, all the studies aside, I think the grizzly bear does just what he pleases to do . . . ." PUBLIC TRUST DOCTRINE, *supra* note 462 (remarks of Supt. Whalen).

516. *Cf.* Norris, *supra* note 255, at 320: "there is, it seems to me, a typical touch of human arrogance and evasion in this cant of mind that tells us we are managing animals when we are really trying to manage ourselves."

517. *See* Rosenberg, *supra* note 252, at 534 n.202.

518. Concern for grizzlies was prominent in congressional debates over the Endangered Species Act of 1973. *See, e.g.*, 119 CONG. REC. 42913 (1973) (remarks of Rep. Dingell).

519. 510 F. Supp. 1186 (D.D.C. 1981), *aff'd*, 685 F.2d 678 (D.C. Cir. 1982).

520. 685 F.2d at 679-80. Time was critical to the company since its claims could expire unless a valuable discovery were made before 1984. Wilderness Act of 1964, 16 U.S.C. § 1733(d)(3) (1976).

521. 685 F.2d at 680.

522. *Id.*

523. *Id.* at 681.

524. 510 F. Supp. at 1190-91.

agement discretion that the court resurrected,[525] and prior authority had made abundantly clear that wildlife protection is an appropriate judicial function.[526]

In affirming, the District of Columbia Circuit panel was more sophisticated, but still ignored the main point. It upheld the administrative conclusion that the mitigation measures were adequate to avoid EIS preparation,[527] and it ruled that review of decisions under the ESA was limited to an "arbitrary and capricious" standard,[528] rejecting plaintiffs' suggestion that de novo review was appropriate. What the panel neglected to do was to apply the relevant statute: the ESA requires all federal agencies to *insure* that neither jeopardization nor critical habitat modification will be caused by their action.[529] The Supreme Court has emphatically held that the ESA is an absolute standard that does not permit administrative balancing of values and factors.[530] The courts[531] have agreed that Congress used "insure" in its common meaning of "make damn certain."[532] In *Cabinet Mountains*, the Forest Service took a series of steps to avoid much of the foreseeable damage to bear privacy and habitat, but the court did not inquire whether the agency could carry its burden of proving no detriment. Instead, the appellate court apparently thought that, in face of competing considerations, reasonable consideration of the problem sufficed. The Supreme Court, however, had flatly rejected the importation of subjective reasonableness notions into ESA application.[533]

Grizzly populations have dropped dramatically in recent years in spite of their official legal protection.[534] The *Cabinet Mountains* decision may or may not accelerate their decline. The main point in this instance is that the Forest Service administrators were willing to take that chance in order to accommodate the admittedly significant interest in commercial mineral production, and the judges appeared concerned principally with bringing endangered species cases within the run-of-the-mill type of judicial review nostrums. Neither seemed much interested in either the biolog-

525. 16 U.S.C. §§ 1533(d), 1536, 1538 (1976). *Compare* Defenders of Wildlife v. Andrus, 428 F. Supp. 167 (D.D.C. 1977) (Judge Gesell finding hunting regulations arbitrary because the regulations in his view would result in "some killing of protected species") *with* Cabinet Mountains Wilderness v. Peterson, 510 F. Supp. 1186 (D.D.C. 1981) (Judge Gesell dismissed suit because it is beyond judicial competence "to speculate" on what effect mineral exploration would have on remote bear populations).

526. TVA v. Hill, 437 U.S. 153 (1978). *See also* Palila v. Hawaii Dep't of Natural Resources, 639 F.2d 495 (9th Cir. 1981); North Slope Borough v. Andrus, 486 F. Supp. 332 (D.D.C.), *injunction vacated*, 642 F.2d 589 (D.C. Cir. 1980); Nebraska v. REA, 12 Env't Rep. Cas. (BNA) 1156 (D. Neb. 1978); Defenders of Wildlife v. Andrus, 428 F. Supp. 167 (D.D.C. 1977).

527. 685 F.2d at 683-84. As in *Alaska Wolf Kill V*, *supra* notes 487-503 and accompanying text, the D.C. Circuit had difficulty in distinguishing away an apparently contrary interpretation by the CEQ. 685 F.2d at 682-83.

528. *Id.* at 685-87.

529. 16 U.S.C. § 1536(a)(2) (1976).

530. TVA v. Hill, 437 U.S. 153, 188 (1978).

531. *See* cases cited *supra* notes 525-26.

532. *See* Coggins & Russell, *supra* note 247, at 1462-68.

533. TVA v. Hill, 437 U.S. 153, 194 (1978).

534. The Interagency Grizzly Bear Study Team concluded in August 1982 that "[u]nless some change occurs, the probability of retaining this wildland species in Yellowstone National Park is minimal." *Quoted in* Kansas City Times, Sept. 2, 1982, at A-2, col. 2 (Wash. Post Serv.).

ical phenomenon of gradual extinction or the overriding congressional resolve to halt and reverse that process.

D. *Mountain Lions and Bobcats*

Bobcats and mountain lions occasionally kill livestock and poultry. Bobcats usually eat rodents, rabbits, birds, fish, and small ungulates as well as some domestic animals.[535] Mountain lions dine primarily on mule deer, but elk, porcupine, other small mammals, and sheep and cattle constitute smaller proportions of its diet.[536] Both species are very secretive and live in dense cover or rocky terrain. Thus, they come into contact with domestic animals less often than does the ubiquitous coyote. Because of the remoteness and relative scarcity of both cats, the ADC Program has not emphasized their control. Still, many bobcats and mountain lions are taken in predator control activities each year.[537]

Mountain lions are listed in Appendix II of the Convention on International Trade in Endangered Species of Wild Fauna and Flora.[538] The Convention Appendices are distinct from the list of species issued under the ESA,[539] because the latter species can be endangered or threatened by any factor[540] whereas species listed on the Convention Appendices must be actually or potentially endangered by international trade.[541] The Convention is administered domestically by the Endangered Species Scientific Authority (ESSA). The ESSA determined that mountain lions, which are not directly endangered by international trade, should be listed on Appendix II to assist control of trade in other cat species.[542] The ESSA found that the taking of mountain lions is sufficiently controlled by state governments and that there is no significant commercial exploitation of the species.[543] Sport hunting of mountain lions is allowed in most western states.[544]

Between 1973 and 1977, the ADC Program killed 213 mountain lions. The FWS estimated that number to be less than one percent of the total mountain lion population in states where ADC activities are conducted.[545] The FWS asserts generally that mountain lion populations in the West are stable and that as a "target species" of the ADC Program, the cats are to be taken on a "corrective" rather than "preventive" basis, usually after high livestock losses have been verified by FWS employees.[546]

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535. PREDATOR EIS, *supra* note 114, at 78.
536. *Id.* at 80.
537. *See id.* at 113, table 3-13.
538. *Opened for Signature* Mar. 3, 1973, [1976] 27 U.S.T. 1087, T.I.A.S. No. 8249, — U.N.T.S. —. *See* 42 Fed. Reg. 43730 (1977). "Mountain lion" is the name given to most of the large cats in North America. It is used here to denote the western species of the cat. The eastern relatives are protected by the ESA: the Florida panther is listed as threatened; and the eastern cougar is listed as endangered. 50 C.F.R. § 17.11 (1981).
539. 50 C.F.R. § 17.11 (1981).
540. 16 U.S.C. § 1533(a) (1976).
541. Convention, *supra* note 538, at art. II.
542. 44 Fed. Reg. 9696, 9697 (1979).
543. *Id.*
544. PREDATOR EIS, *supra* note 114, at 110.
545. *Id.* at 106, table 3-8.
546. *Id.* at 99, 105, table 3-7, 110.

The bobcat, like the mountain lion, is secretive and elusive, but it is the object of heavy trapping pressure because its fur is highly valued. Because bobcats cause relatively little depredation damage,[547] the ADC Program does not concentrate on bobcat control. The FWS claims to take bobcats only on a "corrective" basis except in concentrated livestock production areas, such as lambing and calving ranges, with documented histories of bobcat depredation.[548] Furtrappers and sport hunters take three times more bobcats than do ADC efforts, so the ADC program has only a minor effect on bobcat populations.[549]

The bobcat was also listed on Appendix II of the Convention on International Trade in Endangered Species of Fauna and Flora by the inclusion of the entire family of cats of which it is a member.[550] The Appendix listings do not affect the number of bobcats taken in predator control activities or hunted for domestic use.[551] The ESSA cannot approve the export of bobcat pelts, however, until it finds that the export quota "will not be detrimental to the survival of the species."[552]

Following the 1978 listing, and perhaps because it questioned the propriety of including the bobcat on the list,[553] the ESSA approved liberal export of bobcat pelts for the 1978-79 and 1979-80 trapping seasons. The Authority determined that although information regarding bobcat population sizes, trends, and habitat requirements was scanty,[554] export of unrestricted quantities of the pelts would not be detrimental to the species.[555] The Defenders of Wildlife then filed suit seeking a declaratory judgment that the ESSA actions approving the exports were invalid.

The district court, in *Defenders of Wildlife Inc. v. Endangered Species Scientific Authority*,[556] initially granted a temporary restraining order barring export of bobcats. After hearing plaintiffs' case for a preliminary injunction, however, the court dismissed the action with respect to export of bobcats from most states, while setting aside the ESSA finding of "no detrimental impact" as to seven states.[557] Plaintiffs appealed, contending primarily that the ESSA impact findings lacked adequate scientific bases.[558] The court of appeals ruled that the ESSA could not make a valid determination of "no detriment" without adequate information on total bobcat

547. PREDATOR EIS, *supra* note 114, at 110. In 1977, only 890 bobcat killings of domestic animals were confirmed.

548. *Id.*

549. *Id.* at 111.

550. 43 Fed. Reg. 39,306, 39,308 (1978).

551. Although the ESA governs all human actions that affect listed species, the Convention as implemented by the ESA regulates only international trade.

552. Convention, *supra* note 538, at art. IV, ¶ 82.

553. *See, e.g.*, 44 Fed. Reg. 9690, 9692 (1979).

554. Although the ESSA Guidelines first included population, harvest, and trend data among its "minimum requirements," they also allowed use of only "past reported harvest" even though such reports were useful only on "intuitively reasonable" assumptions. 43 Fed. Reg. 15,098 (1978).

555. 43 Fed. Reg. 11,082, 11,085 (1978); 43 Fed. Reg. 29,470, 29,471 (1978); 50 C.F.R. § 23.52 (1980).

556. 659 F.2d 168 (D.C. Cir. 1981). The unreported lower court decision is described in the appellate opinion.

557. *Id.* at 174.

558. *Id.* at 176.

population and the number to be killed each season,[559] and it voided the ESSA actions to the extent that they allowed exports on the basis of insufficient data.[560]

The bobcat decision illustrates in stark relief one conspicuous shortcoming of modern wildlife management. The Convention requirements as applied by the court were neither novel nor drastic: to approve bobcat exports, the ESSA had only to find that they would not significantly harm bobcat populations. To do so, the Authority only had to have estimates of total populations and some informed speculation on population structure in light of anticipated trapping.[561] The court neither sought nor required certainty. Yet the game management agencies could not produce even this absolute minimum level of biological information, and they still cannot. Instead, they persuaded Congress to water down the information requirements in this context.[562]

Scientific capabilities of state and federal wildlife agencies to compile relevant information vary widely, apparently depending upon the management objective. For common game species such as deer, states usually have very specific numbers from which to set hunting goals and quotas. The FWS can estimate migratory bird populations within a few percentage

559. *Id.* at 177:

> We do not see how, without adequate information on total bobcat population and the number to be killed in a particular season, the Scientific Authority can make a valid determination of "no detriment." For example, the Scientific Authority set a quota for the 1978-79 season of 2,000 bobcats to be killed in Wyoming. If Wyoming had a total population of only 2,500 bobcats, the killing of 2,000 would have a devastating impact upon the survival of the species there. Conversely, if the state had a population of 50,000 animals, the killing of 4 percent of the bobcats probably would not pose a serious threat to survival. Unless the total bobcat population is known, however, it is impossible to predict the effect upon bobcat survival of the killing of a specified number.
>
> It is similarly impossible to make an informed and therefore valid finding of "no detriment" without knowing the total number of animals to be killed. The impact of killing upon the survival of the species depends upon both the population and the extent to which the killing will reduce that population. The proposed killing of a substantial number of bobcats may have only a minimal effect upon the species if the total bobcat population is large. Conversely, the killing of only a small number of animals may have a serious impact if the total number of bobcats is small. The two factors—population and number to be killed—are so interrelated that a valid finding of "no detriment" cannot be made without adequate data about both of them.

560. *Id.* at 178. The decision was severely but unpersuasively criticized in Casenote, Defenders of Wildlife, Inc. v. Endangered Species Scientific Authority: *The Court as Biologist*, 12 ENVTL. L. 773 (1982), whose authors argue in essence that courts ought to accept all wildlife managers' opinions whether or not defensible.

561. 659 F.2d at 178:

> We recognize that, because of the secretive nature of the bobcat's life and behavior, it is difficult to obtain accurate information about the size of the bobcat population. There are indications that techniques for making more accurate population estimates can and may be developed. We do not suggest that the Scientific Authority may base a no-detriment finding only upon some kind of head count of the animals or some other method of measurement that, as a practical matter, would be virtually impossible to make. All the Scientific Authority is required to do is to have a reasonably accurate estimate of the bobcat population before it makes a no-detriment finding. The Scientific Authority has considerable discretion to determine the method by which that estimate may be made and in evaluating its reliability.

562. President Reagan on Oct. 14, 1982 signed H.R. 6133 into law. *See Current Developments*, 13 Env't Rep. (BNA) 850 (Oct. 1982).

points when it wishes to reopen hunting on a species.[563] When the species in question is one to be killed for other—often economic—reasons, however, the wildlife population information sometimes turns out to be wildly inflated or plainly inadequate. This holds true not only for elusive bobcats, but also for highly visible wild horses[564] and abundant, widely distributed species such as porpoises and dolphins.[565] The lesson, perhaps, is that science cannot be completely divorced from human bias and human politics; as Professor Tom McGarity remarked in November 1980, "it looks like we're in for four years of Republican science."

VI. CONCLUSION

The only federal statute specifically directed at the arbitrarily defined class of animals called predators is interpreted to call for their eradication when they are or may be "injurious" to conventional agriculture, including stock-raising.[566] The law remains on the books unchanged, even though subsequent federal laws have provided varying degrees of protection to certain of the predatory species. The new laws require new approaches to predator management, but wildlife managers have been slow to shed or alter historical attitudes. The traditional practice of killing competing species whenever economic interests loudly complain remains in vogue.

The dreary story of predator control in America has neither ringing conclusion nor comfortable moral. The four instances of legal conflict over "predators' rights" recounted in the preceding part of this Article illustrate the main reasons why human society remains hellbent on killing creatures for the crime of acting like humans. The FWS kills wolves in Minnesota because they threaten the lives of valuable cows and because the Service believes that they would be unwelcome elsewhere.[567] The State of Alaska kills wolves because they prey on moose and caribou.[568] Trappers kill bobcats because their pelts can be sold at a good profit.[569] The grizzly bear litigation is an example of less direct but possibly more fundamental means of predator killing: the relatively minor harrassment, if any, of the bears, if any, by the drilling crews, when multiplied by the number of all similar instances, represents the loss of habitat—in the broad sense; here, elbow room—that the species needs for survival.[570]

In spite of modern popular recognition of each species' right to exist, all of these predator species ultimately lost the immediate legal fight. Two of the species are so depleted as to be threatened with extinction, and the other two could possibly descend to that status in part as a result of the

563. *See* Fund for Animals v. Frizzell, 530 F.2d 982 (D.C. Cir. 1975).
564. *See* AHPA v. Kleppe, 6 ENVTL. L. REP. (ENVTL. L. INST.) 20802 (D.D.C. 1976); *cf.* AHPA v. Frizzell, 403 F. Supp. 1206 (D. Nev. 1975).
565. *See* Committee for Humane Legislation v. Richardson, 540 F.2d 1141, 1157 (D.C. Cir. 1976). *Cf.* 42 Fed. Reg. 12,010 (1977).
566. *See* The Animal Damage Control Act of 1931, 7 U.S.C. § 426 (1976). *See supra* notes 130-36 and accompanying text.
567. *See supra* section V, A, at 863-68.
568. *See supra* section V, B, at 868-71.
569. *See supra* section V, D, at 874-77.
570. *See supra* section V, C, at 871-74.

judicial, administrative, and congressional decisions described above. But extinction is not the real issue, or at least not all of it. Instead, the basic choice is between denial of or accommodation with the processes of natural selection. In other words, if the United States decides that fierce economic competitors belong only in zoos, half-hearted administration of the present policies could conceivably achieve that end without more. If, however, viable if not healthy populations of these predators in the wild is the goal—as most federal legislation indicates it should be—then better guidelines for wildlife managers in this area and better mechanisms for allocating loss are clearly in order.

Viewed in one light, predator control programs are an unmitigated disaster. Although most killing is done under the aegis of federal law and paid for by federal dollars, actual practices more often reflect parochial attitudes and hatreds. There is, in fact, no national predator policy. That should not be surprising since there is no single coherent national wildlife policy. Instead, Congress and the agencies have instituted species-by-species policies and practices, the differences among which usually result from dollar politics. This lack of policy is reflected in the tenuous art of wildlife management: the managers purport to apply scientific findings but stop short when science diverges from professional preconceptions. Managers are shackled by their past, their predator control programs are self-perpetuating, and changes in scientific theory or popular opinion have only slowly overcome the inertia of killing for its own sake.[571] In practice, the question too often is not "what, biologically, is the best way to manage in these circumstances?;" it is, rather, "whose ox is being gored and how much influence do they have?" All too often, managers reject even the search for new approaches in favor of defensive justification of the status quo.

That viewpoint may be overly pessimistic and unduly critical. Both general wildlife management and particular predator control practices have changed with the times and in harmony with better information. The dearth of protective law has partially been supplied. The new laws protect some predators from most lethal threats, and other predators are seldom killed by officials without some justification. It is idle to claim that no animal damage control whatever should be tolerated, because some predators do wreak considerable damage on other important resources. Most agree that a balance must be sought. The wildlife manager is in the best position to both determine and achieve that balance. And—on balance—the present system is sufficiently sensitive to broader values that a tolerable balance may be said to exist.

These writers do not pretend to decide this fundamental conflict or to propose any ultimate solutions. Few will deny that the current means are seriously flawed in one or more respects, but general agreement on any reform measure is unlikely at best. The central point is that Congress has never directly addressed the predator question, even though the federal

571. The conventional wildlife management wisdom has its legal defenders. *See* Schectman, *supra* note 253; Note, *supra* note 560.

government assumed responsibility for predator control a half-century ago. The 1931 statute that authorizes federal killing of competitors not only is facially and practically outmoded, it also reflects no particular philosophy and contains no management guidelines or limitations.[572] The fundamental choice is quintessentially political, and the political body should make it. Whether and to what extent the nation will tolerate or encourage the reinstitution of fierce competitors in remaining natural systems is a question which cannot be answered by biologists or managers or state legislatures. It is an issue of national significance, and it deserves thoughtful consideration by the national legislature.

572. *See supra* notes 130-36 and accompanying text.