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Stanley H. Anderson

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Early visitors to the new world found an abundance of wildlife. For example, John Cabot noted the large number of fish in the eastern coastal area in 1500.[2] His son, Sebastian Cabot, later commented that fish were so abundant along the coastal waters that they could slow the progress of a ship.[3] Explorers on both coasts of the new world were amazed at the number and varieties of wildlife species. There was no problem finding sufficient food on land as people colonized the area and moved westward onto the continent. At the same time, commercial use of the wildlife resources began. Pelts and plumes brought high prices on the European markets. Trappers explored many parts of North America to find these valuable items.

Conservation efforts began, oddly enough, as hunters and fishermen noted a decline in wildlife. Early conservation efforts began in the mid-1800s as the sporting groups encouraged the federal government to maintain the wildlife resources in the United States. In 1872, President Grant set aside 8,671 square kilometers of land that would eventually become Yellowstone National Park. This area was designated as a refuge for wildlife. In 1885, the federal government set up a federal wildlife agency by funding the predecessor of the Biological Survey, now known as the U.S. Fish and Wildlife Service (USFWS).[4]

EVOLUTION OF WILDLIFE LAW AND THE ENDANGERED SPECIES ACT

Like any other form of resource management, wildlife management is based on legal documents and procedures. Federal statutes and regulations, executive orders, and treaties and other international agreements

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2. T.L. KIMBALL & R.E. JOHNSON, *The Richness of American Wildlife, in* WILDLIFE AND AMERICA (H.P. Brokaw ed. 1978).

3. SAMUEL E. MORISON, THE EUROPEAN DISCOVERY OF AMERICA: THE NORTHERN VOYAGES, AD 500-1600 (1971).

4. STANLEY H. ANDERSON, MANAGING OUR WILDLIFE RESOURCES 14 (2d ed. 1991).

govern the action of federal agencies, while state laws, administrative orders, and court decisions provide the authorization for action at the state level.

In examining the legal basis for managing wildlife, one gets bewildered by the many interrelated, overlapping, and frequently ambiguous regulations. The situation has not been helped by the fact that the word *wildlife* has been difficult for the legal profession to define. European hunters originally associated the word only with the animals taken for food and sport. Today, however, *wildlife* includes nongame vertebrates and invertebrates[5] as well.

Furthermore, wildlife does not observe human-drawn boundaries, although when an aquatic species comes near the shore of a country, that country may try to make regulations governing it. Nor, of course, do terrestrial animals stop at state boundaries. So, within our country, many wildlife regulatory measures have been the subject of states' rights debates. Jurisdictional disputes between federal and state agencies have sometimes increased the difficulty of managing our wildlife resources.

Wildlife law can be traced to various decisions and proclamations from the Roman Empire through feudal European history to the beginning of the United States as a sovereign nation. In England before the signing of the Magna Carta in 1215, wildlife was the property of the king, who granted hunting and fishing rights to the nobility. Later, parliament assumed the right to control the harvest of wildlife.

Regulations in the United States

The Constitution is the ultimate source of authority for governmental actions in the United States. Thus, state and federal governments both look to the Constitution in establishing wildlife law. States generally have been given authority over wildlife that resides within their boundaries. States enforce hunting regulations, but they must abide by treaties on migratory species made by the federal government. The federal government can exercise control over fish and wildlife by virtue of the powers conferred on it in the Constitution. These powers have been expressed in laws passed by Congress and interpretations of the courts.

The authority for conservation and protection of wildlife resides primarily in three legal sources. The first is *statutory law*, enacted by

5. Vertebrates include animals with backbones such as mammals, bird and fish. Invertebrates do not have backbones and include animals such as insects, clams and snails. WEBSTER'S NEW INTERNATIONAL DICTIONARY 2545, 1189 (3d ed. 1971).

Congress for specific wildlife protection or for protection of resources, including wildlife. Some of the latter are the Clean Air Act, Water Pollution Control Act, National Wild and Scenic River Act, Solid Waste Disposal Act, Environmental Noise Control Act, Resource Conservation and Recovery Act, and National Environmental Policy Act. Some of the specific wildlife legislative acts include the Bald Eagle Protection Act and Wild-Free-Roaming Horses and Burro Act. *Common law* is the second major authority for wildlife regulations. Common law has affected wildlife in the areas of negligence, nuisance, and trespass. Thus, the right of a landowner to prevent access for hunting or fishing on private property falls under common law. The third major area from which wildlife regulations derive authority is *case law*. Case law, which often reflects changes in society's attitudes, has constituted much of the authority for the federal government to control commerce in wildlife and to manage wildlife on federal lands. Courts resolve federal-state wildlife conflicts.

Other legislative acts and decisions influence wildlife management. Zoning laws and permits that control or direct land development are critical in wildlife management. Leasing rights on federal and state lands, as well as access rights, impinge on wildlife. The regulatory mechanisms for land development and reclamation practices can have a profound influence on wildlife. When one works with wildlife, no one document furnishes all the answers; many regulations and documents must be considered. Thus, a good understanding of the many legal ramifications makes life easier for the wildlife manager.

The legislative branches of state and federal governments have a great deal to say about wildlife activities through the control of appropriations. When legislation such as the Federal Endangered Species Act[6] is passed, funds must be voted to carry out the provisions of the act. But they are not always there. For example, nongame legislation was passed in 1980, but no funds were appropriated.

Treaties have been the basis of much involvement in wildlife actions. On August 16, 1916, the Convention for the Protection of Migratory Birds[7] was signed between the United States and Great Britain (signing for Canada). A group of migratory birds listed with the Convention was specifically protected. The Convention allowed for the establishment of open hunting seasons on game birds and provided protection for nongame birds. It prohibited taking nests or eggs except for scientific or propagation purposes.

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6. 16 U.S.C. §§ 1531-1544 (1994).

7. Convention for the Protection of Migratory Birds, Aug. 16, 1916, U.S.-Can., 39 Stat. 1702, T.S. No. 628.

Subsequent treaties pertaining to the conservation of migratory birds were closely patterned after the 1916 Convention. Such treaties were signed with Mexico in 1936[8] and Japan in 1972.[9] In 1976, the FWS, through publication in the *Federal Register*, clarified the conventions by publishing a list of species covered by the Migratory Bird Treaties.[10] In 1976, a convention with the Union of Soviet Socialist Republics on the Conservation of Migratory Birds and Their Environment was concluded.[11] A convention on the nature, protection, and preservation of wildlife in the western hemisphere was signed by the United States and eleven other American republics in 1940.[12] This treaty expressed the wish of governments to "protect and conserve their natural habitats for wildlife and to preserve representatives of all species in general of their native flora and fauna including migratory birds" and to protect regions and natural areas of scientific value.[13] The nations agreed to take certain actions to achieve these objectives, including "appropriate measures for the protection of migratory birds of economic or aesthetic value or to prevent the threatened extinction of any given species."[14]

The Constitution gives the federal government power to regulate interstate commerce. The federal government stepped into the wildlife regulation business with the passage of the Lacey Act in 1900.[15] This act prohibited the interstate transportation of "any wild animal or birds" killed in violation of state law and upheld the authority of a state to prohibit the export of game lawfully killed in the state and allowed the states to prohibit the importation of game. It also authorized the Secretary of Agriculture to adopt measures necessary for the "preservation, distribution, introduction, and restoration of game birds and other wild birds," subject to laws of the various states and territories.[16]

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8. Convention for the Protection of Migratory Birds and Game Mammals, Feb. 7, 1936, U.S.-Mex. 50 Stat. 1311, T.S. No. 912.

9. Convention for the Protection of Migratory Birds and Birds in Danger of Extinction, and Their Environment, Mar. 4, 1972, U.S.-Japan, 25 U.S.T. 3329.

10. Migratory Birds, 41 Fed. Reg. 50,010 (1976) (codified at 50 C.F.R. 610.13 (1995)).

11. Convention Concerning the Conservation of Migratory Birds and Their Environment, Nov. 19, 1976, U.S.-U.S.S.R., 29 U.S.T. 4647.

12. Convention on the Nature, Protection, and Preservation of Wildlife in the Western Hemisphere, Oct, 12, 1940, 56 Stat. 1354, T.S. No. 981, U.N.T.S. No. 193.

13. *Id.*

14. *Id.*

15. 16 U.S.C. § 701 (1994).

16. *Id.*

The Black Bass Act[17] was passed in 1926 and later amended to regulate importation and transportation of black bass and other fish. The Black Bass Act was passed because the Lacey Act applied only to terrestrial wildlife.

Use of more than one-third of the nation's land is controlled by agencies of the federal government. Under the Property Clause of the Constitution, the federal government has broad powers over these lands.[18] Those powers include the management of wildlife. While the National Wildlife Refuge System is the only extensive federally owned land system managed exclusively for wildlife, many legislative acts empower the federal government to manage wildlife on other federal lands. The U.S. Forest Service, U.S. Bureau of Land Management, and other land-management agencies must consider preservation of fish and wildlife in researching land-use decisions. Individual states have legislation related to management of wildlife on state-owned property.

Acquisition of Wildlife Habitat

The Migratory Bird Treaty Act[19] was a stimulus for the establishment of a systematic program of refuge acquisition. The original Act did not provide for the acquisition of habitat, a deficiency remedied by a 1929 amendment.[20] The Migratory Bird Hunting Stamp Act provided funding.[21] The result was the establishment of a series of wildlife refuges along major migratory bird routes. Originally designed primarily for the protection of migratory waterfowl, the refuges came to serve many species of animals.

Several other laws allowed acquisition of land for wildlife, for example, the Fish and Wildlife Coordination Act,[22] the Land and Water Conservation Fund Act,[23] and the Endangered Species Act.[24] The Land and Water Conservation Act has been the major act providing for land acquisition.

Political pressures have made the acquisition of land by the federal government difficult. Private conservation agencies, such as the Nature

17. 16 U.S.C. §§ 851-856, *repealed by* Act Nov. 16, 1981, P.L. 97-99, § 9(b)(1), 95 Stat., 1079.
18. *See generally,* ANDERSON, *supra* note 4, at 194.
19. 16 U.S.C. §§ 703-712 (1994).
20. 16 U.S.C. §§ 715-715(s) (1994).
21. 16 U.S.C. § 718j (1994).
22. 16 U.S.C. § 663(b) (1994).
23. 16 U.S.C. §§ 460d, 460l-4611 (1994).
24. 16 U.S.C. §§ 1531-1544 (1994).

Conservancy and Ducks Unlimited, have bought or received donations of land that can be used for wildlife. The Nature Conservancy has owned more than 250,000 hectare (617,750 acres) and often acts as a middleman, buying and holding land until a public agency can complete the purchase or assume management. Acquisition by a conservation agency or organization remains the best and perhaps the most favored method of maintaining wildlife habitat, especially wetlands. Nonprofit private conservation organizations are taking an increasingly important part in advising which wildlife habitats to purchase. Converting private holdings to public ownership has been effective in the midwest and east, where few public lands were reserved.

It is not always necessary or desirable to take full ownership of land and water to preserve wildlife; acquisition of easements or development rights may often get the desired results. Easements involve greatly reduced initial outlay and lower management expense. The FWS has approximately 942,000 hectare (2,327,685 acres) under lease or easement, and more than half the acreage in waterfowl protection areas has been acquired through easements.

Land-use zoning, the control of privately owned real estate by public law, came into use in 1916. Zoning is an exercise of police power. First used to prevent such nuisances as slaughtering horses in residential neighborhoods, zoning has been expanded to control land for many public benefits. Zoning has been effectively used to maintain wildlife habitats in a number of states; Alaska, for instance, has developed a coastal management program with land-use controls, and the California coastal management program allows the zoning of special areas, providing significant wildlife habitats, such as forests, wetlands, estuaries, and streams.[25]

A number of legislative acts were passed in the 19th and 20th centuries that affected wildlife in the United States. The migratory bird treaty acts signed between the United States and Great Britain (acting for Canada), Mexico, Japan, and the Union of Soviet Socialist Republics were important wildlife legislation. Treaties to regulate harvest of fur seals and whales were entered into by the United States.[26] In 1934, Congress passed the first version of the Fish and Wildlife Coordination Act.[27] The Act specifically emphasized the impact of water development projects on wildlife. Another important law that impacted wildlife was the National

25. *See* ANDERSON, *supra* note 4, at 195.

26. Treaty for the Preservation and Protection of Fur Seals, July 7, 1911, 37 Stat. 1542, T.S. No. 564.

27. 16 U.S.C. § 663(b) (1994).

Environmental Policy Act passed in 1969.[28] This Act required that federal agencies evaluate the impact of actions that had a significant effect on the quality of the human environment. This law, therefore, indirectly affected wildlife.

Prior to 1966, the U.S. Department of the Interior strove to preserve species that were in danger of extinction on National Wildlife Refuges and National Parks. Often such protection was afforded through the statutes of the Fish and Wildlife Coordination Act[29] and the Migratory Bird Treaty Act.[30] In 1964, the FWS organized a Rare and Endangered Species Committee, which prepared the first U.S. "redbook," *Rare and Endangered Fish and Wildlife of the United States*, in 1966.[31] Although no formal legal status or protection was afforded to species included in this book, the Committee's efforts served to inform people of the plight of selected animals and give federal recognition to the problem.

Growing concern about the loss of animal species and early concerns about biodiversity led, in 1966, to the passage of the first specific legislation, the Endangered Species Preservation Act,[32] which directed the FWS to prepare and maintain an official list of endangered native animals. The Office of Endangered Species, organized in 1967 to administer the Act, initially consisted of two people. The first official list of endangered native animals consisted of seventy-eight vertebrates and was published in 1967. Although the Act provided no authority to regulate taking or trade, it did authorize funds for management and research for listed species. Land and water conservation funds were made available to acquire endangered species habitat. The endangered species research effort, which began in 1961 on sandhill cranes, Aleutian Canada Geese, and whooping cranes, had gained momentum.

In 1969, the Act was amended by the Endangered Species Conservation Act,[33] which gave the FWS new authority to list mollusks and foreign species, and to regulate their import. There was, however, no protection for listed native species. Protection was soon provided for a number of native species. The Secretaries of Agriculture, Defense, and Interior were directed to use their authority consistent with other mandates to conserve

28. 42 U.S.C §§ 4321, 4331-4335, 4341-4370 (1994).

29. 16 U.S.C. § 663(b) (1994).

30. 16 U.S.C. §§ 703-712 (1994).

31. BUREAU OF SPORT FISHERIES AND WILDLIFE, RARE AND ENDANGERED FISH AND WILDLIFE OF THE UNITED STATES (1966).

32. 80 Stat. 926, *repealed by* Endangered Species Conservation Act of 1969, Pub. L. No. 91-135, 16 U.S.C. §§ 668aa - 668cc(6) (repealed 1973).

33. 16 U.S.C. §§ 668aa - 668cc(6) (repealed 1973).

and protect endangered species. The FWS initiated a process of recovery plans in the early 1970's. The implementing document was designed to outline a step-by-step program for recovery of a species.

The Endangered Species Act

By 1973, the FWS had included endangered species as a major item in its budget. Later in the year, Congress passed the Endangered Species Act of 1973.[34] This Act greatly increased the authority and scope of the program. Responsibility for implementing this Act was divided between the Secretary of Commerce, for most marine species, and the Secretary of Interior for all other species. The Secretary of Agriculture was given responsibility for enforcement of import/export controls for listed plants. Responsibility for administration of the Act was vested in the National Marine Fisheries Service (Commerce), the Fish and Wildlife Service (Interior), and the Animal and Plant Health Inspection Service (Agriculture).

The 1973 Act recognized "threatened" species. The idea was to provide protection for species before they were in imminent danger of extinction. The Act also provided listing of any vertebrate or invertebrate, not just members of selected classes as in the 1969 Act. The 1973 Act allowed the listing of plant species, as well as animal populations, not just specific species or subspecies. This made it possible to conserve a species, even when only part of its range was in jeopardy.

Public participation was encouraged in the listing or delisting process. The Act allowed people to request a public hearing in addition to the normal public comment period. It also allowed any person to bring action in the U.S. district court for alleged violation of the Act. The court may prohibit any person or agency, including the FWS, from conducting acts deemed harmful to endangered species.

WHAT IS "ENDANGERED"?

Endangered species are those that have declined to such a level that their survival is questionable. The Endangered Species Act defines an "endangered" species as one that is in imminent danger of extinction throughout all or a significant portion of its range.[35] The Act goes on to define "threatened" species as species that are liable to become endan-

34. 16 U.S.C. §§ 1531-1544 (1994).
35. *Id.* § 1532(6).

gered in the foreseeable future.[36] In the Act, the word "species" is used to include subspecies and distinct vertebrate populations.[37] Some states also have lists and definitions of endangered species.

A species usually becomes endangered because its environment (habitat) has changed in such a way that it no longer supplies the species' needs. Most of the changes impacting species are due to human use and alteration of habitat.[38] For the most part, the endangered species is symptomatic of major changes in the ecosystem. Extinction as a natural phenomenon occurs gradually, usually over millennia. People speed up this process. Still, it is sometimes difficult to tell whether a species is endangered because of people or because of natural causes.

Hawaii is a classic example of an ecosystem unbalanced by human beings. In the late 18th century, cattle, sheep, horses, goats, and pigs were introduced to the islands, allowed to multiply, and eventually run wild. Since the only native Hawaiian land mammal was a species of bat, native vegetation was vulnerable to destruction by these herbivorous mammals. During the 19th century, herds of these animals moved into the forest, slowly destroying the habitat of native birds that had evolved as part of these islands' delicate ecosystem. Unable to adapt to the different ecological conditions, many of the birds perished. Today, Hawaii is home for a high proportion of the endangered vertebrates of the fifty states, including many birds and the Hawaiian hoary bat.[39]

There are those who argue that declining species are a part of the natural process of evolution, and indeed this may be true in the case of some endangered species, which have reached the pinnacle of their evolution. For the most part, however, the intrusion of human beings into an area has caused the decline. In a reasonably stable biosphere, the evolutionary rate and extinction rate are approximately equal; extinction is normally linked with, if not caused by, a new species.[40]

By simply working on one endangered species or group of species, we are treating symptoms and not causes. When endangered species occur in an area, it is because changes are occurring in the habitat and ecosystem. The entire system must be examined and, if appropriate, treated. This is difficult because most people do not think beyond the individual

36. *Id.* § 1532(20).

37. *Id.* § 1532(16).

38. *See* ANDERSON, *supra* note 4, at 405.

39. 50 C.F.R. §§ 17.11-17.12 (1982).

40. S.D. RIPLEY & T.E. LOVEJOY, *Threatened and Endangered Species, in* WILDLIFE AND AMERICA 365 (H.P. Brokaw ed. 1978).

species to look holistically at the community and the ecosystem. It certainly makes more sense to develop management criteria for an entire community, including management of endangered species, and this may come with time. For now, wildlife managers must concentrate on the species in the community setting.[41]

WHY SAVE SPECIES?

A wildlife manager cannot spend much time with people without being asked about the reasons for saving endangered species and the use of public monies for such a purpose. Although managers may have ideas that should be very convincing, they must remember that not everyone has studied the workings of the ecosystem and that emotions can easily cloud issues and displace humanistic attitudes when personal livelihood or property seems threatened.

Some scientists point out, perhaps with an emotional overtone, that the chemical makeup of only a few of the world's species has been unraveled. Thus, we have identified only relatively few of the species, presumably, whose chemical makeup could be of great benefit to human beings in medicinal, industrial, and agricultural ways. If, inadvertently or intentionally, we allow a species to become extinct, we may be depriving ourselves of valuable products. If the fungus known as penicillin had been wiped out, we would never have had the drug penicillin nor the family of antibiotics that developed following the discovery of this class of compounds. Tropical plants are the source of alkaloids used in a variety of drugs to treat people for heart disease, cancer, and other ailments, yet today the extinction of tropical and subtropical floral and faunal species continues at a high rate.[42]

Researchers have discovered that snails and mollusks do not contract cancer. The discovery has set off a search for the chemicals that produce this immunity in the hope that, when found, they can be used to prevent or alleviate cancer in people. No matter how small or obscure a species, there is no way of knowing whether it could be a direct aid to humankind. Each living species contains a unique reservoir of genetic material that has evolved over eons of time and cannot be retrieved or duplicated if lost. This genetic material is characteristic of the population and not of just a few individuals.

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41. James R. Karr, *Biological Integrity and the Goal of Environmental Legislation: Lessons for Conservation Biology*, 4 CONSERVATION BIOLOGY 244 (1990).

42. U.S. FISH AND WILDLIFE SERVICE, ENDANGERED MEANS THERE'S STILL TIME 3 (1981) [hereinafter ENDANGERED MEANS THERE'S STILL TIME].

The role that each species plays in the ecosystem is also an important consideration in maintaining a diversity of species. As each species is eating or being eaten, it serves as part of a route for energy flow in the natural system. Each ecosystem has components that make it unique: the bison has a role in the grassland; the black-crowned night heron is valuable to the salt marsh. When one species is removed, shifts occur in the energy-flow pattern. For example, removal of the American bison from much of its range undoubtedly led to an increase in herbivorous insects and rodents.

People should remember that the species *Homo sapiens* is also subject to evolutionary processes. Scientists argue that the more we learn about biology and evolution in both nature and the laboratory, the better able we will be to understand and manage our own biology and evolution.

WHAT CAUSES EXTINCTION?

Species extinction is a natural phenomenon, but human encroachment often greatly accelerates the process. Extinction occurs when a species fails to replace its numbers. The failure is generally caused by a stressful change or a new element in the environment. Extinction can be grouped into the following scheme: habitat fragmentation, loss of features such as nest site or cover, or loss of genetic viability.[43]

When the habitat of a species is destroyed, the species moves, adapts, or becomes extinct. The habitat on the Hawaiian Islands has been so altered that some species can no longer survive on the Islands.[44] Islands, inland or isolated, are a particular problem because it is difficult to recolonize an extinct population. When the rocky substrate of western streams is filled with silt, the yellow-legged frog cannot continue to breed or find food.[45]

Each species has a minimum critical area in which it can survive. Habitats can be so fragmented that the size no longer accommodates the needs of the species. Generally, populations are in equilibrium with their habitat. The loss of habitat can result in negative growth rates. When habitat is destroyed, some species cannot adapt and equilibrium may not be reestablished, as happened with the passenger pigeon and some migratory birds of the eastern deciduous forests.

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43. J. TERBORGH & B. WINTER, *Some Causes of Extinction, in* CONSERVATION BIOLOGY; AN EVOLUTIONARY-ECOLOGICAL PERSPECTIVE 119 (Michael E. Soule & Bruce A. Wilcox eds., 1980).

44. *See* ENDANGERED MEANS THERE'S STILL TIME, *supra* note 42, at 2-3.

45. *Id.*

When mining or logging occurs, cliff or tree nest sites can be destroyed. These areas also afford animals protection from prey and from the elements. As habitat becomes altered or subdivided, some animals may become isolated in small populations, with minimal genetic viability. These groups cannot always withstand environmental changes and therefore are unable to continue to produce viable offspring. Alteration of ecological stability, including changes in the food web and loss of food sources, is probably due to habitat loss.

Introduction of new species into an area often results in an ecological imbalance that may destroy or alter existing populations. As land bridges are formed between habitats, predator-prey cycles and competition between species changes. The coyote now interbreeds with the red wolf, which is resulting in a change in the wolf's genetic makeup.[46] Plans to reintroduce the red wolf into the "land between the lakes" in Kentucky and Tennessee may help save this species in parts of its range. Human or toxic wastes, such as sewage, pesticides, and acid rain, have changed the species composition in rivers, lakes, and land communities. Sea lampreys had a destructive effect on lake trout in the Great Lakes when the Welland Canal allowed their passage from the Atlantic Ocean.[47] Hunting pressure has caused the loss of the bison, and poisoning of prairie dogs is suspected in the decline of the black-footed ferret.[48]

GOAL OF THE ESA

Recovery is the cornerstone and ultimate purpose of the Endangered Species Act. Recovery is the process by which the decline of an endangered or threatened species is arrested or reversed, and threats to its survival are neutralized, so that its long-term survival in nature can be ensured. The goal of this process is to restore listed species to a point where they are secure, self-sustaining components of their ecosystem so as to allow delisting.

As a result, ecosystems upon which endangered and threatened species depend may be conserved. The Act provides a program for conservation and management of such species and their habitat. In this light, purposes of treaties and other legislation governing wildlife are also met.

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46. *See* ANDERSON, *supra* note 4, at 408.

47. *Id.*

48. U.S. FISH AND WILDLIFE SERVICE, BLACK-FOOTED FERRET RECOVERY PLAN 8 (1988)[hereinafter BLACK FOOTED FERRET RECOVERY PLAN].

PROVISIONS OF THE ESA

Originally passed in 1973, the Act has been reauthorized and amended a number of times. The Act says that its intent is to conserve various species of plants and animals in conjunction with:

1. migratory bird treaties with Canada and Mexico;
2. the Migratory and Endangered Bird Treaty with Japan;
3. the Convention on Nature Protection and Wildlife Preservation in the Western Hemisphere;
4. the International Convention for the Northwest Atlantic Fisheries;
5. the International Convention for the High Seas Fisheries of the North Pacific Ocean;
6. The Convention on International Trade in Endangered Species of Wild Fauna and Flora; and
7. other international agreements.[49]

The Act encourages the states and other interested parties, through federal financial assistance and a system of incentives, to develop and maintain conservation programs which meet national and international standards. This is instrumental in meeting the nation's international commitments and to better safeguard the nation's heritage in fish, wildlife, and plants for the benefit of all citizens.

Section 2 deals with the purpose of the Act, section 3 with definitions, and section 4 describes the listing process and the designation of "critical habitat." section 5 allows the Secretaries of Interior and Agriculture to acquire, by purchase or donation, land, water, or interests therein to conserve fish, wildlife, and plants. Section 6 indicates that maximum cooperation with the states shall occur. This cooperation shall include consultation and evaluation of concerns before acquisitions of lands and establishment of management and cooperative agreements.

In order for state management programs and cooperative agreements to remain active for the conservation of endangered and threatened species, the Secretary of Interior must find and reconfirm each year that the following criteria are met:

1. the species that is threatened or endangered is found in the state and the state conservation agency has authority to manage the species;
2. the state conservation agency has established acceptable conservation programs, consistent with the purposes and policies of

49. 16 U.S.C. §§ 1531-1531(4) (1994).

this Act, for all resident species of fish or wildlife in the state which are deemed by the Secretary to be endangered or threatened, and has furnished a copy of such plan and program together with all pertinent details, information, and data requested to the Secretary;

3. the state agency is authorized to conduct investigations to determine the status and requirements for survival of resident species of fish and wildlife; and
4. the state agency is authorized to establish programs, including the acquisition of land or aquatic habitat or interests therein, for the conservation of resident endangered or threatened species of fish wildlife.[50]

Section 7 describes federal actions and interagency cooperation. All actions that might impact on listed or proposed species must be reviewed by the Secretary of Interior. This includes species that occur on federal land under the jurisdiction of the Department of Interior or species on private land that might be impacted by federal agency action.

If an action by a federal agency is likely to impact an endangered, threatened, or proposed species, a biological assessment must be made. This assessment should determine the presence or absence of the endangered species, as well as its status and the extent, if any, the action may affect that species' continued existence in the wild.

As a result of the assessment, the Secretary may concur with the active agency that there is minimal or even a positive impact and conclude that the action can go ahead. If, on the other hand, an endangered, threatened or proposed species may be negatively impacted, the active agency must initiate consultation with the Secretary. If the agencies reach a solution, the action may proceed with reasonable and prudent alternatives. If the agencies cannot reach an agreement, a jeopardy statement is issued with no alternatives; however, this has rarely occurred. That means that several suggestions must be put forth on alternative ways to proceed with the proposed action. For example, placing telescopes on Mount Graham in southern Arizona could have impacted the endangered Mount Graham red squirrel that lived there.[51] An alternative was to place the telescopes on a nearby mountain.

If an impasse occurs, in which agreement cannot be reached on the action which could jeopardize the continued existence of the species in the

50. 16 U.S.C. § 1535(c)(1).
51. M.M. Waldrop, *The Long, Sad Saga of Mount Graham*, 248 Science 1479 (1990).

wild, an individual organization may apply for an exemption. The Act calls for the establishment of an Endangered Species Committee to review the funding and recommend action.

The Committee shall be composed of seven members as follows:

1. The Secretary of Agriculture;
2. The Secretary of the Army;
3. The Chairman of the Council of Economic Advisors;
4. The Administrator of the Environmental Protection Agency;
5. The Secretary of the Interior;
6. The Administrator of the National Oceanic and Atmospheric Administration;
7. The President, after consideration of any recommendations shall appoint one individual from each affected state, as determined by the Secretary of the Interior, to be a member of the Committee.[52]

They would then consider the application to exempt an agency action not later than thirty days after an application is submitted. There have been very few requests for this so-called "god squad" in the history of the Act.

The Endangered Species Act also has an international component, included in section 8. Besides encouraging endangered species conservation worldwide, the Act directs the President to implement the Convention on Natural Protection and Wildlife Preservation in the western hemisphere. In addition, it directs the Secretary of the Interior to encourage foreign nations to establish and carry out endangered species programs of their own and authorizes both financial assistance and the loan of federal wildlife personnel. Finally, it authorizes the Secretary of the Interior to conduct law enforcement investigations and prohibits the importation of endangered and threatened species.

In section 9 of the Act, various prohibited acts are listed. These acts include:

1. import or export of listed species;
2. removal of any listed species, or any harm, harassment or disturbance of the listed species;
3. deliver, receive, carry or transport an endangered species; and
4. possess, sell, or transport in interstate commerce any endangered species.[53]

52. 16 U.S.C. § 1536(e)(3) (1994).
53. 16 U.S.C. § 1538.

The Endangered Species Act in its 1973 version give relatively broad power to the federal government to manage wildlife and wildlife habitats where endangered species are involved. It directs the government to become involved with other nations in preventing the extinction of endangered species.

There are other components to the Act which discuss actions that are prohibited, exceptions, law enforcement, endangered plants, incidental taking, and appropriations. These components are combined to become the endangered species program of the FWS.[54]

The provisions of the Act are enforced in different ways. If an endangered species is found on public property or if a federal agency is involved in an activity on private property that might affect an endangered species, section 7 applies. The federal agency must consult with the FWS and try to reach an agreement to avoid adversely impacting the species.

If a private person tries to harm, harass, remove, or destroy a listed species on public or private property, section 9 applies. That person is subject to fines and/or jail sentences. Federal and state wildlife law enforcement personnel usually investigate such incidents.

Section 9 also applies to private property. If a property owner goes about his or her activities so listed animals are not harmed, harassed, removed, or destroyed, there is no impact on the property owner. If, on the other hand, a property owner does harm, harass, remove, or destroy an endangered species, federal and/or state law enforcement agents may bring charges against the property owner. Many forms of activities, such as farming and ranching, have minimal impact on listed species. Major land changes, such as draining wetlands or new development, can harm any endangered species present and thus cause conflicts between people.

HOW DO SPECIES GET LISTED?

Species

The FWS may nominate a species for listing as endangered or threatened, and an individual or organization may petition to initiate the listing process. A petition may be filed with the Department of Interior by anyone who has adequate data to support a proposed listing. The process begins with a letter to the Secretary of the Interior. For a species to be listed as an endangered or threatened species, evidence must be provided

54. 16 U.S.C. §§ 1531-1544 (1994).

that its existence is in peril from one or more of the following: (1) the destruction or threatened destruction, modification, or curtailment of its habitat or range; (2) its overutilization for commercial, sport, scientific, or educational purposes; (3) disease or predation; (4) absence of regulatory mechanisms adequate to prevent its decline or the degradation of its habitat; and (5) other natural or human-made factors affecting its continued existence. After the petition is received there is a ninety-day finding period during which the Secretary shall make a finding as to whether the petition presents substantial scientific or commercial information indicating that the petitioned action may be warranted. If there is adequate information to consider the species for listing, the Secretary must undertake a process in the next twelve months and determine whether listing is warranted, not warranted, or precluded by pending proposals. To make its recommendation, the FWS follows what is known as a rule-making, or regulatory procedure. This process is followed by all federal agencies in proposing regulations that will have the effect of law.

When the biological evidence concerning a species' status is not enough to justify a listing, the process may begin with the publication of a notice of review and solicitation of more information on the species from any source. This information, together with already gathered data, is published in the *Federal Register*. When the information is sufficient to warrant listing consideration, the Department of the Interior or Department of Commerce publishes in the *Federal Register* a proposal to list the animal or plant as endangered or threatened and to designate an appropriate critical habitat for the species. If the FWS feels that listing is not warranted, the process stops.

At this and every other stage in the listing process, all interested persons are asked to comment on the proposal. Generally, a period of sixty days is allowed for public comment to discuss the proposal. To make sure that all interested members are aware of the proposal, news releases and special mailings are sent to inform the public, scientific community, other federal agencies, as well as state and county governments.

Delisting or reclassifying occurs when the FWS feels a species has recovered sufficiently and follows in reverse the same procedure as the listing process. Each of the criteria for listing must be addressed, with evidence that the threats to the species which caused its listing have been addressed and eliminated.

Habitat

Designations of "critical habitat" under section 4 of the ESA affect activities and are made primarily to help federal agencies locate endangered species and fulfill their responsibilities under the Act. Critical habitat can be more than previously occupied habitat. It includes those areas of land, water, and air space that are required for the normal needs and survival of the occupying species at the time of its listing:

1. Space for individual and population growth with normal behavior;
2. Food, water, air, light, minerals, and other nutritional or physiological needs;
3. Adequate cover or shelter;
4. Sites for breeding, reproduction, rearing offspring, germination, or seed dispersal; and
5. Protection from disturbances in a location representative of the historic, geographic, and ecological distribution of the listed species.

Certain areas may be excluded from the critical habitat designation if the Secretary of the Interior or Secretary of Commerce decides that the economic benefits of exlusion outweigh the benefits of conserving the areas. Such areas are not to be excluded, however, if doing so would result in extinction of the species in the wild. Following the public comment period and public meetings on a proposal to list a species and its critical habitat, the information received is analyzed and, based on the best available biological data, a final decision is published. The ruling generally becomes effective thirty days after publication in the *Federal Register*.

Recovery Plan

To restore a protected species to its nonendangered status, the FWS is required to develop a recovery plan for each species listed. Recovery plans are prepared by a knowledgeable person on a voluntary or contract basis through a public or private agency or by a recovery team appointed by the FWS for that purpose. The elaborateness of recovery plans naturally depends on the range and characteristics of the species as well as the state of scientific knowledge about the species. For migratory species such as the whooping crane, or secretive mammals like the black-footed ferret, the plans can be quite complex.

Each recovery plan starts with background information on the species, its habitat, and its biological needs. The plan will cover possible manipulation of habitat, cleanup of habitat, transplantation, captive breeding programs, habitat acquisition, and recommendations to state, federal, and private agencies for changes in land-use practices. An implementation guide is developed, and the overall plan is approved by the Department of Interior or Commerce and initiated.

Candidate Species

The 1988 amendments to the Endangered Species Act[55] allow the FWS to spend money toward the recovery of plant and animal species it has identified as candidates for listing as endangered or threatened. These amendments put wildlife and plants into one of several categories. Category 1 species are those for which the FWS has enough information to support listing as soon as time and resources allow the developing and publishing of the requisite regulations in the *Federal Register*. Category 2 species are those for which there is some evidence of vulnerability, but for which there are not enough data to support listing proposals until status reviews can be done better.

Category 3 is a compilation of those species that have been suggested at one time or another as possibly being in need of protection. It was subdivided into three parts: Category 3A, species thought to be extinct; Category 3B, those found to be taxonomically invalid;[56] and Category 3C, those found no longer to be subject to substantial threats.

On February 28, 1996, the FWS issued a revised list of candidate species.[57] The revised notice identifies 182 species as "candidates" for listing. "Candidate species" are species for which the FWS has enough information to warrant proposing them for listing as endangered or threatened. The revised candidate list replaces the old system that listed nearly 3,700 candidates.

Under the revised list, only those species for which there is enough information to support listing will be called "candidates." They were formerly known as Category 1 candidate species. The FWS will no longer maintain a Category 2 list. This will avoid the mistaken conclusion that the addition of thousands of species to the endangered list is imminent.

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55. 16 U.S.C. § 1533(f)(2) (1994).

56. The proposed classification (such as subspecies or race) was not officially recognized by scientific authorities, and therefore was considered invalid.

57. C.R. GROVES, *Candidate and Sensitive Species Programs, in* ENDANGERED SPECIES RECOVERY: FINDING THE LESSONS, IMPROVING THE PROCESS 227 (Tim W. Clark, et al. eds., 1994).

HOW HAS THE ACT BEEN USED?

The Endangered Species Act has been used to provide special protection to species that have gone through the listing process described in the Act. Relatively few species have been delisted, causing some to call the Act a failure. Over 950 species have been listed, with others waiting to be listed. Less than 25 species have been delisted.

It is not easy to have a comparable listings. For example, the viable population size of one species of concern could be 500 while 5000 for another. Attempts to develop specific listing criteria are good, but the variability of populations, communities, and ecosystems must always be kept in mind.[58]

While some see this as a failure, others say that listed species have been preserved and prevented from further decline. In some cases, species with very high visibility have been listed and receive a great deal of funding and attention, for example the wolf, grizzly bear, and California condor. Lesser known species that have been listed have received little attention or funding and recovery is slow or not existent.

In a few cases, the listing process has been apparently misused when individuals or groups have used it to list species for personal goals or interests. This has occurred where members of the academic community may want funding for research on species of interest. Some people and groups have also discouraged the delisting process that could occur with some species to satisfy goals not specified under the Act.

The Act itself does not identify what "recovery" means so it is difficult to determine when a species has recovered. The grizzly bear is an example. The Wyoming Game and Fish Department feels the objectives of the recovery plan have been met and the bear should be delisted from its threatened status. Because all parties are not in agreement on what "recovery" means, along with the total number of bears that even exist, there is opposition to the delisting effort. Some groups also disagree with the delisting effort because it means they may receive less funding. There is also concern that even though adequate habitat now exists , habitat outside of Yellowstone Park may not be sustainable in the long term.

The Endangered Species Act has fostered the formation of organizations that seek to oppose any listing and others that seek to have as many species listed as possible. The organizations that oppose listing challenge

58. Andrea Easter-Pilcher, *Implementing the Endangered Species Act*, 46 BIOSCIENCE 355 (1996).

the Act as stopping progress, economic development, as well as causing the loss of jobs.

Organizations that seek to list animals do not always consider all alternatives. Some of these organizations take legal actions against the FWS that cause funds to be allocated differently. In one case, the FWS was forced to send most of its endangered species dollars to the west coast, thereby neglecting activities in the rest of the country.

Both the pro and con organizations seem to be staffed by legal experts interested in making money. When they file an action against the government, the government must pay all their legal fees. This causes some organizations to "live" off of the Act. These actions will remove dollars from the real recovery efforts of species as well as limit FWS staff time to assist in the species recovery.

Perhaps the greatest concern that can be raised by the Act is the fact that all species, subspecies, and populations are part of the ecosystem in which they live. When species decline there is something wrong with the system. Species may also be removed at such numbers that they cannot replace themselves. Many species of whales were harvested and declined in such large numbers that mates could not find one another.[59] In other cases, behavioral changes have occurred as animals decline in numbers, thus populations cannot sustain themselves.

As people make changes to their habitat, species are affected. As the West was settled with more agriculture and roadways, corridors once connecting black-footed ferret habitat were lost. Isolated ferret populations then existed, which were susceptible to disease and predation.[60] Once the isolated populations were lost, there was no movement of ferrets into the area to reestablish the populations.

Sometimes removal of one population can cause others to become a problem. Removal of the wolf, for example, has caused the coyote population to increase in numbers because there is no predator of coyotes left.[61]

While the Endangered Species Act protects declining species, it makes no provisions for looking at the system. Without thought about an ecosystem, other species will expand or decline as the system is changed. These species may not be at all desirable.

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59. *See* KARR, *supra* note 41, at 244-250.
60. *See* BLACK FOOTED FERRET RECOVERY PLAN, *supra* note 48, at 2-8.
61. *See* ANDERSON, *supra* note 4, at 431.

The future of the Endangered Species Act does not lie in the legal system. Endangered or declining species are a symptom of a problem. Sometimes the solution is easy. When harvest is high it can be restricted, thereby reestablishing ecosystem integrity. In other cases the problem is more complex. Solutions lay in applying the best knowledge to maintain the species in a viable ecosystem. Society must work effectively together and be able to communicate to make a good start at helping the recovery efforts. Society must not only work together, but must also provide the public with reliable information. This is where universities can develop programs to look at the comprehensive situation. Universities have all the ingredients for problem solving in the endangered species arena. They can be a part of the solution where we all can survive in our complex ecosystem.