U.S. Fish & Wildlife Service

Why Save Endangered Species?

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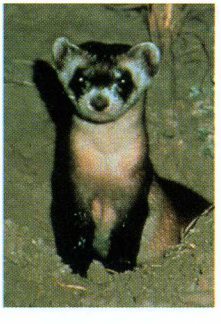
Since life began on this planet, countless creatures have come and gone—rendered extinct by naturally changing physical and biological conditions.

Since extinction is part of the natural order, some people ask: "Why save endangered species? Why should we spend money and effort to conserve them? How does society benefit from protecting them?"

Congress addressed these questions in the preamble to the Endangered Species Act of 1973, recognizing that endangered species of fish, wildlife, and plants "are of esthetic, ecological, educational, historical, recreational, and scientific value to the Nation and its people." In this statement, Congress summarized a number of convincing arguments advanced by scientists, conservationists, and others who are greatly concerned by the disappearance of unique creatures. Congress further stated its intent to provide a mechanism to conserve the ecosystems upon which endangered and threatened species depend in order to prevent their extinction.



Black footed ferret. Photo by Luray Parker.

While extinctions do occur naturally, scientific evidence strongly suggests that the current rate of extinction is much higher than the natural rate—about 1,000 times higher than it was before humans appeared on Earth.* Some scientists estimate that this rate may multiply by 10 over the next hundred years, largely because of modern human activity. The primary force driving this loss is habitat destruction. Exploitation, the introduction of exotic (non-native) organisms and the spread of disease also pose significant risks to the planet's biological heritage.

**Dr. Stuart Pimm, University of Tennessee Press release July 1995*

Kokia drynarioides. U.S. Fish & Wildlife Service photo by Joan Canfield.

Conservation actions resulting from the Endangered Species Act have successfully prevented 99 percent of the species listed as endangered or threatened from becoming extinct. However, humans are still exterminating species on a global scale at ever-increasing rates. The previous mass extinction event in North, Central, and South America 11,000 years ago resulted from stress due to climate and habitat change and the arrival of humans. This combination of factors resulted in the extinction of 100 bird and large mammal species. By contrast, biologists now estimate that since the Pilgrims landed at Plymouth Rock in 1620, more than 500 species, subspecies, and varieties of our Nation's plants and animals have become extinct. The situation in the Earth's most biologically rich ecosystems is worse. Tropical rainforests, which may contain up to one half of all living species, are losing more than 38 million acres per year. Uncounted species are lost as these acres disappear.

The Benefits of Natural Diversity

While scientists have classified approximately 1.7 million organisms, it is estimated that between 10 and 100 million species inhabit the planet. All of these living creatures, including humans, are part of a complex, delicately balanced network called the biosphere. This narrow zone of life is composed of many ecosystems, each with its own complement of plants and animals and their biological, chemical, and geological processes and interrelationships that characterize them. No creature exists in isolation. Therefore, the removal of a single species can set off a chain reaction affecting many others. The full significance of the extinction of a species is seldom apparent; much remains to be learned, and the long-term impacts are difficult to predict.

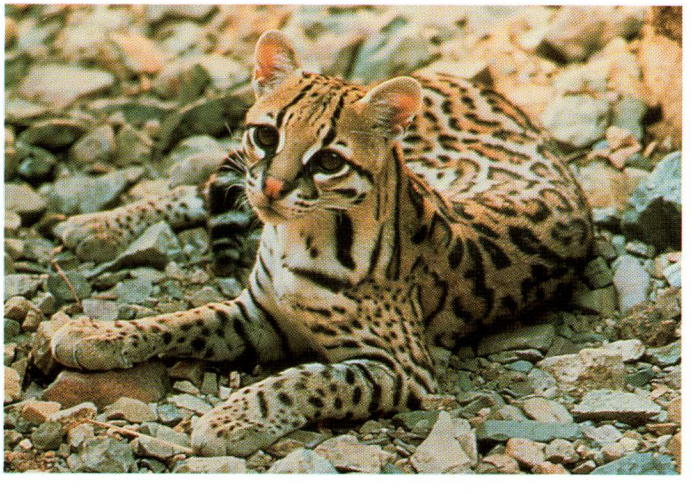
Medicine

Every species contains a unique storehouse of genetic material that has evolved over eons of time. Once lost, this genetic fingerprint cannot be duplicated. Scientists have only investigated about 2 percent of the more than 250,000 known plant species for possible medicinal values. The chemical secrets of most species have yet to be unraveled for potential benefits to mankind. No matter how small or obscure a species, it could one day help all of us. A fungus that originally gave us the anti-bacterial medicines penicillin and cyclosporin A has dramatically increased the success of organ transplant operations. The recently discovered compound taxol was first isolated from the Pacific yew, a small tree of America's old-growth forests in the Pacific northwest. Taxol has been found to be an effective treatment for ovarian, breast, and other types of cancer. Nearly 40 percent of all medical prescriptions dispensed annually in the United States have been derived from nature or synthesized to mimic naturally occurring chemical compounds.

Passenger pigeon. Smithsonian Institution photo.

The American Cancer Society says that men have a 1 in 2 and women a 1 in 3 lifetime chance of developing cancer. The National AIDS Clearinghouse says that between 650,000 and 950,000 Americans are HIV positive. These facts are sobering when one realizes that with the extinction of every species we may be throwing away the key that could unlock the effective treatment of these and other devastating diseases.

Ocelot. U.S. Fish & Wildlife Service photo by Tom Smylie.



Agriculture

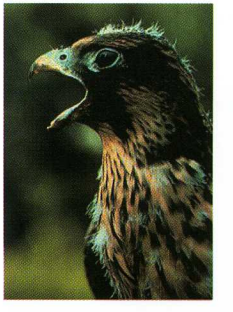
Many seemingly insignificant forms of life are beginning to show important benefits in agriculture. Some farmers are beginning to use insects and other animals that compete with or prey on certain crop pests, as well as using plants containing natural toxic compounds that repel harmful insects. These are called "biological controls," and in many cases they are a safe, effective, and less expensive alternative to synthetic chemicals. The Lake Placid mint, an endangered species known only from central Florida, may have

Hesperomannia arbuscula. Photo by John Obata.

benefits to crop production because it produces a potent chemical that repels insects, including ants. One species, the running buffalo clover, an endangered species once believed to be extinct, is now being screened as a possible forage crop because of its higher protein content and perennial nature.

Thomas Jefferson once wrote that "the greatest service which can be rendered any country is to add a useful plant to its culture, especially a breadgrain." It has been estimated that there are 80,000 species of edible plants, of which fewer than 20 produce 90 percent of the world's food. If under-utilized species are conserved, they could help to feed millions of people who go to bed hungry each night. One grain native to the Great Lakes States, Indian wild rice, is superior in protein to most domesticated rice, and its commercial production is earning millions of dollars annually. Crossing it with a related but endangered species, Texas wild rice, might result in a variety adaptable to other regions. Plant collectors are now seeking out remaining wild strains of many common crops, such as wheat and corn, for work on new hybrids more resistant to crop diseases, pests, and marginal climatic conditions. Two thirds of U.S. plant species of conservation concern are closely related to cultivated crops.

Industry is also increasingly making use of wild plants. Two species in particular that show potential are the jojoba and the guayule. The jojoba produces an oil with many unique properties that have application to a variety of industrial processes. In the past, the only comparable oil was derived from the sperm whale, but over-harvesting brought this great marine mammal to the brink of extinction. The guayule is a shrub containing high amounts of natural rubber, as well as a resin rich in other valuable substances. Both plants grow in the deserts of the southwestern United States, giving economic value to lands not suitable for other agricultural purposes, and they could provide domestic sources of products that would otherwise have to be imported.

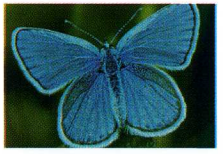


Peregrine falcon. U.S. Fish & Wildlife Service photo by Jo Keller.

Environmental Barometers

Many native species are uniquely valuable as indicators of environmental quality. The rapid decline in bald eagles and peregrine falcons was a dramatic warning of the dangers of DDT—a potent, once widely used pesticide that accumulates in body tissues. (Its effect on these birds was to hamper fertility and egg-hatching success.) In another example, certain plants, such as the eastern white pine, are particularly good indicators of excess ozone, sulfur dioxide, and other air pollutants. If it were not for species like these, we might not have known about the effects of some contaminants until more damage was done.

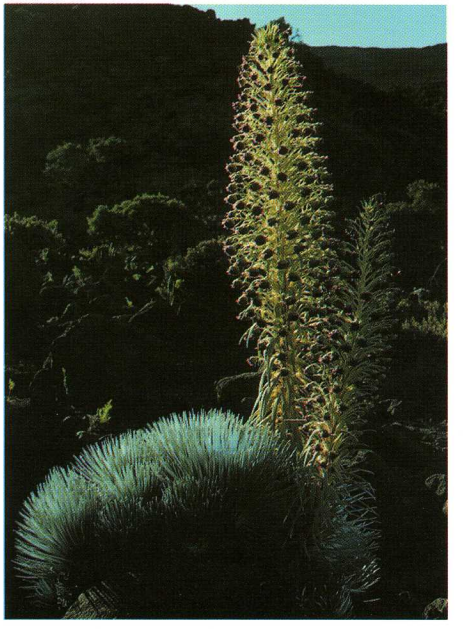
All life on Earth depends on clean water to survive. While the decline of fish and freshwater mussel



Karner Blue Butterfly. Photo by Niagara Mohawk Power Corporation.

populations may seem insignificant to some, our human family also depends on those same waters for drinking, bathing, and washing clothes. Data show that nearly two-thirds of our nation's freshwater mussels and crayfish are rare and imperilled, and many mussels have become extinct during this century. Nearly one-third of native fishes are at risk of extinction. These species are our early warning system, signaling that problems of water quality and ecosystem stability are endangering a resource we all too often take for granted—water.

Aside from the more concrete reasons for conserving endangered species, moral considerations are often mentioned. Many people believe that every creature, after adapting for thousands or even millions of years to fit a constantly changing environment, has intrinsic value and a right to exist. Exterminating other forms of life, they say, is not only shortsighted, but wrong—especially since the species could never be replaced.



Mauna Kea Silversword. Photo by Lani Stemmermann.

Gray wolf. Photo by Tracy Brooks/ Mission Wolf.

Under the Endangered Species Act of 1973, the U.S. Fish & Wildlife Service has the primary responsibility to coordinate the conservation of those plants and animals that are threatened with extinction and the ecosystems that support them.

As we learn more about how ecosystems work, we can better understand and protect the requirements necessary for all life—including our own species.

Endangered means there's still time, but extinction is forever.

How Can You Help?

The conservation and recovery of threatened and endangered species is a tremendous and ever-increasing challenge. Through the efforts of the U. S. Fish & Wildlife Service, and its cooperative programs and partnerships with other Federal agencies, States, Tribal and local governments, conservation groups, corporations, and private landowners many plant and animal species now have a better chance of survival. But the assistance of everyone—including private citizens and

organizations—is essential; one need not be a scientist or government official to help. Here are some things you can do:

Educate yourself about endangered species and wildlife conservation issues. Go to your public library or bookstore and read up on the subject. If you have access to the Internet and World Wide Web, visit the Fish & Wildlife Service's Endangered Species Home Page at http://endangered.fws.gov and learn more about endangered species.

Oahu tree snail (Achatinella mustelina). U.S. Fish & Wildlife Service photo by Joan Canfield.

Write to your State fish and game/natural resources department to find out which species are rare in your area, and what is being done to conserve them.

Visit one of the more than 500 National Wildlife Refuges near you. Become a volunteer or help out on special projects at a refuge near your home.

Join a conservation group and get involved; many have local chapters.

Don't buy exotic or wild animals as pets, or plants not of cultivated origin. They are often very difficult to keep, and may be protected species.

Report violations of wildlife laws to your local game warden. Many States have a special "hotline" number for this.

Check the law before buying wildlife products. Before traveling overseas, write the U.S. Fish & Wildlife Service, Publications Unit, NCTC, Rt. 1, Box 166, Shepherdstown, WV 25443, for a copy of *Buyer Beware* and *Facts About Federal Wildlife Laws*, or check for them on the Service's Internet site at http://www.fws.gov/laws/

Minimize your impact on wildlife by recycling, avoid the unnecessary use of pesticides and herbicides, don't waste electricity or water, dispose of trash and household chemicals and paint properly, and show your friends and neighbors how they can be more environmentally friendly.

For More Information

For additional information on the U.S. Fish & Wildlife Service's endangered species program, write to:
U.S. Fish & Wildlife Service
Division of Endangered Species
4401 N. Fairfax Drive, Room 452
Arlington, VA 22203

For information about protection of whales, seals, and other marine species, write to:
National Marine Fisheries Service
Department of Commerce
1335 East-West Highway
Silver Spring, MD 20910

For information about importing or exporting pets, birds, and federally regulated plants, write to:
Department of Agriculture
Animal and Plant Health
Inspection Service
Washington, D.C. 20250

Humpback chub. U.S. Fish & Wildlife Service photo by J. D. Williams.