



# Why Saving Endangered Species Matters

*"To keep every cog and wheel is the first precaution of intelligent tinkering."*

*Aldo Leopold*

## Why Save Species

Since life began on this planet, countless species have come and gone, rendered extinct by naturally changing physical and biological conditions. Since extinction is part of the natural order, and if many other species remain, some people ask: "Why save endangered species? What makes these animals and plants so special that money and effort should be spent to preserve and recover them?"

While extinction does occur naturally, unfortunately the accelerating decline of our wild animals and plants is less and less a result of natural events. Most dangers to wildlife are from habitat loss and degradation, environmental pollution, the introduction of exotic (non-native) organisms, and overexploitation; all generally a direct result of human activities.

Since the Pilgrims landed at Plymouth Rock in 1620, more than 500 plants and animals have become extinct in North America. By contrast, during the 3,000 years of the Pleistocene Ice Age, all of North America lost only about three species every 100 years. This and other scientific evidence strongly suggests that the current rate of extinction is much higher than natural rates, and many scientists are forecasting that extinctions

will increase significantly over the next hundred years, largely because of human activity and continuing population growth.

## The Benefits of Natural Diversity

While scientists have classified approximately 1.7 million organisms, many millions of additional species remain to be described by biologists. All of these living creatures, including ourselves, are part of a complex, delicately balanced network of life. Though there is much that we do not know about how ecosystems and biological communities function, we do know that no creature exists in isolation. Therefore, the removal of a single species can conceivably set off a chain reaction affecting many others. The full significance of the extinction of a species is seldom immediately apparent and the long-term impacts are difficult to predict.

## A Unique Natural Heritage

"Biodiversity" is a term that gained broad use during the 1990s. Many people associate the concept with saving non-native ecosystems and habitats such as "tropical rain forests." As a result, the idea of biodiversity as something that applies to the United States remains unrecognized by many of our citizens.

The United States is a vast land. Our Nation stretches from above the Arctic Circle to below the tropic of Cancer, and spans nearly a third of the globe from eastern Maine to the tip of the Alaskan Aleutian Island chain. Such an enormous geographical expanse supports a diverse array of ecological conditions. Given the extent of the geographical territory of the United States, it should not come as a surprise to find that the United States has more ecosystems and habitat types than any other country on earth. Consider this as well; the approximately 220,000 species of plants and animals known to exist in the United States represents more than one tenth of all the species known to science in the world.

## Ecosystems Under Pressure

Hawaii is an unfortunate but classic example of an ecosystem unbalanced by man. In 1794, Western explorers introduced cattle and sheep to the islands, and later horses, pigs, and goats. These animals were allowed to multiply and run wild. During the 1800's herds of these and other livestock animals seriously altered the environment through overgrazing, degrading the habitat of birds that, in isolation over time, had become uniquely adapted to the Hawaiian Island's ecosystems. Additionally, rats were accidentally introduced and became serious predators of both nesting seabirds and forest species. The importation of the mongoose as a control for rats only increased the problem of predation on bird populations. In the meantime human settlement and agriculture continued to claim wildlife habitat. Today, 29 of Hawaii's endemic birds and its only two native mammals are listed as endangered. But the story does not end there. Among the Hawaiian Island's 1,100 native species of plants, 90 percent are endemic; that is, they occur nowhere else. Non-native species introductions and habitat modification have caused about 100 species to go extinct. Currently over 300 Hawaiian plants are listed as endangered (more than half the U.S. total), and more than 100 plant species have fewer than 20 specimens remaining in the wild.

## How Do We Benefit From Biodiversity?

### *Medicine*

Every species contains a unique storehouse of genetic material that has evolved over eons of time. Once lost, this cannot be retrieved or duplicated. Scientists have only partially 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 be of direct help to 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 compound taxol was first isolated from the bark of 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 are derived from nature or synthesized to mimic naturally occurring chemical compounds. It is sobering when one realizes that with the extinction of any species we may be throwing away the key that could unlock effective treatments to save and prolong healthy lives.

#### *Agriculture*

Many seemingly insignificant forms of life are beginning to show important benefits to agriculture that in many cases they are a safe, effective, and less expensive alternative to synthetic chemicals. Some farmers are using insects and other animals to compete with or prey on certain crop pests, as well as using plants containing natural toxic compounds that repel harmful insects. The Lake Placid mint, an endangered species known only from central Florida, may have benefits to crop production because it produces a potent chemical that repels insects, including ants. Another endangered species, the running buffalo clover, is being screened as a possible forage crop because of its high protein content and perennial nature.

#### *Industry*

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.

#### *Environmental Barometers*

Species are useful as indicators of environmental quality. For example,

certain plants, such as the eastern white pine, are particularly good indicators of excess ozone, sulfur dioxide, and other air pollutants. Public concern over the protection of wild plant and animal species often benefits society indirectly. For example, in 1972, public outcry over the declining populations of the American bald eagle caused the U.S. to ban the production and sale of the pesticide DDT; this chemical was later identified as a serious cancer-causing agent in humans. 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 of life on earth depends on an adequate supply of clean water to survive. While the decline of obscure native fish and freshwater mussel populations may seem insignificant to some, both they, and we, depend on these same waters for drinking, cooking, and bathing. Data show that nearly two-thirds of our nation's freshwater mussels and crayfish are declining or imperilled, and many mussel species have become extinct during the past century alone. Nearly one-third of our native fishes are species of conservation concern, threatened, or at risk of extinction. These species are our early warning system, signaling that we are endangering a resource we all too often take for granted – water.

Aside from these and other reasons to save species, moral considerations are often identified as a basis for action. Many people believe that every creature, has intrinsic value and a right to exist. Exterminating other forms of life, they say, is not only shortsighted, but wrong, especially since a species can never be replaced.

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

#### **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 and 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:

Learn more about endangered species and wildlife conservation issues. Go to your public library or on the Internet for information. If you have access to the Internet, visit our Endangered Species Program website at <http://endangered.fws.gov>.

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

Learn about conservation organizations located in your state or community. Join a conservation group and get involved. Many national organizations have local chapters. Become a volunteer and help out with conservation projects near your home.

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

Check the law before buying wildlife products. Before traveling overseas, write to U.S. Fish and Wildlife Service, Publications Unit, NCTC, Rt. 1 Box 166, Shepherdstown, WV 25443, for a copy of Buyer Beware and Facts About Federal Wildlife Laws.

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

**U.S. Fish & Wildlife Service  
Endangered Species Program  
<http://endangered.fws.gov>  
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