

## For More Information

For more information on individual animals and plants, check references at your local library.

For additional information on the U.S. Fish and Wildlife Service's endangered species program, write to:

Division of Endangered Species  
U.S. Fish and Wildlife Service  
452 Arlington Square  
Washington, DC 20240

For information on endangered species permits and CITES international conservation programs, write to:

Office of Management Authority  
U.S. Fish and Wildlife Service  
432 Arlington Square  
Washington, DC 20240

For information about protection of whales, seals, and other marine species, write to:

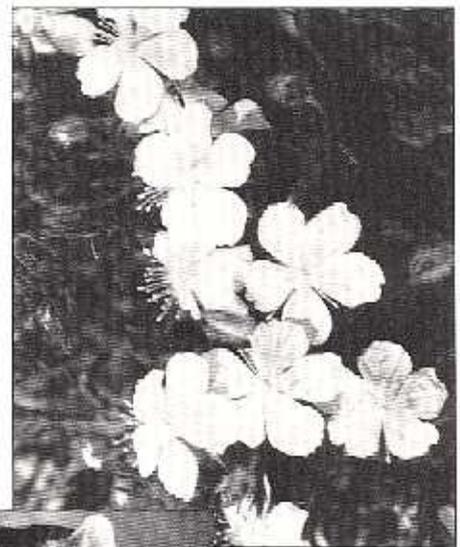
National Marine Fisheries Service  
Department of Commerce  
1335 East-West Highway  
Silver Spring, MD 20910

For information about importing or exporting pets, birds, and Federally regulated plants, write to:

Department of Agriculture  
Animal and Plant Health Inspection Service  
Washington, DC 20250



# Endangered Species



Endangered Means There's Still Time

**U.S. Department  
of the Interior**  
U.S. Fish and  
Wildlife Service

**S**ince life began on this planet, countless creatures have come and gone—rendered extinct by naturally changing ecological conditions, and more recently by humans and their activities.

If extinction is part of the natural order, and if many species still remain, some people ask, “Why save endangered species? What makes a relatively few animals and plants so special that effort and money should be spent to preserve them?”

### Why Save Endangered Species?

Saving species is important to many people for a variety of reasons. People care about saving species for their beauty and the thrill of seeing them, for scientific and educational purposes, and for their ecological, historic, and cultural values.

A compelling reason to preserve species is that each one plays an important role in an ecosystem—an intricate network of plant and animal communities and the associated environment. When a species becomes endangered, it indicates that something is wrong with the ecosystems we all depend on. Like the canaries used in coal mines whose deaths warned miners of bad air, the increasing numbers of endangered species warn us that the health of our environment has declined. The measures we take to save endangered species will help ensure that the planet we leave for our children is as healthy as the planet our parents left for us.

Some species provide more immediate value to humans. For example, cancer fighting drugs have been derived from the bark of a yew that is native to the Pacific Northwest. Chemicals used to treat diseases of nerve tissue were found in an endangered plant in Hawaii. Valuable resources such as these could be lost forever if species go extinct.

### Causes of Decline

We can no longer attribute the accelerating loss of our wild animals and plants to “natural” processes. Habitat destruction is the single most serious worldwide threat to wildlife and plants, followed by exploitation for commercial or other purposes. Disease, predation, inadequate conservation laws, pollution, and introduction of non-native species, or a combination of these, can contribute to a species’ decline.



U.S. Fish and Wildlife Service

Habitat destruction is the most serious threat to wildlife.

### The Endangered Species Act

Recognizing the importance of preserving a diversity of wildlife species, Congress set the course for a new direction in wildlife conservation with passage of the Endangered Species Act of 1973, the most far-reaching law ever enacted by any nation for the preservation of endangered species. It holds that endangered and threatened species of animals and plants “are of esthetic, ecological, educational, historical, recreational, and scientific value to the Nation and its people.”

The Act created an international program involving the support of both the public and private sectors. It provides a framework whereby the Federal Government, the States, conservation organizations, individual citizens, businesses and industry, and foreign governments can all work together to conserve endangered plants and wildlife throughout the world.

Under the Act, the Secretary of the Interior, acting through the U.S. Fish and Wildlife Service, oversees the protection and conservation of all forms of fish, wildlife, and plants found to be in serious jeopardy. The Secretary of Commerce, acting through the National Marine Fisheries Service, is given similar authority for most marine life.

### The U.S. Fish and Wildlife Service

Protecting endangered and threatened species and restoring them to a secure status in the wild is the primary objective of the endangered species program of the U.S. Fish and Wildlife Service, an agency of the Department of the Interior. The Service’s endangered species responsibilities include the following:

- Listing, reclassifying, and delisting species under the Endangered Species Act

- Providing biological opinions to federal agencies on their activities that may affect listed species
- Enforcing species protection under the Act
- Overseeing recovery activities for listed species
- Providing for the protection of important habitat
- Providing grants to States to assist with their endangered species conservation efforts

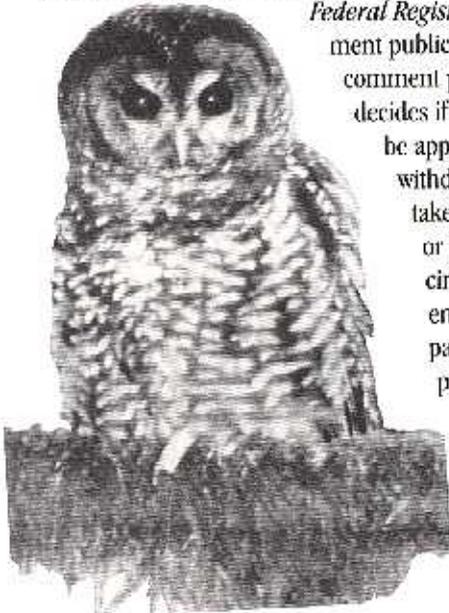
## The Listing Process

The U.S. Fish and Wildlife Service maintains the List of Endangered and Threatened Wildlife and Plants, which identifies species protected under the Endangered Species Act. The Act defines an "endangered" species as one that is in danger of extinction throughout all or a significant portion of its range. A "threatened" species is one likely to become endangered within the foreseeable future.

More than 600 mammals, birds, reptiles, fishes, mollusks, plants, and other life forms native to the United States were officially protected as endangered or threatened species as of 1991. In addition, more than 500 foreign species have been listed.

The Service follows a formal "rulemaking" procedure to determine which species should be placed on the list, reclassified, or taken off the list. The rule is first proposed in the

*Federal Register*, a daily government publication. After a public comment period, the Service decides if the rule should be approved, revised, or withdrawn. The process takes up to a year—or longer in unusual circumstances—and encourages the participation of all interested parties, including the general public, the scientific community, other government agencies, and foreign governments.



The loss of old growth forest habitat in the Pacific Northwest has caused declines in the population of the northern spotted owl, listed as a threatened species in 1990.  
Handy Wilk, U.S. Fish and Wildlife Service

In emergency situations, there is a procedure to immediately list a species for up to 240 days while the normal listing process takes place. By law, all listing decisions must be made solely on the basis of the species' biological status.

Currently, between 50 and 100 species are added to the list every year. The Fish and Wildlife Service uses a priority system intended to address additions in order of the greatest need. There are currently thousands of species for which there is some evidence of vulnerability. For many of these "candidates," however, the Service lacks enough information to determine whether they actually warrant listing. In order to solicit information, each year the Service publishes a "notice of review" in the *Federal Register* listing animal candidate species one year and plant candidates the next year. Sometimes, the Service may receive a petition from an outside source to list a species. When that happens, the Service evaluates the petition to determine whether or not a listing may be warranted.

## Legal Protection

Once a species is officially listed as endangered or threatened, it is given full legal protection under the Endangered Species Act. The Act forbids the import, export, or interstate or foreign sale of protected animals and plants (including their parts and products) without a special permit. It is also illegal to kill, harm, harass, possess, or remove protected animals from the wild. Listed plants may not be taken from Federal lands without a permit or removed from other lands if the taking violates any State law.

The penalties may be heavy. Violators can be fined up to \$100,000 and/or sentenced to a year in jail; organizations found in violation may be fined up to \$200,000. Moreover, any illegally held wildlife specimens and products are subject to seizure and forfeiture.

In addition, Section 7 of the Endangered Species Act requires all Federal agencies to conserve listed species on their lands, and to ensure that any activity they fund, authorize, or carry out will not jeopardize the survival of a listed species. Through consultation with the Fish and Wildlife Service, Federal agencies have been able to proceed with their activities while ensuring the survival of listed species in over 99 percent of cases.

## Recovery

Recovering an endangered species requires stopping and reversing its decline, and then ensuring its long-term survival in nature. This is often a gradual and very complicated process. "Recovery plans," which are drafted by a knowledgeable individual or by a team of experts, serve as a guide for activities to be undertaken by Federal, State, and/or private entities. Recovery plan recommendations can call for habitat protection, new research, captive breeding and reintroduction, or special wildlife and habitat management techniques.

Depending on the particular species involved, some recovery efforts may be more complex than others. But through the years, it has been demonstrated that recovery plans can work, as shown in the examples below.

### The American Bald Eagle

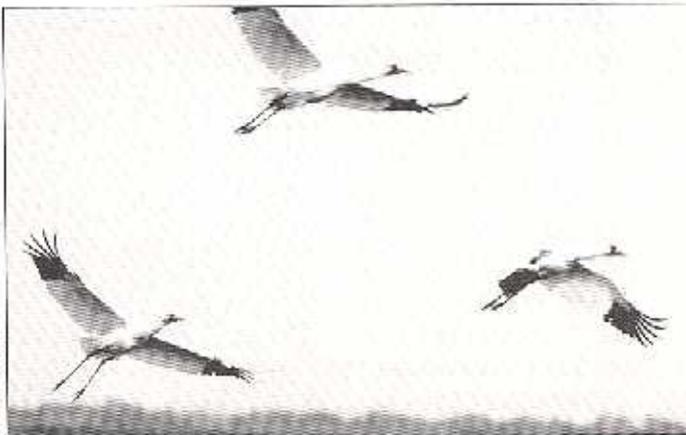
Perhaps the most well known endangered species is the bald eagle, our Nation's symbol. Populations of this majestic bird suffered dramatic declines in the contiguous United States. At one point, they reached an estimated low of 400 nesting pairs in the 1960s. Since that time, Federal protection and tremendous public and private support have led to a significant increase in the range and population of this species through stricter law enforcement, protection of important habitat, reintroduction, a strong public education program, and the banning of the harmful pesticide DDT, a chemical that interfered with normal eggshell production. As of 1991, nesting pairs of bald eagles in the contiguous United States numbered over 3,000. There are also healthy populations of bald eagles in Alaska and Canada, where they have never been in danger of extinction.



Raymond Gehman

The bald eagle is making a remarkable comeback. Habitat loss is the greatest threat to the species right now.

The new Shearlin|Bob Reinhardt/STONER & LOCK ALCO ASSOCIATES



Although never very numerous, whooping cranes almost disappeared in the 1940s.

### The Whooping Crane

Once flourishing in grassy marshlands and bogs, the beautiful, graceful whooping crane almost disappeared as croplands and cities replaced its natural habitat. In the late 1940s, only one flock of fewer than 20 birds was left in the world. Efforts were undertaken to protect the crane's habitat, from its Canadian nesting grounds, through key stopover points along its migration route, to its wintering grounds at the Aransas National Wildlife Refuge on the gulf coast of Texas, 2,600 perilous miles away. In 1967, a captive breeding flock of whooping cranes was established by biologists from Canada and the United States at the Fish and Wildlife Service's Patuxent Wildlife Research Center in Maryland. Part of this flock is now managed by a private group in cooperation with the Service.

These efforts and a continuing combination of international cooperation, strict protection, public education, and intensive research are now bringing the cranes even closer to recovery. With the total number of whooping cranes currently exceeding 200, its future looks brighter indeed.

### Captive Breeding

For several species, like the California condor, Florida panther, or black footed ferret, captive breeding may offer the greatest hope for survival. The goal of breeding endangered animals in captivity is to eventually return the species to the wild. The red wolf is a well-known species that recently has been reintroduced into the wild as a result of an intensive captive breeding program.

## The Red Wolf

Once common throughout the southeastern United States, the red wolf was squeezed out of its habitat by agricultural and other development. By the early 1970s, this small shy wolf existed only in a few remote areas.

In 1973, it was listed as endangered, and all 40 remaining wolves were taken from the wild and put into a captive breeding program at the Point Defiance Zoological Park in Tacoma, Washington. In 1987, following a successful captive breeding effort,

reintroduction began with the release of four pairs of red wolves at the 120,000-acre Alligator River National Wildlife Refuge in North Carolina. Red wolves are now successfully breeding on the refuge. Due to tremendous public support, intensive management, and additional reintroduction and propagation projects, there are now more than 100 red wolves located in 22 captive breeding facilities and more than 20 red wolves in the wild. While far from recovered, the red wolf is certainly making encouraging progress.



Steve Milesowski, U.S. Fish and Wildlife Service

Red wolf

## Lesser Known Endangered Species

The lesser known species on the list, such as insects, reptiles and crustaceans, are just as important as the popular or well-known species. Recovery efforts for these animals are also paying off. For instance, a new population of the endangered American burying beetle introduced on an island off the coast of Massachusetts is showing early signs of successful reproduction.

Once widespread, this beetle occurred in only two natural populations, one in Rhode Island and the other in Oklahoma, when the species was listed in 1989.



J.A. Powell

Lange's metalmark butterfly

The endangered Lange's metalmark butterfly has benefitted greatly from an active management and habitat improvement plan at the Antioch Dunes National Wildlife Refuge in California. Wildlife biologists planted the wild buckwheat on which the larvae depend, and crucial habitat was restored and fenced for protection. Surveys that typically had yielded sightings of 20–30 butterflies before improvements were made counted over 1,200 by 1990.

## Plant Recovery

Almost half of all listed species in the United States are plants, many of which are victims of land and agricultural development. In addition, rare, showy, or unusual plants are often illegally sought by collectors or unscrupulous dealers. Recovery efforts for listed plant species are under way in almost every State. Botanical gardens often assist in complex propagation and reintroduction programs. Also, many private landowners have shown their willingness to support conservation measures for endangered plants on their lands.

Some recovery plans for plants can be fairly simple, calling for fencing or for steering activities away from a site. Other recovery efforts are more complex. For example, biologists spent years studying why a rare wildflower in Virginia, the Peter's Mountain mallow, failed to reproduce. They discovered the seeds needed intense heat in order to germinate. In nature, this heat was provided by wild fires, but these were suppressed as people began to settle the area. With the mystery solved, specific management techniques to promote the plant's recovery, including prescribed burning, are now being planned.



Judy Jacobs, U.S. Fish and Wildlife Service

The recovery effort for the endangered Peter's Mountain mallow includes prescribed burning to promote germination.

## Other Recovery Efforts

Sometimes a species is crowded out of its habitat through competition with non-native species. This is what happened to the greenback cutthroat trout in Colorado. Biologists, however, were able to clear its native Colorado streams of introduced fish species and release captive-bred wild greenbacks in their old habitat. Today, the population of greenbacks is on the rise.

Introduced predators can also threaten native species. The Aleutian Canada goose, once found nesting throughout the Aleutian Islands in Alaska, proved easy prey for the non-native foxes brought in by commercial fox farmers in the early 1900s. When the goose was listed as endangered in 1967, only 200 were thought to remain. Ensuring fox-free nesting grounds and protecting wintering grounds in Oregon and California has resulted in a dramatic comeback of the species in recent years. That led to the reclassification of the species from endangered to the less critical category of threatened in 1990, as the population approached 6,000.

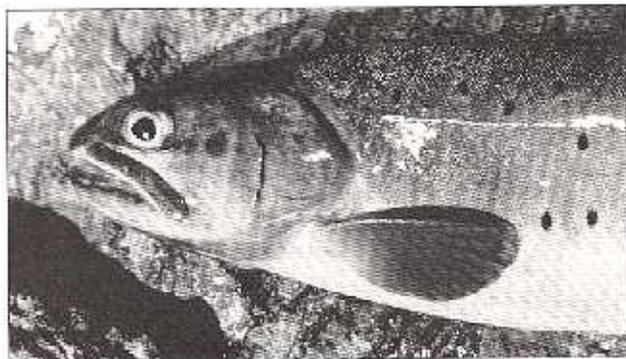


Photo: SWIFTON & NIX AND ASSOCIATES



Photo: Luther Gallman, U.S. Fish and Wildlife Service

Top: Greenback cutthroat trout populations are on the rise. Bottom: The Aleutian Canada goose was reclassified from endangered to threatened in 1990.

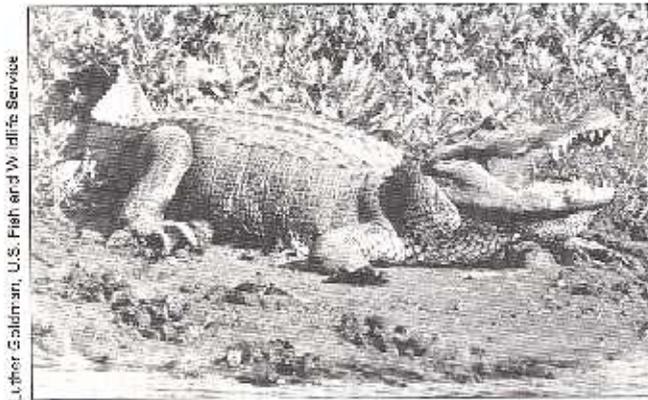


Photo: Luther Gallman, U.S. Fish and Wildlife Service

The American alligator, pronounced fully recovered in 1987, no longer requires Endangered Species Act protection.

For a few species, strict legal protection alone may be the key to recovery. Exploitation for the exotic leather trade once threatened the American alligator. When it was listed as endangered in 1967 under the first endangered species legislation, strict enforcement of commercial harvest prohibitions went into effect. As a result, the species rebounded to such an extent that it no longer requires protection under the Endangered Species Act.

## Multi-species Approach

When several species are declining in one area because of habitat loss, sometimes the best approach is to plan the recovery of the entire group of declining species together, focusing attention on the habitat. Protecting the ecosystem containing several endangered or threatened species can also prevent the decline of additional species in the future.

This approach is being used in several States, including Hawaii, Texas, Florida, California, and Nevada. One example can be found in the area containing Ash Meadows National Wildlife Refuge, a spring-fed oasis in the Mojave Desert about 90 miles northwest of Las Vegas, Nevada, that contains at least 32 animal and plant species of special concern, including 12 that are endangered or



Photo: Susan C. Cochrane

The Ash Meadows sunray is one of 12 listed species covered under the Ash Meadows Species Recovery Plan. The plan covers four fish species, an insect, and several plant species.

threatened. One recovery plan was written to address all of these species together, focusing on preserving the unique ecosystem that supports them.

### Not Always Easy

For hundreds of species threatened with extensive habitat destruction or alteration, recovery may not be simple. For example, many species of freshwater mussels, once abundant in the United States, are now declining primarily because of water pollution and siltation. These declines are indicators of a larger problem, the general decline of water quality in many U.S. rivers. Further complicating this is the accidental introduction of exotic species that compete with the native mussels.

Development, recreation, industrial, and agricultural practices have taken their toll on numerous plant and wildlife species over the years. For many endangered and threatened species to attain full and sustained recovery, the larger issue of general environmental quality will have to be addressed.



Donal Schlessner



Robert C. Mueser/TUMBUK AND ASSOCIATES

Top: Introduction of exotic species can have a devastating effect on wildlife. Here, a native freshwater mussel is encrusted with exotic zebra mussels from Europe.

Bottom: Recreation and development take their toll on wildlife. Piping plovers are threatened by human disturbance of their nesting habitat along beaches and sandbars.

### For Some, Protection Came Too Late

Some plants and animals have vanished in spite of efforts to preserve them. The last dusky seaside sparrow, for example, died in 1987. The dusky was one of several subspecies of seaside sparrows that have suffered from extensive loss of coastal salt marsh habitat. Ensuring suitable habitat for the thousands of plants and animals whose future is uncertain holds the greatest hope for their survival.



P. W. Sykes, U.S. Fish and Wildlife Service

Dusky seaside sparrow

### Cooperation With the States

The States play a very important role in conserving endangered and threatened species. All 50 State natural resource agencies have entered into cooperative agreements with the Service, making them eligible to receive Federal financial assistance for their own endangered species conservation programs. Under this matching funds program, the States have been able to greatly increase their efforts to conserve endangered and threatened species—stepping up habitat protection, research, enforcement, and other activities.

### Permits

The Service's Office of Management Authority can issue permits for certain activities involving endangered or threatened species. By law, permits for endangered species are issued only for conservation purposes or for "incidental take" in connection with otherwise lawful activities. In addition to these purposes, permits for threatened species may be issued for educational activities, zoo exhibition, and other special purposes.

The Service also works with more than 100 nations that are party to the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) to foster cooperation in international conservation programs.

Commercial trade in wildlife products is regulated among CITES member nations through a permit system which seeks



Steve H. Hebrant, U.S. Fish and Wildlife Service

Confiscated endangered species products.

to eliminate illegal trade in products made from endangered or CITES-listed species.

### What You Can Do To Help

You can help brighten the future for animals and plants by learning more about endangered and threatened species and how they are protected:

- Find out which species in your area are endangered or threatened by writing your State wildlife or conservation department. Be informed about other wildlife and conservation issues in your area and tell others about what you have learned.
- Visit one of the more than 470 National Wildlife Refuges. Become a volunteer or help out on special projects at a refuge near your home.
- Join a conservation group; many have local chapters.
- Check the law before buying wildlife products. Before traveling overseas, write the U.S. Fish and Wildlife Service, Publications, 130 Arlington Square, Washington, DC 20240, for a copy of *Buyer Beware* and *Facts About Federal Wildlife Laws*.
- Report violations of wildlife laws to your local game warden. Many States have a special "hotline" number for this. Sometimes, providing information leading to a conviction can result in a cash reward.
- Set an example by recycling and being careful not to litter. Some kinds of litter such as balloons, discarded fishing line, and plastic 6-pack rings can suffocate, entrap or strangle wildlife. Participate in clean-up projects, or start your own.

- Avoid using unnecessary lawn and garden chemicals, improper disposal of household chemicals, and causing water pollution or erosion of any kind.

- Buy a Federal Duck Stamp at your local post office. By law, money from Duck Stamp sales goes directly into a special fund used only to buy prime wetland habitat. A great variety of wildlife, including many endangered species, depends on wetlands.

- Plan a vacation around observing wildlife in its natural habitat, such as a marsh or forest. Look for State, Federal, or private wildlife conservation areas near your destination.
- Please do not throw this publication away! If you do not intend to keep it, give it to a friend, or donate it to a school or library.



U.S. Fish and Wildlife Service

The Migratory Bird Hunting and Conservation Stamp, popularly known as the Duck Stamp, is available at most U.S. Post Offices. Stamp revenue is used to buy prime wetland habitat.

### Front Cover Photographs



**Brown pelican:** The southeastern population of the brown pelican was taken off the list of endangered and threatened species in 1985 due to recovery. Other populations of the species remain endangered. (U.S. Fish and Wildlife Service photo)



**Mountain golden heather:** This North Carolina plant was considered extinct until it was rediscovered in 1978. It was listed as threatened in 1980. (U.S. Fish and Wildlife Service photo)



**Black-footed ferret:** Once considered the rarest mammal in the country, this endangered species has benefitted from a captive breeding program. With captive populations exceeding 200, reintroduction plans are now under way. (Franz Camenzind)