



U.S. Fish & Wildlife Service

Endangered Means There Is Still Time

The U.S. Fish and Wildlife Service's mission is to work with other people to protect and recover endangered and threatened species, so they no longer need protection under the Endangered Species Act.

The American people recognized that the various species of fish, wildlife, and plants are of aesthetic, ecological, educational, historical, recreational, and scientific value to all of us. [Continue>>](#)





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We know that the loss of just one plant species can cause up to 30 other species to disappear with it.

Why?

Species are linked and dependent upon each other within their ecosystems. Unfortunately, we are losing this incredible diversity of species at an alarming rate.

Continue>>





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Endangered Means There Is Still Time

The purpose of the Endangered Species Act is to conserve and protect threatened and endangered species and the ecosystems they depend on to survive.

This presentation from the U.S. Fish and Wildlife Service's Endangered Species Program explains how the loss of habitat and ecosystems can lead to a decline in biodiversity, and how the Endangered Species Act helps prevent extinction.

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Endangered Means There Is Still Time Ecosystems

What is an ecosystem?

An **ecosystem** is a web of living and nonliving parts that is connected and maintained by energy from the sun and nutrient flow. Plants, animals, rocks, soil, air, water, sun, and people are all links in the Earth's web of life.

Ecosystems can be as small as the pond in your backyard or as large as the Earth. They include wetlands, prairies, coral reefs, and even rotting logs! [Continue>>](#)





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From Maine to the Aleutian Islands, and from Alaska's Point Barrow to Hawaii, Puerto Rico and the Virgin Islands, the territorial extent of the United States covers nearly one third of the North American continent. [Continue>>](#)



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Within an ecosystem, habitats are parts of a larger mosaic. No matter their differences, they remain consistent with the overall character of the ecosystem of which they are a part. Ecosystems and habitats are not just concepts for biologists, they are real places that are valued by people for recreational, aesthetic, and economic reasons.



We are stewards of global treasures.

Ecosystems are normally, but not always, large scale landscapes. They are frequently defined by their dominant vegetation, associated animal communities, and by factors such as climate, soil types, and the flow of energy and nutrients. [Continue>>](#)





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North America, and the United States, in particular, is home to a host of economically important and ecologically unique terrestrial and marine environments... all of which contribute in no small measure to our national and individual well being.



The United States has more ecosystems and habitat types than any other nation. They support species of plants and animals found nowhere else on earth.

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Habitats--the places where animals or plants live that include the essential elements needed to survive (water, food, shelter, and space)--are found within ecosystems.



Covering more than 70 percent of the Earth's surface, oceans, rivers, and streams are examples of ecosystems that are part of our world's biodiversity.

These waters and coastal areas are home to many species ranging from microscopic zooplankton to fish eggs to 60 pound turtles to huge 200,000 pound whales--the largest living animals on Earth! [Continue>>](#)



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Our ocean environment supports beautiful fragile coral reef ecosystems composed of an amazing variety of plants and animals, including algae, fishes, and living coral! **Continue>>**



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The land is also made up of diverse ecosystems such as the dry and arid desert lands of the western United States.



The desert lands of Coachella Valley NWR contain habitat for unique species like the Coachella Valley fringe-toed lizard.



Wetlands and prairies of the Midwest and central plains are also unique ecosystems, full of rich biodiversity in plants and wildlife like the eastern prairie fringed orchid and the greater prairie chicken. [Continue>>](#)



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Endangered Means There Is Still Time Biodiversity

Biodiversity, or biological diversity, is the term for the variety of life and the natural processes of which living things are a part. This includes the living organisms and the genetic differences between them and the communities in which they occur.

The concept of biodiversity represents the ways that life is organized and interacts on our planet. These interactions can take place on scales ranging from the smallest, at the chromosome level, to organisms, ecosystems, and even entire landscapes.

Continue>>





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Endangered Means There Is Still Time Biodiversity



Biodiversity is the variety of all life on Earth

The term “biodiversity” refers to the number of organisms: animals, plants, microbes; all the life that exists within any given geographical area.

“Biodiversity” is a term that came into fairly common use during the 1990s. However, many people are still not sure of its meaning, and often associate the concept with non-native ecosystems and habitats such as “tropical rain forests.”

Simply stated, the term “biodiversity” refers to the full array of life on Earth. More generally, we use the term biodiversity to refer to the number of organisms that occur in a given place. [Continue>>](#)



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Endangered Means There Is Still Time Biodiversity

The United States ranks first in the world for biodiversity...



- among temperate fishes
- amphibians (salamanders),
- freshwater turtles, crayfish, mussels and,
- aquatic insects such as mayflies, caddisflies, dragonflies, and others.

The United States is home to more than ten percent of all the species of plants and animals known to science. Thousands of our native species occur nowhere else on earth. [Continue>>](#)





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Endangered Means There Is Still Time Biodiversity



Aside from the range within ecosystems, biodiversity includes variety within **genes**, a segment of DNA that includes the coded information in an organism's cells that makes each species and individual unique, and **species**, which is a population of individuals that are alike and able to breed and reproduce fertile offspring. None are alike.

To understand what is meant by biodiversity in the gene pool, just look around you. Each person is composed of genes that when woven together form a unique individual. [Continue>>](#)



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No two of us are exactly alike.

The scale at which biodiversity can be measured varies. That region may consist of a plot of land no more than a few square meters or yards, a whole continent, or the entire planet.



Biodiversity does more than measure the variety of life around us. It also provides a variety of animals, plants, bacteria, and other organisms to support us. Imagine what it would be like if we only had one food to eat everyday!



Do you want green beans for breakfast, lunch, and dinner? [Continue>>](#)



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Endangered Means There Is Still Time Biodiversity

We are also learning that the mix of species in the world has many hidden benefits. For example, billions of people rely on plant- and animal-derived medicines for health care.

Without these life sustaining medicines and foods, many of us would not be here today. Have you ever taken aspirin or penicillin when you were sick? Each time we lose a species, the future benefits it could have provided are lost forever.



The most fundamental question of how many species of plants, animals, and microorganisms there are remains unknown. About 1.5 to 1.75 million species have been studied well enough worldwide to receive a scientific name. Estimates of the total number of species vary, but a general estimate tends to range around 14 million. **Continue>>**



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Endangered Means There Is Still Time Extinction

Endangered means that a species is in danger of **extinction** in the near future throughout all or most of its range; endangered, however, also means there is still time. The loss of just one species can cause many others to disappear with it.

Why?

Species are linked and dependent upon each other within their ecosystems. Unfortunately, we are losing our incredible diversity of species at an alarming rate.

Continue>>





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Endangered Means There Is Still Time Extinction

Can you guess how many species have gone extinct in North America since the Pilgrims landed in 1620?

Scientists estimate that the natural extinction rate is approximately one species lost in every 100 years. Yet, more than 500 species in North America have disappeared in less than 400 years.



Extinction is a natural process, but the current extinction rate is not. **Continue>>**



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Endangered Means There Is Still Time Extinction

Why are more species going extinct today?

More species are going extinct today because we are altering the air, water, and land faster than species can adapt. Most species have the ability to adapt to a changing environment. But, if the changes become too severe in their ecosystem, they cannot survive. **Continue>>**





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Endangered Means There Is Still Time Extinction



Today, scientists are working with many partners, including students and teachers, to prevent species from becoming extinct.

To describe the status of species, conservation biologists use two terms:

ENDANGERED and THREATENED

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THREATENED

A plant or animal species that is likely to become endangered if it is not protected.

ENDANGERED

A plant or animal species that is in immediate danger of becoming extinct and needs protection to survive.

EXTINCT

A plant or animal species that is no longer living on earth. [Continue>>](#)





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COPPERBELLY WATER SNAKE

The copperbelly water snake was listed in 1997 as a threatened species in Indiana, Illinois, and Michigan, due to habitat loss and pollution from mining. It lives in a wetland ecosystem and is an important predator as well as prey for many types of wildlife.

HOUSTON TOAD

The Houston toad was listed as endangered in 1970 due to habitat loss. It relies on wetland ecosystems in Texas. The toad is food for many other animals and helps keep insect populations under control. [Continue>>](#)





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LOSS OF HABITAT

Habitat loss is the most common reason species become endangered and threatened. When people remove or alter forests, rivers, wetlands, prairies, beaches, and other ecosystems, there is no place left for plants, fish, and wildlife.

For example, at one time there were 250,000 family groups of red-cockaded woodpeckers living on over 90 million acres of longleaf pine forests in the southern United States. Today, there are just 4,700 family groups of these endangered birds living on under 1 million acres of their original habitat. [Continue>>](#)





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Beyond destruction of habitat, we often don't do a good job of sharing our environment with other species. For example, the endangered manatee, or sea cow, is a plant-eating "gentle giant" that lives in Florida waterways, where people often use boats for recreation.



Sometimes speedboats run over the manatees, killing them or slicing into their backs with the boats' propellers. By enforcing laws and decisions to protect species, such as slow speed zones in coastal waters, we can help rare species survive. [Continue>>](#)



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OTHER CAUSES

The decline of bird species such as the brown pelican alerted us to the harmful effects of pesticides. Scientists discovered that DDT used to control insects on crops was washing into waterways. Birds were poisoned by DDT when they ate fish from poisoned waterways. This caused pelicans to lay thin shelled eggs that often broke before the chick hatched.



In 1972, the Environmental Protection Agency banned the use of DDT. In 1999, 27 years later, the peregrine falcon has recovered so that it is no longer considered endangered. However, DDT is still legal in other countries, and many migratory birds are still exposed to the harmful effects of DDT and other pesticides when outside the U.S. **Continue>>**



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ILLEGAL KILLING AND OVERCOLLECTION

The bog turtle is a threatened species in the eastern United States. Not only is it threatened by loss of its wetland habitat but also by illegal collection for the pet trade.

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NON-NATIVE SPECIES

The introduction of non-native species is now the second greatest threat to native species. These "alien" species do not have diseases and predators to keep their populations under control in the United States so they spread out of control. They crowd out our native species for food and space.

For example, the non-native Asian long-horned beetle bores into healthy hardwood trees, like maples, causing heavy sap flow that eventually kills the tree. This devastates our forest ecosystem and affects all the species that live in the forest.

NATIVE SPECIES AND DISEASES

Native freshwater mussel populations that are rare and isolated can be destroyed by dining muskrats. In the past, there were millions of mussels throughout our rivers, and predation was not a problem. Today, mussel populations are very limited in numbers and range, so predation by muskrats could limit recovery and speed up extinction. [Continue>>](#)





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Endangered Means There Is Still Time The Endangered Species Act

Many of our environmental laws, such as the Clean Water Act and the Clean Air Act, were passed in the early 1970s to help make our world a cleaner, safer place for all species, including us!

One of our most significant environmental laws is the **Endangered Species Act** (ESA), passed by Congress in 1973. The American people recognized that fish, wildlife, and plants are of aesthetic, ecological, educational, historical, recreational, and scientific value to all of us.
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Endangered Means There Is Still Time The Endangered Species Act

The purpose of the Endangered Species Act is to conserve and protect threatened and endangered species and the ecosystems they depend on to survive. Under this law, the U.S. Fish and Wildlife Service and the National Marine Fisheries Service were given responsibility to:

- Create and maintain, a national list of endangered and threatened species.
- Enforce protection for listed species.
- Assist others with protecting species.
- Develop plans for restoring listed species so that they no longer need protection.

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Endangered Means There Is Still Time The Endangered Species Act



Under the Act, Congress made it illegal to:

- Import, export, or sell listed animals and plants across State lines.
- Kill, harm, harass, possess, or take protected animals from the wild without a species permit. **Continue>>**





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Endangered Means There Is Still Time The Endangered Species Act

People Working For Species Recovery!

The U.S. Fish and Wildlife Service's mission is to work with other people to protect and recover endangered and threatened species, so they no longer need protection under the Endangered Species Act.

It is up to every person to be a good steward of our ecosystems and the species that live in them.



PARTNERS FOR FISH AND WILDLIFE

Many people are working to restore ecosystems for species. They clean up garbage from streambanks, convert old farmland back to its natural habitat, remove non-native plants, and replant with native plants. [Continue>>](#)



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HABITAT CONSERVATION PLANS

The U.S. Fish and Wildlife Service works with its partners to develop Habitat Conservation Plans that protect species and allow for human activities. For example, a plan covering over 260,000 acres in Wisconsin provides a way for landowners, businesses, and governments to continue activities such as mowing and forestry, while still protecting an endangered butterfly, the Karner blue, that lives there.



The Karner Blue Habitat Conservation Plan protects the butterfly and many other species in this ecosystem such as the Kirtland's warbler, slender glass lizard, eastern Massasauga rattlesnake, wood turtle, and plants like the regal fritillary, prairie flame flower, and sand violet. [Continue>>](#)



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FEDERAL CONSERVATION ACTIVITIES

The Endangered Species Act requires that Federal agencies avoid activities that harm a listed species or its ecosystem. For example, the U.S. Navy, working with U.S. Fish and Wildlife Service, set aside an area for the threatened California least tern. As a result, the

tern population in the San Diego, California area has gone from 600 breeding pairs to over 4,000!



CAPTIVE BREEDING AND SPECIES REINTRODUCTION

The whooping crane is another fine example of a species on the road to recovery. Captive breeding and reintroduction increased their numbers from only 16 in 1940 to over 250 cranes today. Whooping crane eggs are raised in captivity to protect them from predators. [Continue>>](#)



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RECOVERY

Once the birds are reintroduced into their wetland ecosystem, they are taught to migrate from breeding grounds in Canada to their wintering grounds in Texas.

Biologists fly in ultra-light aircraft to mimic the leader of the flock, and the young whooping cranes follow. [Continue>>](#)





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CONSERVATION AGREEMENTS

How can we protect species that are declining so they do not need to be listed as threatened or endangered? Conservation Agreements! The lesser prairie chicken is a declining species that will benefit from several conservation agreements under development in Oklahoma, New Mexico, Texas, Kansas, and Colorado.



NATIONAL WILDLIFE REFUGES



Sanctuaries or refuges protect the ecosystems that endangered and threatened species depend.

The Logan Cave National Wildlife Refuge in Arkansas was established to protect the threatened Ozark cavefish. It is one of many National Wildlife Refuges created by the U.S. Fish and Wildlife Service and partners to protect species. [Continue>>](#)



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Endangered Means There Is Still Time What You Can Do

"ADOPT" A SPECIES IN YOUR AREA

Closer to home,
you can help out:

- "Adopt" an endangered species native to your area by learning all you can about it and sharing that information with your family, friends, and classmates.
- Contact a local nature center, park, wildlife refuge, or fish hatchery about helping with a conservation project that will benefit your adopted species. [Continue>>](#)





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Endangered Means There Is Still Time What You Can Do

You can help restore and protect habitat in your backyard, your neighborhood, or on your school ground!

- Build homes for bats and birds.
- Plant native trees, shrubs, and flowers to attract wildlife, birds, and butterflies.
- Join a local clean-up effort to make these areas better places to live.
- Participate in community projects to plant riverbanks with native plants to anchor soil and provide habitat. [Continue>>](#)





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Endangered Means There Is Still Time What You Can Do

BUY DUCK STAMPS

The money from duck stamps helps buy wetlands and other important areas for migratory birds like ducks and endangered whooping cranes. These stamps can be purchased at most places that sell hunting and fishing licenses, such as sporting good stores, discount stores, and the U.S. Postal Office.



JUNIOR DUCK STAMP CONTEST

You can also enter your art work in your State's Junior Duck Stamp Art Competition. Your artwork may become next year's Junior Duck Stamp! For information go to: <http://www.fws.gov/duckstamps/> [Continue>>](#)





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VISIT A REFUGE, PARK, FOREST, OR FISH HATCHERY

Visit a nature area nearby to learn how you can help. In many cases, these places may have volunteer programs.

DON'T BUY WILD ANIMALS

Please don't buy or keep exotic or wild animals or plants that have been taken from the wild. This includes anything from wild frogs and turtles to alligators or pitcher plants! In most cases, they are often hard to keep and are protected by law.

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WATCH YOUR STEP!

When you visit natural areas, please stay on trails and obey trail signs. This way you won't trample plants or disrupt wildlife. They may be rare or endangered.

REDUCE, REUSE AND RECYCLE!

Finally, the choices you make everyday affect our environment. By conserving energy, water, and other resources you are helping the environment and the species that live in it. **Continue>>**





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CAREERS

You can do more than volunteer. You can make a career out of conservation. Become a biologist, botanist, environmental educator, law enforcement officer, computer specialist, or environmental lawyer... **there are lots of possibilities.**

You can work in aquariums, botanical gardens, conservation organizations, Federal or State agencies, and zoos to teach others about the many unique and wonderful species with whom we share the Earth, the largest ecosystem in the world.



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