



# Nature in Trouble: Threats to Wildlife

## Habitat Loss and Degradation

Species survival is directly tied to habitat — the environment that supports a species' life cycle. Humankind's attempts to make the planet more inhabitable and productive to support the world's ever-increasing population, however, have transformed or degraded significant portions of the land and water on earth. These transformations can cause species populations to decline. Habitat loss and degradation is the *leading threat* to species, implicated in the decline of three-fourths of the species that are protected or have been proposed for protection under the Endangered Species Act.

## Invasive Species

Invasive alien species are harmful, non-native plants, animals, and microorganisms that are introduced into an environment in which they did not evolve. Usually, they have no natural enemies to limit their reproduction and therefore spread rampantly.

The consequences of invasive species for the economy and environment are profound. Exotic invaders comprise the *second largest threat* to global biodiversity after habitat loss, threatening 46 percent of species listed under the Endangered Species Act. The damages they inflict upon agriculture, forestry, fisheries, property, and human health are estimated at \$137 billion annually.

Here are just a handful of examples:

- The Eurasian Ruffe is thought to have been introduced into the St. Louis River in 1986 and has since invaded the Great Lakes. The Eurasian Ruffe is now more abundant than all other fish combined in Duluth/Superior Harbor and Lake Superior. The financial loss to fisheries in the Great Lakes due to ruffe infestation is estimated at \$119 million.
- The European Green Crab was first seen in the San Francisco Bay area in 1989, and was perhaps introduced by the ballast water of a docking cargo ship. It now out-competes native species for food and habitat. The green crab consumes anything in its path, especially shellfish, and millions of dollars are spent annually to try to stop this species from destroying commercial fisheries.
- Buffelgrass was introduced into the United States in 1948 as forage grass for livestock in South Texas. This invader has spread throughout the U.S. and displaced native species such as the endangered South Texas ambrosia, an herbaceous perennial plant. Buffelgrass is also highly flammable and can introduce fire into ecosystems where fire does not normally play a role.

- Nutria, a rat-like semi-aquatic rodent, was introduced to the U.S. from South America to stimulate the fur industry. The species destroys marshland and wetland areas, damages dikes and irrigation facilities, and weakens riverbanks through burrowing. It also consumes and damages sugar cane and rice crops. The cost to Maryland alone has been \$4 million over the past three years. Louisiana now has a \$4.00 per tail bounty in an effort to eradicate 400,000 of these destructive invasive species.
- West Nile virus, an invasive virus, which is transmitted to humans by mosquitoes that feed on the blood of infected animals, now threatens people and animals throughout most of the U.S.

## Climate Change

In January 2004, *Nature* published an article entitled “Extinction Risk from Climate Change” which states that 15-37% of species will go extinct by 2050, due to global warming. For several reasons, climate change poses a special threat to endangered species.

First, endangered species are often geographically restricted, either because of their specific ecological niche or because of habitat loss. As climate change alters temperatures, humidity, soil and vegetation, it can render all or part of already-limited habitats unsuitable.

Second, endangered species tend to have lowered genetic diversity because of their small numbers, which limits their ability to adapt to different climates.

Third, endangered species are often specialists that depend on the survival of one or a few species for food, some of which are also vulnerable to climate change.

Finally, endangered species may possess other traits that place them at risk, such as wintering in the Arctic, where large climate changes are expected, or living in coastal habitats that could be subject to sea-level rise. Species such as the grizzly bear, the Indiana bat, the golden-cheeked warbler, and the Karner blue butterfly are just a few listed species that are threatened by climate change.

## Pollution

Pollution from agricultural, industrial, and urban development threatens both terrestrial and aquatic species. Chemicals used in agriculture, such as fertilizers and pesticides, are absorbed by surrounding plants, animals, and soils. These chemicals can alter soil and water composition and prove harmful, if not fatal, to numerous species. Run-off from agricultural fields and fertilized yards pollute waterways, adding unnaturally high doses of nutrients and chemicals to nearby rivers, lakes, and streams. Urban and industrial centers are also responsible for releasing pollutants into adjacent waterways. These pollutants can build up in aquatic food chains, directly poisoning many species. They can also alter the water’s chemical composition, triggering harmful reactions such as increased algal growth that prevents adequate amounts of oxygen from reaching fish. Pollutants, such as silt, that are released into waterways are a primary threat to aquatic species.

Siltation, which is caused by removing vegetation from streambanks and constructing roads near waterways, reduces water quality and can suffocate some bottom-dwelling species that have limited mobility, such as freshwater mussels. Acid rain, caused by the release of sulfur dioxide and nitrogen oxides into the atmosphere, causes the acidification of lakes and rivers, making them uninhabitable for most species. Acid rain is also believed to be responsible for the decline of forests in America's Northeast and throughout Europe.

## **Pesticides**

The threats to wildlife posed by pesticides are numerous. Over 1 billion pounds of pesticides are used each year on farms, ranches, lawns and golf courses across the United States. The adverse effect of pesticides on non-targeted wildlife is well documented. For example, endocrine-disrupting pesticides such as dieldrin, alachlor, and atrazine can undermine neurological and behavioral development in mammals, fish, amphibians, reptiles, and birds.

Pesticides have also contributed in part to a major threat to our agricultural sector, termed the "impending pollinator crisis" by the U.S. Department of Agriculture. It is highly likely that a main cause of population decline of the leopard frog and other amphibians is pesticide use.

Herbicides such as amitrole may be hazardous to mammalian reproduction, causing small mammals to have reduced litter sizes and deformed young. Despite its acknowledgment of this threat, EPA stated that it would not impose any limitations on the use of amitrole or initiate consultation with the Services regarding its impacts on endangered wildlife.

## **Other Threats**

The following are additional threats that are faced by species worldwide. All of these threats are directly tied to human activities.

## **Human Population Growth**

The U.S. population continues to grow rapidly. Between 1990 and 2000, the U.S. population grew by 32.7 million people, the largest census-to-census increase in American history.

Human population growth and ever-increasing consumption rates are causing:

- severe deforestation
- habitat fragmentation
- species extinction
- water scarcity
- climate change
- loss of biodiversity
- pollution

## **Agriculture**

Farming requires converting native prairie, grassland, forests and wetlands to croplands. Water sources that are vital to native species are often diverted away or dried up entirely. Pesticides

and fertilizers pollute and degrade habitat. Cattle and goats can overgraze grasses and plants that are critical to the survival of native species.

### **Pesticides Logging and Fire Suppression**

Besides eliminating forest habitat, logging can increase streambank erosion, making waterways uninhabitable for aquatic species. For years, humans have been suppressing fires. But we now know that frequent small fires can be beneficial, clearing out forest understory, preventing the spread of large, intense fires that can reach the tops of adult trees and kill them. Regular fires also trigger seed germination for many species and restore nutrients to the soil.

### **Mining and Drilling**

Mining, oil and gas extraction, and geothermal exploration not only destroy pristine habitats – they also pollute surrounding areas with acidic mine run-off, silt, noise and debris. Furthermore, to get to the mines and drills, roads have to be built. These roads can destroy habitats, inhibit migrations and increase soil erosion.

### **Poaching and Overfishing**

Despite many national and international protections, endangered species are still taken from the wild. Body parts of endangered animals are used in clothing, accessories, jewelry, decorative items and traditional medicines. Endangered species cannot possibly sustain such demand, and in many cases, poaching has driven populations to near extinction.

Overfishing has contributed to the dramatic decline of wild salmon and many other fish. The global fishing industry nets an estimated 60 billion pounds of non-targeted species annually. An estimated 150,000 sea turtles alone drown in shrimp trawl nets each year.

### **Urbanization**

Increasing human population requires building factories, housing and roads where none previously existed. This fragments habitats and forces species into shrinking areas.

### **Pesticides Damming and Channelizing**

Dams impede many species' migration routes and alter water levels, temperatures, gas concentrations and sedimentation. They also inhibit natural flooding, which is necessary to replenish nutrients in soils. Channelizing rivers destroys streamside areas.

For more information contact us at:

National Wildlife Federation  
1400 Sixteenth Street, NW  
Suite 501  
Washington, DC 20036  
1-800-433-2283