

On the Road to Extinction

by Laurel Garlicki



Redbellied turtle

Massasauga rattlesnake



Green salamander

photos redbellied turtle, Rob Crowell; massasauga rattlesnake, Andrew L. Shiebs; green salamander, Russ Gettig; background photo-PFB/C photo file

This article is the first in a series of articles on the major topics of concern in the Commission's theme, "Conserve 2000." This article explains the global, regional and local aspects of the theme of nongame and threatened and endangered reptiles and amphibians.



Throughout history, plants and animals have come and gone—it's all part of nature's grand plan. Extinction is a natural process that occurs because of changes in physical and biological conditions. Natural extinction happens at a very slow pace. However, because of human activities, plants and animals are pushed into extinction at an alarming rate.

A species that is no longer living is considered extinct. Extinction can happen even to the most common species in a relatively short period. Common examples are the dinosaurs and more recently, passenger pigeons. There is nothing that can be done once a species has become extinct. But there is plenty that can be done to prevent it from happening. Extinction is a global problem affecting not only plants and animals, but people as well.

Worldwide considerations

According to the National Wildlife Federation, the current rate of extinction is estimated to be thousands of times greater than the natural rate. Globally, this disrupts ecosystems everywhere. In some areas of the world, human activities are causing the extinction of species that haven't yet been discovered or even named. The Food and Agriculture Organization estimates that tropical rainforests, which are being destroyed at a rate of more than 38 million acres per year, may contain half of all living species in the world. Compare that to the fact that scientists have classified only

1.7 million organisms, a fraction of the 10 million to 100 million species estimated to inhabit the Earth. Currently worldwide about 19 species disappear every day.

The Earth is currently in danger of losing 1,446 species of plants and animals. Another 297 are considered threatened and may become endangered if they are not protected. Out of all the species in the world, 10 million to 100 million, these numbers may seem negligible. In most cases, we don't feel a direct connection to species when they become endangered or even extinct. That happens far away in different areas of the world. Chances are, it's a common feeling among people in the world. However, the connection may be disguised—by our medicine cabinets, for example. One of the biggest connections we have to the rich diversity of plants and animals living on this planet is the pharmaceutical industry. According to the National Wildlife Federation, many of the top 150 most prescribed drugs have their origins in nature or they are synthesized from nature. The health and jobs of many people of many nationalities rely on this \$79 billion per year industry. But in the most ecologically rich areas of the world, species are being lost before we have a chance to realize their potential benefits.

Protecting America's species

Historically, people have moved across the globe from one area to another in search of natural resources and in hopes of improving their quality of life. Visions of lush for-



photo: Clark Shaffer

ENDANGERED

- Bog turtle
- New Jersey chorus frog
- Coastal plain leopard frog
- Massasauga rattlesnake
- Kirtland's snake
- Eastern mud salamander

THREATENED

- Green salamander
- Redbellied turtle
- Rough green snake

CANDIDATE

- Blandings turtle
- Broad-headed skink
- Timber rattlesnake

ests, pristine rivers, fertile land and abundant animal life drew people from Europe to America and westward from the 13 original colonies. But everywhere we settle we leave scars on the land, some that may never heal. In fact, since the Pilgrims landed on Plymouth Rock in 1620, it's been estimated by the U.S. Fish & Wildlife Service that more than 500 species have been forced into extinction in America alone.

Recognizing the importance of keeping each part of the ecosystem intact, Congress passed the Endangered Species Act (ESA) of 1973. The ESA provides protection for more than 900 animal and plant species in the United States that are in trouble. The ESA provides stiff penalties across state borders for these species. According to the U.S. Fish & Wildlife Service, the ESA is the most far-reaching law ever enacted by any nation for the preservation of endangered species. The Act states that endangered and threatened species "are of aesthetic, ecological, educational, historical, recreational, and scientific value to the Nation and its people."

Protecting PA's reptiles and amphibians

In 1974 and 1978, what is now the PA Fish & Boat Commission received jurisdiction over Pennsylvania's amphibians and reptiles, including those species considered to be endangered, threatened or of other special concern. Under state and federal regulations, it is unlawful to sell, trade, barter, possess, import, export, catch, take or kill animals on the threatened and endangered species list. Currently there are 12 reptile and amphibian species of special concern in Pennsylvania (as classified by the Commission): Six endangered, three threatened and three candidate. Species listed by the state are protected in the state. Species can receive better protection when they are also federally listed through the Endangered Species Act. If a species appears on the federal list, it is automatically added to the appropriate state lists.

Terms of endangerment

Endangered is a classification given to species that are in immediate danger of becoming extinct. In Pennsylvania, the eastern massasauga rattlesnake has been classified as an endangered species because of loss of habitat. The massasauga has a very limited range in Pennsylvania. Pennsylvania is losing critical wetland habitat in that range, causing the small, venomous rattlesnake's numbers to dwindle. Without protection, the massasauga is in danger of becoming extinct.

Species that are classified as **threatened** may become endangered in the near future if they are not protected. A special effort is made to monitor populations and habitats of species listed as threatened.

Redbellied turtles, a threatened species, have a limited range in Pennsylvania. They inhabit a heavily urbanized and industrial part of the state—the southeast region. Annual monitoring and review of proposed development is helping to protect this turtle's populations. Protection and recovery of some threatened species, when their populations rebound, can result in an upgrade to the less severe status of

threatened. However, these species still need to be protected to ensure that their populations continue to grow.

Candidate is a term used in Pennsylvania to classify a species that could become endangered or threatened. Listing a species as candidate offers it some protection in the hopes that its population will stabilize and/or increase. Amphibians and reptiles that are listed as candidate species in Pennsylvania have no open season. The only exception is the timber rattlesnake found mostly in central Pennsylvania. In an effort to monitor its population and restrict harvest, special permits are required to hunt, take, catch, kill or even possess these snakes. Species may be listed as candidate species before they receive the unwanted distinction of becoming threatened or endangered.

Some species use Pennsylvania only as part of their range. When this kind of species becomes extinct only in Pennsylvania and not throughout the rest of its range, it is considered **extirpated** from PA. The mud turtle is an example of a reptile that has disappeared from Pennsylvania but can be found in other parts of its range. Unlike the popular elk success story, there have been no successful reintroductions of amphibians or reptiles into Pennsylvania. Reptiles and amphibians are difficult to reintroduce into habitats. The effects of a successful reintroduction may not be seen for a dozen or more years.

Slimy snakes, creepy lizards and warty toads often make people cringe. Most of our feelings about critters are based on fiction instead of fact. This is particularly damaging for the not-so-popular amphibians and reptiles. No matter how unpopular a critter might be, each is an integral part of the web of life, which also includes people. Removal of one part of the web can trigger a chain reaction, causing problems in other parts of the web. Furthermore, many of these animals are very sensitive and act as a barometer of environmental health. Their presence, disappearance and health are silent sentinels, alerting us that something might be wrong.

What's wrong?

The main reason why plants and animals become threatened, endangered or extinct is habitat loss. This is especially true for PA's amphibians and reptiles. They rely on wetlands for all or part of their lives. The Commonwealth has lost over half of its original wetlands. Statewide, wetlands have been drained, developed, polluted, taken over by non-native species or altered in some other way. At the same time, amphibian and reptile numbers have plummeted.

The timid massasauga rattlesnake of western PA relies on a very specific habitat—prairie-type fields and wet meadows. Fortunately, some of the massasauga's prime habitat is protected as state parks and game lands. Wildlife management strategies in these areas include precautions to help protect the massasauga and its distinctive habitat.

An increase in highway construction and traffic use on older roads has also taken its toll on amphibians and reptiles. Many amphibian species risk their lives crossing roads in early spring to reach their ancestral breeding grounds. Many become road fatalities seldom noticed by humans.

Acid precipitation, ultraviolet radiation, pesticides, herbicides and other chemicals have been blamed for the decline in amphibians and reptiles not just in PA, but around the globe. Some people believe the root of the problem is our lack of knowledge. Many people are not aware of the plight of these animals. Even more are not aware of the effects of their actions on the environment.

What's being done?

The Fish & Boat Commission is actively involved in permit review and research across the state. Research is needed to locate threatened and endangered species populations and to verify reports of sightings. Research also helps our biologists determine what might be the cause of a particular population's decline. It is also a key ingredient in conducting permit reviews for proposed highways, bridges, business expansions and other similar activities. Recommendations are made to help avoid or minimize effects on threatened and endangered species in the area. In this way, the Commission acts as a watchdog over other agencies and organizations proposing development in Pennsylvania.

Education is also a key component in protecting endangered and threatened species. Many publications, videos and Internet sites provide invaluable information for the public on endangered and threatened species in Pennsylvania as well as worldwide.

What can you do?

Too often it seems that we don't have any connection to endangered and threatened species—that what we do doesn't matter. The problem is that too many people with that outlook can have a devastating effect on solutions for these critters. One way to begin to help these endangered and threatened species is to become aware of the ones in your area. Often, as we pass complete strangers on the sidewalk, we don't have much concern for them. We don't know (and often don't care) what might be happening in their lives and what problems they might be having. However, as we meet new people and get to know them, we feel more concern toward them. We are interested in what is happening in their lives and want to know how we can help. As you learn more about the habits and natural history of endangered and threatened species, you might become more interested in what is happening to them and what you can do to help them. Share this information with others in your area to help dispel myths and rumors they might believe.

Bog turtles in the eastern part of the state have benefitted from this increased public knowledge. People are reporting new information to the Commission every week, tipping off



our biologists to new bog turtle populations. The locations of these populations are recorded on a map that is consulted when development permits are submitted to the Commission for review. Our biologists recommend changes in the permits to help alleviate problems for bog turtles. These bog turtle populations can then be studied and monitored.

Many people are beginning to recognize the importance of getting involved in their local land use and planning decisions. Become involved and voice your concerns. Responsible land use has a direct effect on protecting habitats and water quality. Learn about your community's effects on the watershed you live in, both positive and negative. Promote the positive and see what can be done to minimize the negative.

Help protect habitat for threatened and endangered critters and other animals by participating in clean-up days. Another common activity is planting trees in parks, along streams and at schools. When organizing these planting activities be sure to choose native trees and plants that won't compete with other plants in the area and that provide benefits to wildlife.

Public involvement, in the form of participation, cooperation and funding, is a key to solving the problems facing threatened and endangered species. It will take a continuing effort from all of us to protect our common wealth. We can preserve for us and for future generations the rich legacy that inspired the writings of William Penn upon discovery of what is now Pennsylvania: "The air is sweet and clear, and the heavens serene... Of living creatures, fish, fowl and the beasts of the wood, here are diverse sorts..." ☐

Resources for Threatened and Endangered Reptiles and Amphibians

- Contact the PA Fish & Boat Commission, Educational Media Section, at P.O. Box 67000, Harrisburg, PA 17106-7000, for a list of resources. These include wall charts, 17 inches by 22 inches in full color, on Pennsylvania's snakes, frogs, turtles and salamanders. The Commission also publishes the 160-page book *Pennsylvania Amphibians and Reptiles*. Also available is the 80-page book *Endangered and Threatened Species of Pennsylvania*. For additional resources, suggestions and links, visit the Commission on the World Wide Web at www.fish.state.pa.us.
- Available from the Wild Resource Conservation Fund is the poster "Turtles of Pennsylvania." The Fund also has available the video "Living on the Edge: Bog Turtles," a bog turtle patch and more. Contact the Wild Resources Conservation Fund at P.O. Box 8764, Harrisburg, PA 17105-8764. The fund's web site is: www.dcnr.state.pa.us/wrcf.
- Two other information sources include: U.S. Fish & Wildlife Service, PA Field Office, 315 South Allen Street, Suite 322, State College, PA 16801, web site: www.fws.gov; and the National Wildlife Federation, 8925 Leesburg Pike, Vienna, VA 22184, web site: www.nwf.org.-LG.