

Environment & Ecology Series

Threatened, Endangered & Extinct

PENNSTATE



COLLEGE OF AGRICULTURAL SCIENCES • COOPERATIVE EXTENSION

An Educational Series for Grades 3 & 4

Earth is home to millions of living things. Many of these living things are plants and animals. Each type of plant and animal has its own shape, size, and color. Some even have their own smell and sound. We call these different things *traits*.

Traits help plants and animals survive where they live. For example, the spotted fur on a newborn fawn helps it hide on the forest floor. Hiding can help a fawn survive. Another example is the thorns on a black locust tree. They protect the branches from browsing animals.

Plants and animals get their traits from their parents. Each plant or animal has a combination of their parents' traits. Take YOU, for example: Your hair color, smile, and voice are just a few of the traits passed onto you by your parents. However, you do not look or sound exactly like your parents or anyone else. You are the only you!

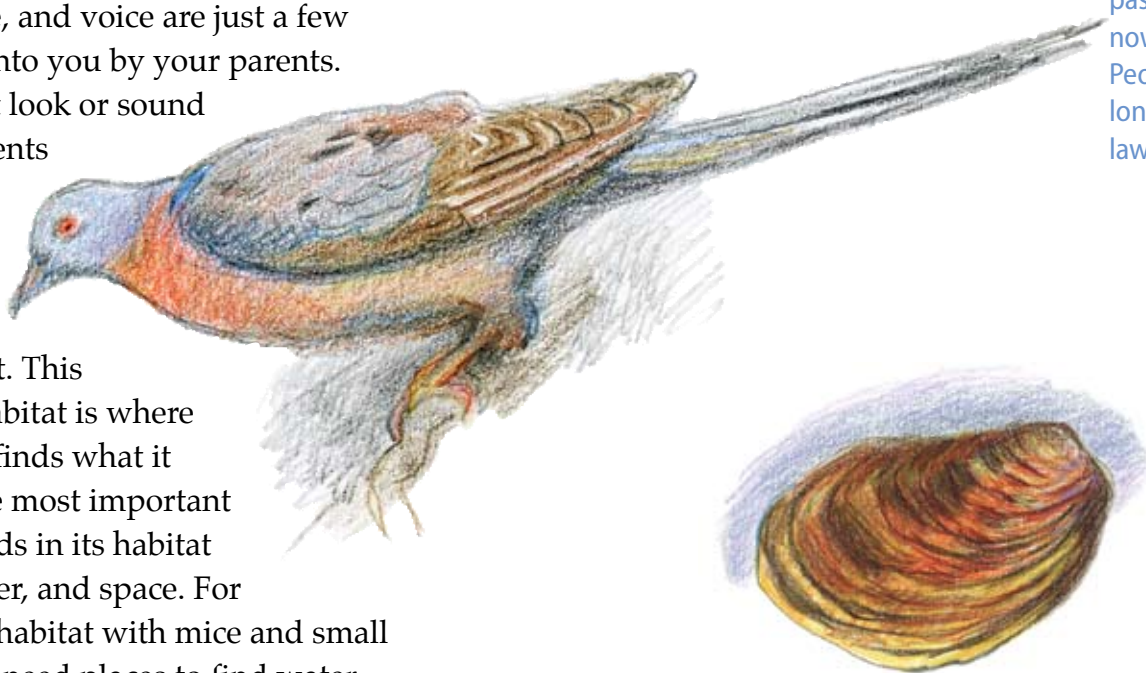
Each plant and animal lives in a place that suits it best. This place is its *habitat*. Habitat is where a plant or an animal finds what it needs to survive. The most important things an animal needs in its habitat are food, water, shelter, and space. For example, foxes need habitat with mice and small animals to eat. Foxes need places to find water, such as streams and ponds. They also need places for shelter. Foxes like dens in the ground. Foxes need a habitat big enough to hold all these things. The best fox habitat is often near a farm. Farms have woods and fields with plenty of fox food, water, shelter, and space.

Plants need different things from their habitat. They need water and nutrients from the soil.



Lion Tracks painting by Dan Christ

Mountain
passenger
now extin
People ov
long ago
laws to pr



Atlantic st
(center), a
all animal
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pollution,



lions (above) and
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ct in Pennsylvania.
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Plant roots take these up to help the plant grow. Plants need gases from the air, like carbon dioxide, to make food in their leaves. Plants also need energy from sunlight to make this food. When they have what they need, plants can live and grow in their habitat. Each type of plant has a habitat that suits it best. Cattail plants need lots of water and sun. They grow on the edges of ponds and wetlands where their roots are always wet. Prickly pear is a cactus plant that prefers dry, rocky habitat on hillsides or in deserts. It does not need much water.

Sometimes habitats change. If this happens, plants and animals may die or move to another place

to find what they need. Weather and insects often cause big habitat changes. Can you think of any other things that could cause a habitat to change?

When habitats change, plants and animals can sometimes change or *adapt* to survive right where they are. This can take a long time!

For example, if one kind of plant does not get enough water where it grows, it will die. But, a few of its kind might survive a dry spell if they have extra wax on their leaves. This wax helps a plant hold water in its leaves. The surviving plants may produce more plants like themselves.



turgeon (left), clubshell clams
and Allegheny wood rats (right) are
s that are now *endangered* in the
ngs such as dam building, water
and diseases changed their habitat.



Many kinds of forest trees are adapted to growing in the shade when they are young. Why might their leaves be bigger when growing in the shade?

Many of these new plants may have their parents' trait of extra wax. They will be better able to survive dry times in the future. Over long periods, sometimes thousands of years, plants and animals slowly adapt to their habitat. This helps them survive a changing habitat.

Turtles are animals that adapted to their habitat. They do not have teeth, but they need to eat their food. Many types of turtles adapted to have a hard, sharp beak that lets them tear their food. Snapping turtles have a hooked beak and strong jaw. When snapping turtles bite down, their food does not get away! Can you think of other animals that have adapted to their habitat?

Sometimes all the plants or animals of one kind cannot adapt or change with their habitat. Sometimes they cannot move to another place. When this happens, this kind of plant or animal becomes *extinct*. Extinct means that there are none left living. This can be part of the natural process. At other times, plants and animals become extinct because something kills them all. Diseases, other animals, pollution, or people can cause this to happen. Two animals that are extinct in Pennsylvania because of people are passenger pigeons and mountain lions. Two hundred years ago, both were common in the state.

Diseases also kill plants. The American chestnut tree once grew everywhere in the Pennsylvania woods. Today, there are not many left. A disease from Asia spread to the state

and killed most of the chestnut trees. Plants and animals are called *endangered* when there are very few left. Atlantic sturgeon is an endangered fish in Pennsylvania. Dams and water pollution changed their river habitat. Bald eagles were endangered once too. Many people worked hard to protect them. When a type of plant or animal is



Showy lady's slipper is a *threatened* plant in Pennsylvania. Never dig them up or pick them.



More bald eagles are nesting in Pennsylvania. They are making a comeback in the state.

Photo: Pennsylvania Game Commission

at risk but not quite endangered, we say it is *threatened*. Showy lady's slipper is a threatened plant in Pennsylvania. Can you guess why?

Laws help protect endangered and threatened plants and animals. There are also laws that protect habitat. Wildlife refuges,

gamelands, state forests, and parks are places where habitat is protected. Hunting laws also protect certain kinds of animals to keep their numbers at healthy levels. Every different kind of plant and animal is important to our world. The best thing we can do for plants and animals is to protect and care for their habitat. All living things need a good place to live.

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Threatened and Endangered Pennsylvania Tree Species

Conservation Status

Pennsylvania Natural Heritage Program biologists use inventory data to recommend a conservation status for species that reflects how common or rare they are in Pennsylvania.

- Below are the most commonly used statuses and their definitions listed in order from minimal risk to most at risk.

Pennsylvania Threatened (PT) - Plant species which *may become endangered* throughout most or all of their natural range within Pennsylvania, if critical habitat is not maintained to prevent their future decline, or if the species is greatly overused by man.

Pennsylvania Endangered (PE) - Plant species which *are in danger of extinction* throughout most of their natural range within Pennsylvania, if critical habitat is not maintained or if the species is greatly exploited by man.

Pennsylvania Extirpated (PX) - Plant species believed by the state to be *extinct within Pennsylvania*. These plants may or may not be in existence outside of Pennsylvania.

American Chestnut

Fagaceae *Castanea dentata*



CONSERVATION STATUS: **Pennsylvania Endangered (PE)** due to chestnut blight. Blights are fungal diseases that kill the leaves, flowers, and stems of plants. The chestnut blight (*Cryphonectria parasitica*) may have come accidentally into this country on several Asian chestnut trees.

Why are they important? : Formerly the most common and arguably the most valuable tree in Pennsylvania for both its wood and nuts. It now survives only as stump sprouts and small trees due to the bark disease called chestnut blight.

The Chinese chestnut, a close relative to the American chestnut, is resistant to chestnut blight. Future breeding programs are underway to breed this resistance into the American chestnut.

At maturity, the American chestnut will drop large quantities of tasty and nutritious nuts that are eaten by both people and wildlife. Roasting chestnuts is a popular part of the holiday season for some families. Be careful; chestnuts are covered in sharp spines with barbs that can be quite painful if handled roughly.

Eastern Hemlock

Pinaceae *Tsuga canadensis*



CONSERVATION STATUS: **Pennsylvania Threatened (PT)** due to Hemlock Woolly Adelgid, an invasive insect that has caused significant hemlock defoliation and mortality in Pennsylvania forests. Adelgids are a small family of insects closely related to aphids and feed on plant sap.

Why are they important? : This large, old, evergreen was important for timber and a great source of tannin (an organic substance) for the leather industry. The conifer is found in cool, moist woods throughout North-Eastern forests. The Eastern hemlock is the **official state tree of Pennsylvania**.

Ruffed grouse, wild turkey and songbirds find food (seeds) and shelter in this tree. Deer eat young branches and buds heavily when deep snow makes other food scarce.

Native Americans used the inner bark of the eastern hemlock to make bandages for wounds, and also to make breads and soups. Its needles were used in teas.

White Ash

Oleaceae *Fraxinus americana*



CONSERVATION STATUS: **Pennsylvania Endangered (PE).** Due to emerald ash borer. The emerald ash borer (*Agrilus planipennis* Fairmaire) is a half-inch long metallic green beetle originally from Asia that can be found in nearly every county of Pennsylvania. The larval stage of this beetle is harmful, feeding exclusively on ash trees under the bark and killing them three to five years after infestation.

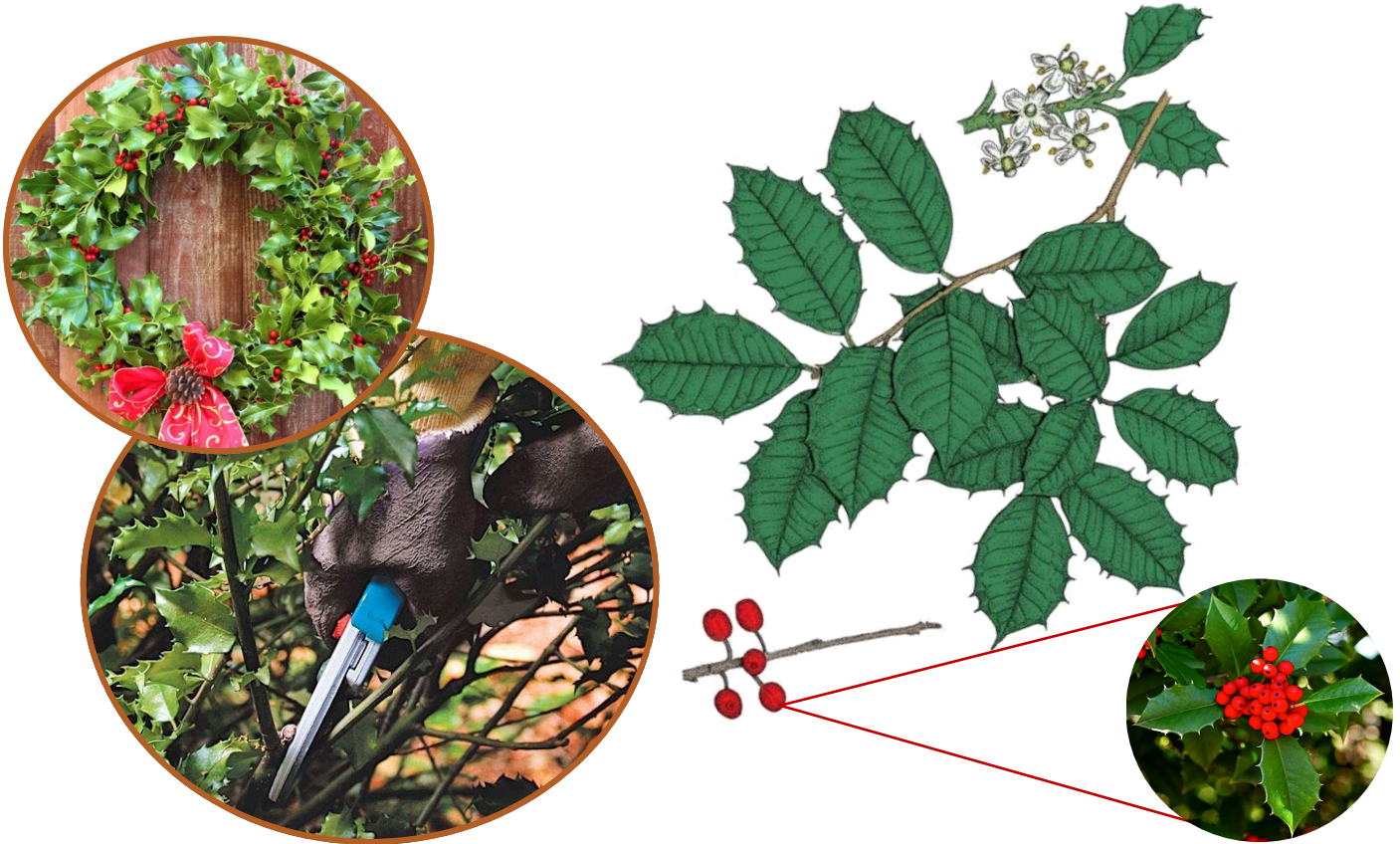
Why are they important?: White ash is a large tree, often up to 80 feet or more usually with a long straight trunk commonly found on rich soils. Fall foliage colors range from brilliant yellow to dark maroon. The juice from the leaf has been reported to relieve mosquito bite itching.

White ash is famous for its use in baseball bats. It's shock resistant properties make it ideal for this. The wood is also used in doors, veneer, antique vehicle parts, furniture, canoe paddles, snowshoes, boats, posts, agricultural tools, and railroad cars.

The samaras are food for the wood duck, northern bobwhite, purple finch, pine grosbeak, fox squirrel, and mice, and many other birds and small mammals. The tendency of white ash to form trunk cavities makes it valuable for cavity nesters such as redheaded, red-bellied, and pileated woodpeckers.

American Holly

Aquifoliaceae *Ilex opaca*



CONSERVATION STATUS: **Pennsylvania Threatened (PT)**. Due to restricted habitat and an over abundance of human collection.

Why are they important?: The attractive evergreen foliage and bright red fruit of this small tree make it very popular for landscaping. These same attributes make it one of the most sought after greens for Christmas decoration. It can be used in yards, streets, parks, or hedge rows.

Birds are the primary consumers of American holly fruit, although deer, squirrels, and other small animals eat them too. At least 18 species of birds, including songbirds, mourning doves, wild turkeys, and Northern bobwhite, are known to eat the fruit. The dense foliage also provides cover and nesting habitat for various songbirds.

Native Americans preserved holly berries and used them as decorative buttons and trade items. People have used the leaves to sooth sores and for making a tea for treating colds.