Activity 1.3
The Passage of the Pigeon

Objectives
To examine organisms that once lived on the earth but have disappeared. To investigate how a species adapts to changes in its environment.

Before You Start
Photocopy Activity Sheet 1.3A and cut out enough cards so there is one for every team of two to three people. Make a photocopy of Activity Sheet 1.3B for each team.

Doing the Activity
Introduce the concept of extinction to participants. An extinct species no longer can be found on the earth. Since the early 1600s, the region that is now the United States has lost more than 500 identified species to extinction. Many more, from the giant kangaroo rat to the pygmy fringe tree, are in peril. Worldwide, especially in tropical areas and on islands, animals and plants are lost to extinction every day.

Explain that extinctions have been occurring for millions of years, mostly due to large changes in habitat caused by nature and by humans. Ways nature changes habitat include (write these on a chalkboard or flip chart):

**Major Uplheavals**
- Ice ages
- Meteor impacts
- Dramatic climatic change

**Successional Forces**
- Fire
- Tornadoes
- Storms
- Floods
- Erosion

Ask participants to list ways humans change habitats (the primary way is by replacing native ecosystems with buildings, pavement, and non-native species). Their list may include:

- Fire (human-caused)
- Logging
- Erosion (human-induced)
- Damming rivers
- Introducing non-native species
- Pollution
- Wars

TERMS TO LEARN
- Emigration
- Adapt
- Adaptation
Ask participants if some species survive when habitats change. (Yes!) How? (Some leave
the area to search for new habitat. This is called **emigration**.) What happens to species that
don’t leave, but survive?

Explain that over time, some species successfully **adapt** to (change to fit) changing habitats
(they live), others don’t. Think of life as a steady stream from one generation to the next
of information that can mix into endless combinations and that determines an organism’s
traits. The changing habitat favors some information over other information. Organisms
that have the needed information will live. If a species doesn’t have the information
needed to survive in a new environment, it will disappear from the face of the earth.
Sometimes a species needs new information to survive.

Read the following fictional scenario:

*Millions of years ago, many different animals roamed the planet. Some are no longer alive today.
Some died out because other animals ate their eggs, killing the offspring needed to start new
populations. Only the fearsome Eggatuffs, with their iron-plated eggs, survived. Predators couldn’t
rack the tough shells. The Eggatuffs continued to reproduce and can be found today in the pine
barrens of New Jersey.*

Ask participants: What special adaptation did the Eggatuff have that the other animals
didn’t? (It had tough eggs.) What would have happened if the Eggatuff had soft eggs? (It
would have become extinct.) What if some Eggatuffs had soft eggs and some had hard
eggs? (Only the tough eggs would make it to hatching. Many of the birds that emerged
would have inherited the ability to lay tough eggs from their parents.)

Divide participants into teams of two or three. Give each team a card from Activity Sheet
1.3A and a copy of Activity Sheet 1.3B. Teams should take several minutes to discuss their
extinct species and envision adaptations that might have helped them survive. They
should then design their adaptations using available art materials.

After teams have finished their assignments, let them share their ideas. Do participants
think humans caused or helped the extinction along? Could the extinction have been
prevented?

**Checking Progress**

List some species that once were on the earth but are now extinct. (Any species of
dinosaur, heath hens, etc. Point out that other less prominent species, such as some plants
and insects, also have become extinct.) How do populations survive a change in their
habitat? (Among other things, they survive because they have genetic diversity—a range
of information that includes the information needed to survive the habitat change. Living
things that have an advantage in the new environment will survive and reproduce, passing
this information on to the next generation.)
Pick a Project

Animals and plants become extinct for many reasons, including habitat change, overhunting, and introduction of exotic species. Encourage participants to investigate one or two animals that have become extinct in North America/Hawaii since 1492. Some of these are:

- Miller Lake lamprey (1953)
- Silver trout (1930s)
- Relict leopard frog (1960)
- Laysan rail (1944)
- Greater kona finch (1896)
- Pallid beach mouse (1946)
- Great Plains wolf (1926)
- Sea mink (1890)
- Blackfin cisco (1960s)
- Blue pike (1971)
- Labrador duck (1878)
- Passenger pigeon (1914)
- Dusky seaside sparrow (1987)
- Atlantic gray whale (1750)
- California grizzly bear (1925)
- Stellar's sea cow (1768)

Youth can make a three-sided display that describes a species range around the world, cause of extinction, physical description, and other interesting facts. They also can explore species that have come back from the brink of extinction, such as the peregrine falcon and atlantic salmon. What saved these species?

Issues and Values

Explain that at one time, one of every four birds in North America was a passenger pigeon. No one could believe passenger pigeons could ever become extinct; there were so many of them. But hunters killed many birds, splintering their big colonies. These very social birds weren't able to adapt, and laid fewer and fewer eggs each year as the hunting continued. The last passenger pigeon, a 29-year-old named Martha, died in the Cincinnati Zoo in 1914.

Discuss the following quote from the essay On a Monument to the Pigeon by Aldo Leopold:

“Our grandfathers were less well-housed, well-fed, well-clothed than we are. The strivings by which they bettered their lot are also those which deprived us of pigeons. Perhaps we now grieve because we are not sure, in our hearts, that we have gained by the exchange... For one species to mourn the death of another is a new thing under the sun... But we, who have lost our pigeons, mourn the loss. Had the funeral been ours, the pigeons would hardly have mourned us.”