



ZAP!

Zoo Activity Packet

Endangered Species

A Teacher's Resource
for Grades 6-8

Endangered Species

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Why Learn About Endangered Species?

Now, more than ever, an increasing number of animals on our planet are in danger of extinction. From 1 BC to 1800 AD, an average of one animal species became extinct every 55 years. From 1900 to the present, ***one species became extinct every year!*** The reason for this drastic increase in animal extinction lies in the fact that the world's population is increasing at a rapid pace. As the human population continues to rise, so does the continual need for resources to support it. As a result of meeting human needs for food, shelter, and fuel, there is often less room for wildlife to survive in their natural habitats. These animals, found all over the world, now make up an ever-growing list of the endangered species. Even animals in our home state are members of the endangered species list. It is estimated that by the year 2020, twenty percent or more of the plants and animals on earth will be threatened with extinction.

With this in mind, the ZAP! provides worksheets and pre- and post-visit activities to help students develop the following concepts:

1. Certain species of animals have become extinct because they failed to produce enough young to keep pace with the death rate.
2. Extinction may have occurred as a result of natural conditions (for example, the dinosaurs) or as a result of human intervention.
3. Those species that are declining in numbers are classified according to their danger of extinction:

Endangered
Threatened
Special Concern
Extirpated

(This classification system is used by the Indiana Department of Natural Resources; definitions are found in the vocabulary list.)

4. Humans have caused animals to become extinct or endangered by
 - destroying natural habitats
 - using pesticides
 - overhunting
 - using skins, feathers, or other animal parts for clothing or fashion accessories
 - keeping exotic animals as pets
5. Individuals CAN make a difference in helping endangered species.

Vocabulary

- Captivity:** a state of confinement or a controlled environment
- Carnivore:** a flesh-eating animal
- Ecosystem:** the complex of a community and its environment functioning as an ecological unit in nature
- Endangered:** a species in immediate danger of extinction; protected by law
- Environment:** the surrounding in which animals and plants live
- Extinct:** no longer surviving on earth
- Extinction:** the dying out of all members of a plant or animal species
- Extirpated:** a species that is extinct in a state where it was once found, but still exists in other states
- Fauna:** animal life
- Flora:** plant life
- Habitat:** the natural environment (home) of a plant or animal
- Herbivore:** a plant-eating animal
- Omnivores:** animals that eat both plants and animals
- Pesticides:** chemicals that are used to kill various pests
- Pollution:** that which caused the environment to become unclean or unsafe
- Reserve:** an area of land set aside for the protection of animals and plants
- Special Concern:** a species that has some problems of limited numbers or habitats, and that needs to be closely watched
- Species:** a group of animals that have similar characteristics and can produce offspring
- Threatened:** a species that is likely to become endangered in the near future and is protected by law

Background Information: Endangered Species

From 1 BC to 1800 AD, on average, one animal species became extinct every 55 years. From 1800 to 1900, one species disappeared every year and a half. From 1900 to the present, one species has become extinct each year. If the current rate of habitat destruction around the world continues to escalate, 1,000 species will be lost each year by the turn of the 21st century.

Extinction is really a natural process, and occurs because a species can't adapt to changing environmental conditions. If more offspring die than are born, the species will eventually die out completely. Changes in climate, violent storms, droughts, disease, and lack of food are among the natural causes of extinction; however, these account for only three percent of those species that are extinct or on the endangered list.

The extinction process has been accelerated as human populations increase and compete with wildlife for basic needs. Animals require shelter, food, clean air and water, and safe sites to raise young; when humans interfere with these needs, the species' very survival is threatened. Needless to say, people are responsible for the remaining 97 percent of endangered animals.

How Do Humans Interfere?

Animal and plant species are dependent upon each other in a very complex web of relationships. The primary producers, plants, are eaten by herbivores, who are in turn eaten by carnivores. This transfer of energy from one species to another is called a food chain. The disturbance of only one link can adversely affect species along the entire chain. Humans have broken the chain in a number of ways.

ENVIRONMENTAL POLLUTION: Humans use an incredible amount of energy for power appliances, cars, and machines to keep our society going. Much of the energy comes from non-renewable resources such as coal, oil, and nuclear reactors. Not only do we pollute the land when we search for coal and oil, but we pollute the air when these fuels are burned (for example, car exhaust produces both carbon monoxide and lead, which can approach hazardous levels in large cities). Acid rain, a result of carbon monoxide and sulfur deposits in the air, has destroyed the life in whole lakes, as well as countless trees in Canada and the eastern United States.

Industries have long used rivers and lakes as dumping grounds for their wastes. Polychlorinated biphenyls (PCBs), by-products of the manufacture of electrical equipment, paints, and plastics, are just one example of the chemicals dumped into waterways. PCBs are known to cause deformities in water birds and fish; fortunately, it is now illegal to dispose of PCBs in water.

Liquid nitrogen fertilizer used on crops eventually runs off into lakes and rivers, causing algae blooms and an increase in waterweeds. This clogs the water so that fish and water-dwelling animals (and the animals that depend on them) cannot survive.

Oil spills can harm fish, marine mammals, and water birds, by coating the water surface and the animals' bodies. Factory output often heats nearby water to such a degree that fish die of thermal pollution. Detergents, garbage, and other waste products make lakes and rivers unfit for supporting life.

PESTICIDES: In an effort to improve crops, humans have tried to eliminate agricultural pests with chemicals, called pesticides. In all cases, the results have been disastrous. The use of DDT was effective in reducing the gypsy moth population, but it also wiped out moth-eating birds. With no natural predators, the gypsy moths made a comeback, and are now eating their way west, destroying millions of trees.

DDT was also implicated in the decline of birds of prey such as peregrine falcons and bald eagles. Eating highly concentrated forms of the chemical disrupted the birds' ability to metabolize calcium. This resulted in their laying eggs with thin shells that broke easily during incubation. The use of DDT was finally banned, but not until the birds' populations were severely reduced. The bald eagle and other predatory birds are making a comeback, due to efforts by state departments of natural resources and zoos to breed and release the animals into the wild.

HABITAT DESTRUCTION: People require land – lots of it – for homes, businesses, cars, agriculture, and recreation. As the human population increases, more and more land is developed, and wildlife is pushed from its natural habitats. Some animals can adapt quickly to new conditions, but most are unable to find new homes or new sources of food. Loss of habitat is the primary reason that animals are endangered.

Tropical rainforests are home to approximately 3,000,000 species of plants and animals, more than in any other environment on Earth. These rainforests are being cleared at the rate of 50 acres EVERY MINUTE! At this rate, all rainforests will have disappeared in 85 years. It is estimated that many hundreds of tropical species will become extinct before they are even discovered and described.

INTRODUCED SPECIES: Wild animals have often been introduced into areas by mistake, or to remind people of their native lands. Without natural predators, the animals have sometimes taken over, crowding out the native species. When the first explorers came to Hawaii, rats from their ships came ashore and began eating the eggs of defenseless ground-nesting birds. To combat the rats, people brought in mongooses, which were turned loose on the islands. The plan backfired, though, as the mongooses didn't eat the rats, but instead ate the birds' eggs, too.

OVERHUNTING: Few people alive today remember when vast herds of bison and flocks of passenger pigeons could be found in the United States. Seeing those huge numbers of animals, many settlers had the idea that the populations were limitless and were there for the taking. Today, the bison is making a comeback from near extinction (less than 1,000 were alive in 1903); the passenger pigeon unfortunately didn't fare as well, becoming extinct in 1914.

Illegal hunting takes its toll of many larger animals, including gorillas, bighorn sheep, tigers, elephants, and rhinos. Some animal parts are also sought after as souvenirs (giraffe-tail flyswatters and ivory carvings, for example) or for their supposed medicinal powers (the aphrodisiac powers of the rhino horn, though unfounded, are legendary; horns sell for \$6,000 a pound).

The human quest for beauty has often involved the use of animal parts for adornment. Hundreds of thousands of egrets, spoonbills, hummingbirds, birds of paradise, and herons were slaughtered to provide feathers for fashionable hats in the 1800s. Mammals with spotted or striped fur have long been hunted for coats, and many species of reptiles are killed to make handbags, shoes, belts, boots, and wallets. Sea turtles are also prized for leather, as well as meat, oil, and shells (for jewelry). Eight species of whales are endangered because their oil, blubber, meat, and ambergris (a waxy substance from a sperm whale's intestine, used in perfumes) are used in cosmetics, as fertilizer, or as dog food.

EXOTIC PETS: Many people are unwittingly contributing to the endangerment of animals by buying exotic pets. Birds are particularly sought after, especially parrots. These beautiful birds are caught in nets, jammed into tiny cages, and transported thousands of miles, sometimes without enough food or proper care. It is estimated that of every ten birds that are caught, only one survives to become a pet. The survival rate for monkeys is even worse: Only one out of twenty makes it. Although most countries ban the exportation of these animals, dealers continue to smuggle them out because the demand for wild pets remains high.

Wild animals generally make very poor pets, and their owners are usually not prepared to take care of them properly. The unfortunate animals often die or are given to zoos when their owners tire of them.

What Have We Done to Save Endangered Species?

Legislation: In 1966, the Endangered Species Preservation Act was the first legislative effort to protect animals in the United States. It authorized funds for research and to acquire habitats for a newly compiled list of native species threatened with extinction. The Endangered Species Conservation Act of 1969 broadened the provisions of the 1966 act, eliminating the importation of virtually all foreign endangered species into the United States. New York State banned the import of puma, spotted cat, and crocodilian hides with the Manson Smith Act in 1970; cheetah, leopard, snow leopard, tiger, jaguar, ocelot, and margay fur were included in 1972. On December 28, 1973 upon signing the Endangered Species Act, President Nixon stated "Nothing is more priceless and more worthy of preservation than the rich array of animal life with which our country has been blessed." This statement defines the ESA's ultimate purpose, which is to conserve the nation's natural heritage for the enjoyment and benefit of current and future generations. When the federal government enacted the Endangered Species Act of 1973, it provided a list of "threatened" species (those likely to become endangered), prohibited action that would damage habitats of endangered animals, and encouraged individual states to

prepare plans for local species. A species must be listed if it is threatened or endangered due to any of the following five factors:

- 1) present or threatened destruction, modification, or curtailment of its habitat or range;
- 2) over-utilization for commercial, recreational, scientific, or educational purposes;
- 3) disease or predation;
- 4) inadequacy of existing regulatory mechanisms; and
- 5) other natural or manmade factors affecting its continued existence.

The act of 1973 has been reauthorized and updated several times.

The United States has been the leader in endangered species legislation, but other nations have realized the importance of giving animals legal protection. In 1973, 80 countries met in Washington, D.C., to attend the Convention on International Trade in Endangered Species of Wild Fauna and Flora, and sign the CITES treaty. Another worldwide organization, the International Union for Conservation of Nature and Natural Resources (IUCN), includes scientists, governments, non-governmental organizations, conservation experts, and others who monitor the status of ecosystems and species.

Have the Laws Been Working?

Success stories: Many animals headed for extinction have been saved because of governmental efforts. The American bison, American alligator, whooping crane, wildebeest (gnu), and giant panda are all examples of animals whose numbers are on the increase because of their protected status.

Several species of animals, such as Przewalski's horse, the Arabian oryx, and Pere David's deer, are extinct in the wild, but have been kept alive in zoos. Careful breeding programs at zoos around the world have ensured that captive populations of many endangered animals remain healthy. Projects to return captive born animals to the wild have been undertaken with some success. Several golden lion tamarins (a small monkey) have been reintroduced to the jungles of Brazil, and have given birth to offspring in the wild.

Zoos accredited by the American Zoo and Aquarium Association (AZA) participate in various Species Survival Plans (SSP). These are committees dedicated to the protection and propagation of a particular endangered specie, such as the golden lion tamarin. These committees are composed of scientists, researchers, and zoo professionals. They meet annually to develop systematic ways of providing the best possible care, management, and future disposition of the animal they are representing. They then provide their plan to the zoos for adoption and initiation.

There Are Many Ways You Can Help!

Individuals CAN make a difference, just by changing their own attitudes about wildlife. Listed below are some of the many ways that YOU can help save endangered species.

- 1) Learn more about wildlife by reading books, watching TV programs about nature, and visiting zoos and nature preserves.
- 2) Join a wildlife organization.
- 3) Write letters to representatives in government.
- 4) Don't buy animals that have been taken from the wild.
- 5) Don't buy products made from wild animals.
- 6) Help others learn about endangered species by writing articles, drawing posters, making bulletin boards, or starting a nature club.
- 7) Support zoos that are breeding endangered species.
- 8) Don't disturb wildlife or their homes.

Why Should You Help?

Many people would argue that the survival of a small fish should not take precedence over the completion of a multi-million dollar dam. The Tellico Dam project in Tennessee stalled in 1973, however, because the snail darter, an endangered fish species, would have become extinct if the dam was built.

Why save the snail darter, or any other endangered species for that matter? There are many reasons, not the least of which is that as living things, plants and animals have the same right to exist as humans do. All living things are part of an ecosystem, a complex, interrelated web that can be disrupted if even one species is removed. The role that an animal plays in keeping the balance of nature may not be realized until it is gone. Also, having a large number of species in an ecosystem maintains its diversity, and ensures that the system will be able to adapt to changes in the environment.

Humans depend on wild animals and plants for food, medicine, and other products that can't be manufactured. Scientists are only beginning to realize how complex various ecosystems are, and of the potential they hold for future technology. Many species will become extinct before they are even discovered, described, and studied.

Humans also rely on wild things to enrich their lives. It would be hard to imagine a world without the songs of birds, butterflies fluttering in the sunlight, or deer grazing at dusk.

PRE-VISIT ACTIVITIES

- 1) Have each student choose an animal from the endangered species on page 19 and have the student find out as much as possible about the animal (habitat, diet, behavior, why it is endangered, etc). Using the information gathered, students can “campaign” for their species:
 - * Design posters, hold rallies, and hand out informational pamphlets.
 - * Have a fund-raiser, with money donated to a wildlife organization (see addresses on page 14)
 - * Write letters to government officials and local newspapers in support of legislation protecting endangered species.

- 2) Read one or more of the Extinction is Forever quotes on page 16 to the class, or provide the quotes in written form. Have the students express their own feelings about endangered species through poetry, haiku or cinquain (five-line oriental poetry forms), short stories, plays, or radio dramas. They might also choose the visual or performing arts as a medium of expression (dance, sculpture, painting, music, or photography).

- 3) Play the Bluebird Habitat game (see page 13).

AT-THE-THE ZOO ACTIVITIES

- 1) Divide the class into small groups, with each responsible for one of the zoo's endangered species (a list is provided for you on page 18). While at the zoo, each group should observe its species, noting interesting behaviors, and report back to the rest of the class. Use the observation sheet on page 15.

- 2) During your zoo visit see which group of students can find the most endangered species that the zoo has, providing the species of the animal and where it's from.

POST-VISIT ACTIVITIES

- 1) Write to a conservation organization to find out its goals and methods of operation (see list on page 14). Compile a resource file to include in the school library.
- 2) Have each student write a story from an endangered animal's point of view. The "animals" should describe:
 - * Where they live (i.e., what is it like to sit in a nest?)
 - * What kind of food they eat and how they get it
 - * What it's like to be a predator or a prey animal
 - * How changes in their habitats affect them
 - * What it's like to live near humans
 - * What would happen if their water and/or air was polluted
- 3) As a class, or in small groups, choose a species that is already extinct and have students explore the reasons for its extinction. Some extinct species are dinosaurs, passenger pigeon, great auk, moa, Steller's sea cow, dodo, quagga, and Carolina parakeet.
 - * Did it become extinct as a result of climate changes? Lack of a food source? Lack of proper habitat? Overpredation?
 - * What was the animal's range when it was alive?
 - * When did it become extinct?
 - * Did any human activities play a part in its demise (directly or indirectly)?
 - * How might its extinction have been prevented?
- 4) Have students design a logo or poster to help publicize endangered species.
- 5) Choose an endangered species and design a zoo exhibit. Consider such aspects as diet, range (how much space does it need?), social grouping (does it live in large groups, with a mate, by itself?), climate, locomotion (does it move around by walking, swinging, hopping, swimming?), and natural predators.
- 6) Have each student pick an endangered species that they saw at the zoo. Have them research the animal and prepare a short presentation for the class.
- 7) Use the Economics or the Environment? work sheet to stimulate a discussion of endangered animals and their value. How difficult is it to decide a species' fate?
- 8) In small groups, with each group discussing a specific endangered species, have each member of the group say something different about it (i.e., where it's from, what climate it lives in, how it moves around, if it has any special characteristics, its means of protection, if it is a predator or a prey, etc).
- 9) Discuss with the class what they liked best about their trip. Was there something they didn't like?

BLUEBIRD HABITAT GAME

Bluebirds, an endangered species in many states, are very particular about the habitat that they live in and the type of food they eat. Starlings, however, are very adaptable. They can eat many foods and nest in many places. The game format is similar to musical chairs. Use two different colors of carpet squares or chairs to represent habitat where the birds can nest and find food. The squares/chairs are set up in two rows with backs together. Designate half of the class as starlings, and the other half bluebirds (have the students wear nametags). The starlings can nest on any carpet square/chair, while bluebirds can only nest on one color. Students move around the squares/chairs, and when some signal is given (i.e., teacher clapping hands, music stopping), they must find a spot to nest and eat. Any students without a square/chair, or on the wrong color, did not make it through that year. At some point, remove some carpet squares/chairs, explaining that the land was cleared for a farm or shopping mall. Continue year after year, checking to see how many starlings and how many bluebirds are left.

The end result of the game will vary somewhat, depending on what colors of carpet squares/chairs you remove each year. Try taking away only bluebird habitat, stating that starlings can still live on the land that is turned into suburbs.

In a variation of the game, begin with only two bluebirds and two starlings. Use three carpet squares, one for bluebirds and starlings, and two for just starlings. Play the game again, but this time, add one bird for every bird that successfully nests that year (i.e., after the first round, if one bluebird and two starlings survived, then add one more bluebird and two more starlings). Also add some habitat. Which reproduces faster, the starling or the bluebirds?

CONSERVATION ORGANIZATIONS

Indiana Department of Natural Resources
Division of Fish and Wildlife
Nongame and Endangered Wildlife Program
607 State Office Building
Indianapolis, IN 46204
www.state.in.us/dnr

Conservation International
1919 M Street, NW Suite 600
Washington, DC 20036
800-406-2306
www.conservation.org

National Audubon Society
700 Broadway
New York, NY 10003
212-979-3035
www.audubon.org

National Wildlife Federation
11100 Wildlife Center Drive
Reston, VA 20190-5362
800-822-9919
www.nwf.org

Rainforest Action Network
221 Pine Street, Suite 500
San Francisco, CA 94104
415-398-4404
www.ran.org

Sierra Club
85 Second Street, Second Floor
San Francisco, CA 94105-3441
Ring-tailed Lemur
415-977-5500
www.sierraclub.org

World Wildlife Fund-U.S.
1250 24th Street NW
Washington, DC 20037
202-778-9683
www.wwf.org

EXTINCTION IS FOREVER

When the sky has been swept clean of eagles
And the winds carry echoes of the past,
What will you answer when the children ask,
“Where are the animals? Did you see them go?”

- Tom Knothe

The beauty and genius of a work of art may be reconceived, though its first material expression be destroyed; a vanished harmony may yet again inspire the composer; but when the last individual of a race of living things breathes no more, another heaven and another earth must pass before such a one can be again.

- William Beebe

My chief motive, my most earnest underlying wish, has been to stop the extermination of harmless wild animals; not for their sakes, but for ours, firmly believing that each of our native wild creatures is in itself a precious heritage that we have no right to destroy or put beyond the reach of our children.

- Ernest Thompson Seton

What is a man without beasts? If all the beasts were gone, man would die from great loneliness of spirit, for whatever happens to the beasts also happens to man. All things are connected.

- Chief Seattle, 1855

Destroyed buildings can be rebuilt; destroyed works of art may possibly be replaced by new creations; but every animal and every flower which becomes extinct is lost forever in the most absolute of all deaths.

- Joseph Wood Krutch

In the end, we will conserve only what we love.
We will love only what we understand.
We will understand only what we are taught.

- Baba Dioum

ECONOMICS OR THE ENVIRONMENT?

In this exercise, students will learn about the group processes involved in solving environmental/economic conflicts. Ask your students to read or role-play the following situation.

These arguments were presented before the County Board of Supervisors in support of or against a proposal to lease county land to a lumber company.

Lumber Company President: “My company is expanding its operation. We want to build a sawmill north of town and lease the timber rights to the 100 square miles you recently incorporated. With the land we already lease adjacent to your property, we will be able to establish a permanent base of operation that would employ at least 150 people in your county. The money that the county would receive from the leasing rights and the employee county taxes will pay for the expansion of community services. A lumber mill in the area will also attract other industries that use wood to manufacture their products. The owner of a large furniture company has already told me he would be interested in building a small factory next to one of our sawmills.”

Wildlife Biologists: “The newly acquired land has the largest concentration of wintering bald eagles in the world. Since our national symbol is an endangered species, this area is considered essential habitat. This means that the government could justify the establishment of a bald eagle refuge. The management and maintenance of the sanctuary will generate at least 75 jobs. If the timber operation is allowed in the area, logs jamming the river will destroy fishing grounds, silt carried into the river from runoff of cut over areas (no trees to control erosion) will decrease the quality of streams and their ability to support adequate fish populations – an important food source for wintering eagles. There will be destruction of roosting sites, and the general noise of a logging operation would jeopardize this extremely important wintering site for the bald eagle. I strongly urge you to establish a bald eagle wildlife refuge in this area so that future generations will still be able to view our majestic national symbol.”

Use the following questions to discuss this dilemma with your class. Stress that there are no easy or proper answers, only that much thought must go into forming opinions on intricate, controversial issues.

- 1) Do you feel you have enough information to make a decision? If not, how would you gather the necessary facts?
- 2) How would each side benefit from passage of the proposal?
- 3) How do you distinguish between facts and opinions in the statements made before the board?
- 4) Can you give examples of situations that have occurred near your home which were similar to this one? What were the results?
- 5) Would it be possible to compromise and have the eagle refuge and the lumbering operation coexist on the same land? What additional information about timbering practices and the habitat needs of bald eagles would you need in order to make this decision?

You might also have members of the class act as the Board of Supervisors and make an actual decision.

ENDANGERED ANIMALS AT THE FORT WAYNE CHILDREN'S ZOO

Species listed include endangered, threatened, and vulnerable species. Only species listed in CITES Appendix I (critically endangered) are identified as endangered on zoo exhibit signs.

MAMMALS

- *White-cheeked gibbon
- #Bobcat
- *Colobus monkey
- *Cotton-top tamarin
- Dama gazelle
- Ostrich
- @North American river otter
- *Orangutan
- *Red panda
- *Ring-tailed lemur
- Siamang
- Sumatran tiger
- White-handed gibbon
- White-throated capuchin monkey

BIRDS

- *Bali mynah
- *Black-footed penguin
- Chilean flamingo
- *De Brazza's monkey
- Flying fox fruit bat
- Scarlet ibis
- Scarlet macaw
- Military macaw

REPTILES

- Aldabra tortoise
- Komodo dragon
- Reticulated python
- Eastern Massasauga Rattlesnake

* Species Survival Plan

Endangered in Indiana

@ Extirpated in Indiana since 1942, the Indiana Department of Natural Resource has reintroduced approximately 325 river otters to several of Indiana's rivers over the last few years.

Please note:

Species exhibited are subject to change without notice

ENDANGERED SPECIES FROM AROUND THE WORLD

This list represents only a fraction of the approximately 70,000 endangered animals and plants worldwide. Asterisks denote animals living at Fort Wayne Children's Zoo.

MAMMALS

Cheetah
Giant panda
Arabian oryx
Sumatran tiger*
Black rhinoceros
Whitefin dolphin
Humpback whale
Giant armadillo
Snow leopard
Kloss's gibbon
Orangutan*
Indiana bat
African & Asian elephant

FISH

Atlantic sturgeon
Paddlefish
Arizona trout
Devil's River minnow
Rio Verde catfish
Lake Victoria cichlids

BIRDS

Oriental white stork
West Indian whistling duck
Black-footed (jackass) penguin*
Southern bald eagle
Whooping crane
Imperial parrot
Swinhoe's pheasant
California condor
Hyacinth macaw*
Peregrine falcon
Bali mynah*
Resplendent quetzal

AMPHIBIANS

Limestone salamander
Illinois chorus frog
Goliath frog
Axolotl
Baw-baw frog
Texas blind salamander

REPTILES

Australian freshwater crocodile
Leatherback turtle
Central Asian cobra
Chinese alligator
Indian python
Gila monster
Aldabra giant tortoise*
Aruba Island rattlesnake
False gaviel
San Francisco garter snake
American crocodile

INSECTS

Large blue lade mayfly
Pacific damselfly
Ohio emerald dragonfly
Prairie mole cricket
Idaho dunes tiger beetle

PLANTS

Arizona agave
Moth orchid
Old father liveforever
California hibiscus
Small white lady's slipper
Chatham Islands forget-me-not

ENDANGERED ANIMALS WORD FIND

Hidden below are some of the world's endangered species. They may be written forward, backward, up, down, or diagonally. Circle each one as you find it.

H E W N I T T T D H F I R T H E H I R F
 Y G N P A S G Y A L W E W A B F B N F R
 E I S A P T W I O S T G W A B P A D P V
 K B T D R T U W Z S N K W A H B B I U R
 N B H A N C Y G N T S O L T Y E W A O A
 O O D X W A G O N B X D W D X B J N L E
 M N Q I R E M N I A E C P L Z C A A X B
 A B E G E A L L I A R M W G E B I B L R
 N K D B L T L H G P G O K W Q O H A G A
 A M N I S T X L C K O A J V D N P T H L
 I E G F U J E S E N V O C H E E T A H O
 D L W R A U J W X O E J H G W W U L R P
 A S T V R Q G F U R G K Y W O A B O U D
 X L R E G I T N A I R E B I S R C I M X
 E S N A I L D A R T E R J M S E I A M F
 R U M E L R G B K P D L K M L F D L M L
 B O G D E W M C M Q O C H O D Q F W L V
 E L A H W E U L B L L W T C Y I C Y B A
 E H J Y D N P B W L S B D G R E Z K J V

BALD EAGLE

BLUE WHALE

CHEETAH

DIANA MONKEY

GIBBON

GILA MONSTER

GORILLA

GRAY WOLF

HAWKSBILL TURTLE

INDIANA BAT

LEMUR

MACAW

OCELOT

ORANGUTAN

POLAR BEAR

SIBERIAN TIGER

SNAIL DARTER

SNOW LEOPARD

WHOOPIING CRANE

CINQUAIN

Teacher's Instructions

Cinquain (sing-KANE) is a five line oriental poetry form that will help your students capture the essence of an animal in just a few words.

Students should choose an animal as the subject and write it in the first blank. The second line should be two words that describe the animal. The next line features three action words, or three words expressing one action. The fourth line should be a four word phrase that tells how or what the poet feels about the animal. Finally, one word sums up the animal. Here are some examples:

Ostrich

Long-necked

Running so fast

Always looking so silly

Stretch

Parrot

Brilliant Colors

Flying in Sky

Graceful, active, and spirited

Freedom

You might try a practice cinquain with the whole class, writing the format on the blackboard first. There is also a cinquain sheet provided for you to hand out to your students.

This activity courtesy of the Staten Island Zoo Education Department.

ANIMAL CINQUAIN

(1 word – an animal)

(2 words that describe it)

(3 words expressing action)

(4 words telling what you feel about it)

(sum up with 1 word)

Name _____

Who is in great danger?

Some animals are in greater danger of extinction than others because of the life they must lead. Using books, magazines, or the internet, find an example of an animal that is endangered or might become endangered because of one of the following reasons.

The animal must migrate. _____

The animal has only one or two babies at a time. _____

The animal needs a special place to nest. _____

The animal lives in an area people use for sports or hunting. _____

The animal lives where people want to build farms and houses. _____

The animal has something people want (fur, skin, tusks, etc). _____

The animal is already very rare. _____

Which animals are endangered?

On your zoo visit, find out which animals are endangered. Check the box if the animal pictured is endangered, then write an interesting fact about each animal.

ALDABRA GIANT TORTOISE

ENDANGERED

Interesting Fact:

DAMA GAZELLE

ENDANGERED

Interesting Fact:

BLACK-FOOTED PENGUIN

ENDANGERED

Interesting Fact:

SEA LION

ENDANGERED

Interesting Fact:

DINGO

ENDANGERED

Interesting Fact:

SCARLET IBIS

ENDANGERED

Interesting Fact:

EASTERN MASSASAUGA RATTLESNAKE

ENDANGERED

Interesting Fact:

RING-TAILED LEMUR

ENDANGERED

Interesting Fact:

General Resources for Students and Teachers

BOOKS:

- Endangered Animals. Reading and Miller. Greenwood Press. 2000.
Endangered Oceans. William Dudley. Greenhaven Press. 1999.
Endangered Species. Lawrence Grobel. Da Capo Press. 2001.
Endangered Species. Rob Nagel. UXL. 1999.
Fate of the Wild. Bonnie Burgess. University of Georgia Press. 2000.
Protecting Endangered Species in the United States. Shogren and Tschirhart. Cambridge University Press. 2001.
Saving a Place. Geddes and Baden. Ashgate. 2000.
The Endangered Species Act. Stanford University Press. 2000.
Wildlife Issues in a Changing World. Moulton and Sanderson. Lewis Publishers. 1999.

WEB SITES:

- www.endangeredcreatures.net
www.wcmc.org.uk/data/database/rl_anml_combo.html
library.thinkquest.org/25014
www.redlist.org
eelink.net/EndSpp
endangered.fws.gov/esa.html
www.nesarc.org
Sumatran Tiger – www.honolulu zoo.org/tiger.htm
Bobcats – members.aol.com/ctraisi/fundpage/bobcats.htm
Lemurs – mommensj.web2010.com/lemur.htm
Red Panda – www.one.net/~shire/redpanda
Siamang – www.selu.com/bio/primategallery/primateweeks/siamang
Black-footed Penguin – stores.yahoo.com/hoglezoo.blacpen.html
Giraffe – www.giraffehaven.com/giraf36.html
Komodo Dragon – www.komodo-national-park.com/facts.html

Evaluation Form Zoo Activity Packet

Dear Teacher:

Please take a few minutes to fill out and return this evaluation form. Your input will help us improve our teacher resource materials in the future.

Return in the envelope provided or mail to Education Department, Fort Wayne Children's Zoo, 3411 Sherman Blvd., Fort Wayne, IN 46808. Thank you for your time and effort!

SCHOOL or GROUP NAME: _____

GRADE LEVEL: _____ DATE OF VISIT: _____

1. Were the materials and activities appropriate for your grade level? _____

2. Which work sheet did you use? _____

3. Which activities did you try? _____

4. Which of these were enjoyed most by your students? _____

5. Did you create or modify any activities to supplement this packet? If so, we would appreciate receiving a copy to include in future packets or to distribute to teachers on request.

6. What other materials would you like to see included in the packet? _____

7. Additional comments:
