

# Home School Series: 6 & Up

# January: Restoration Ecology

**Start Up:** Animal mounts-turkey, otter, osprey, etc.  
(5-10 min) Endangered/threatened species posters. Pictures of endangered Iowa species.

**Welcome/** Staff/Volunteer Names  
**Introduction:** **Today's Topic-Restoration Ecology**  
1 min. **Question: Can lost species be successfully reintroduced?**

**Opener:** **Who Am I?** Give each student a card with the characteristics and history of an Iowa animal that has been or is endangered or threatened. Students pair up, read their lists to each other, and try to guess their partner's animal (see below).  
10min.

**Background/** Ask the students what causes a species to become extinct.  
**Exploration:** Wildlife species need Food, Water, Shelter, & Space to survive.  
45 min. Lack of one or more of these essentials (or a tolerable arrangement) may cause a decline in numbers and eventually extinction.

Ask the students to help you define **extinction** and related terms (see below).  
Discuss why species endangerment and extinction is worrisome.

As human settlement of this country spread and the population increased greatly, unregulated hunting caused the extirpation from Iowa and near extinction of many species. Now, regulated hunting helps maintain animal populations at optimum levels, which increases animal health. The money from hunting licenses provides funding for research on wildlife species and habitat restoration

**Activity:** **The Rare Scare** (*Ranger Rick*)-This activity and discussion illustrates what characteristics make certain animals susceptible to extinction.  
15 min. (interfere w/humans, migrate, specific requirements, sensitive to change, small broods/long gestation, naturally rare)  
♣ Give the students information on four imaginary animals.  
♣ Students read the characteristics of the animals.  
♣ Discuss with students which of the animals would most likely become extinct.

## **What has been done-**

Ask students what they think can be done about species endangerment/extirpation.  
Animals successfully reintroduced to Iowa: Peregrine Falcon, Wild Turkey, River Otter.  
Canada Goose and White Tailed Deer have expanded their ranges after extirpation be become abundant. Other comebacks-Bluebird, Snowy Egret, Wood Duck

Some species can rebound on their own (deer) when legally protected.  
Others have needed captive breeding programs to help increase their numbers.  
Many animals have a high mortality rate when young.  
It is difficult to establish a stable wild population without perfect conditions.  
Some animals need large amounts of space, so they will never have a large population increase (mountain lions, grizzly bears, etc.).  
Habitat restoration and reconstruction helps animals in trouble survive.  
Wild places that we have left need legal protection to be preserved.

**Prepare to go Outside:** 5 min. Restroom break. Dress for weather.  
**Trail Rules** (see The First Program).  
**What we will do-**Look for signs of threatened and endangered animals.  
Look for successful species formerly in decline & evidence of habitat restoration and other things that help animals and plants survive.

**OUTDOOR EXPLORATION:** 1 hour, 30 min. Look for Bald Eagles and Osprey near a creek or river.  
Look for Otter sign & Turkey tracks.  
Discuss what these animals do when snow is deep.  
(see 3-5 *Winter Woodlands*).

**Activity:** 20 min. Try snowshoes if you have some available and there is enough snow.

**Game:** 10 min. **Habitat Tag** (*Trumpeter Swan Restoration Program*)-Students are swans trying to get enough food, water, and shelter without getting caught by predators.

- ♣ Scatter food markers on one side of play area, and water markers on the other.
- ♣ Several shelter bases are scattered in the middle of the area. Make one a predator base.
- ♣ Choose one or several predators, depending on the size of the group.
- ♣ Swans must pick up one food marker and one water marker, then reach cover (shelter).
- ♣ Predators (Foxes, Coyotes, Owls?) must get a water marker and tag a swan, then return to the predator shelter base.
- ♣ Play several 3-5 minute rounds.
- ♣ Vary the number of predators, food markers, or water markers if you wish.
- ♣ Discuss with students the importance of habitat protection and game laws.

**Closing:** Ask students what they can do to help threatened and endangered species (see below).

**Send Off:** Goodbye!  
**Next Month-Maple Syruping**

**Take Home:** Parent outline  
Background

## Vocabulary

Extirpated, extinct, endangered, threatened, restoration, reintroduction, biodiversity

## Background and Activity References for Naturalists and Parents

[www.birds.cornell.edu/pfw](http://www.birds.cornell.edu/pfw) Cornell University Ornithology Lab site—Project FeederWatch  
[www.iowadnr.com](http://www.iowadnr.com) Information on NatureMapping-volunteer wildlife survey programs; links for kids  
[www.hsus.org](http://www.hsus.org), [www.wildneighbors.org](http://www.wildneighbors.org) Humane Society of the US Urban Wildlife Sanctuary Program-  
info. on ways to help animals and living humanely with wildlife

- Iowa Wildlife*. 1998. Iowa Association of Naturalists. ISU Press, Ames, IA. (IAN-601--606)  
*Iowa Mammals* (IAN-601) <http://www.extension.iastate.edu/pubs/wi.htm>
- Iowa Wildlife and People Series*. 1995. Iowa Association of Naturalists. ISU Press, Ames, IA.  
(IAN-401—408). *Iowa Food Webs and Other Interrelationships* (IAN-405).  
*Iowa Wildlife Management*. (IAN-401). Food web illustration makes a good poster
- Iowa's Trumpeter Swan Restoration Program: An Information and Activity Booklet About Trumpeter Swans  
and Wetlands*. Trumpeter Swan Education Committee. IDNR, IAN, ICEC.  
P. 27 Habitat Tag
- Living On the Edge: Endangered Species in Iowa*. 1992. Iowa Department of Natural Resources, Des  
Moines.
- Living With Wildlife: An Educational Supplement* (Grades 6-8). Illinois Department of Conservation,  
Springfield. Pp. 28-29+ Habitat Hopscotch game
- Managing Iowa Wildlife: Wild Turkeys*. 1991. Iowa State University Extension, Ames. Pm-1302f
- Project Wild: Activity Guide*. 1992. Western Regional Environmental Education Council, Inc.,  
Bethesda, MD. Various conservation related games & activities.
- Ranger Rick's Naturescope: Endangered Species: Wild & Rare*. 1989. National Wildlife Federation,  
Washington, D.C. Pp. 7-8 Get the Connection!; pp. 8-10, 15 The Rare Scare;  
pp. 13-14 The People Factor-human vs. animal population graph (good poster);  
pp. 43-44, 48-49 Wildlife for Sale; pp. 54-55 Recovery-Sheet 1 Osprey comic-send home
- Schlarbaum, Pat, "Reweaving the Web", *Iowa Conservationist*, May/June 1998, pp. 14-20.

## Extensions/Alternate Activities/Rainy Day

Ask an expert to visit the session to talk to the students about species reintroduction.

Continue with **The Rare Scare** (*Ranger Rick*) Branching Out activity about species diet.

Several other *Ranger Rick* activities could also be done (see above).

<b>Supplies:</b>	Mounts-turkey, osprey, otter	<b>Who Am I?</b> cards
	Endangered species posters	<b>The Rare Scare</b> materials
	Pictures of Iowa Endangered Species	
	Snowshoes if there is snow.	Markers for <b>Habitat Tag</b>
	Binoculars for viewing wildlife	

**Advance** Copy **Who Am I?** cards.

**Preparation:** Copy and prepare cards for **The Rare Scare**.

Make/get food and water markers for **Habitat Tag**. These could be cut pieces of cardstock, poker chips, etc. Shelter bases could be carpet squares, hula hoops, or rope rings.

## **Restoration Background:**

**Endangered Species**-Any species in danger of extinction throughout all or a significant portion of its range.

**Threatened Species**-Any species that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.

**Extinction**-The complete disappearance of an entire species (Giant Ground Sloth, Giant Beaver, Mammoth, Giant Bison). Extinction is a natural process in nature, which over time has allowed better adapted species to survive. But the rate of extinction has increased tremendously as a result of humans' increased alteration of natural ecosystems. Human population increase is linked to the extinction rate.

**Extirpated**-A species once found in a certain place (Iowa) that no longer has a breeding population there (Musk-ox, Porcupine, Fisher, Wolverine, Moose, Caribou). Since European colonization: Gray Wolf, Mountain Lion, Lynx, Bison, Elk, & Black Bear all extirpated by 1880's. (even White Tailed Deer were extirpated back in the 1920's)

All species have intrinsic value beyond their potential to be helpful to humans. There are many species we enjoy, but to effectively manage and protect certain species, we must protect the whole biological community. Biological diversity insures nature stays in balance, and helps keep the environment clean through natural processes.

Since the 1980's federal programs have encouraged habitat restoration and reconstruction.

Wetlands Reserve Program (WRP)

Prairie Pothole Joint Venture (PPJV)

1985 Farm Bill

Walnut Creek National Wildlife Refuge (Prairie City) is the largest reconstruction project in Iowa (8,000 acres). There is a herd of Bison and some Elk roaming the prairie there, and a Nature Center.

Iowa related species that have avoided extinction/extirpation or made a comeback (*Ranger Rick*):

Bison, Bald Eagle, Eastern Bluebird, Osprey, Snowy Egret, Trumpeter Swan, Wild Turkey, Wood Duck

## **Ways we can help-**

Conservation Reserve Program (CRP)-Setting aside a portion of land not to be farmed.

Environmental organizations-Audubon Society, Pheasants Forever, Iowa Natural Heritage Foundation.

Become a member to educate yourself and support their work.

Chickadee Checkoff-Income tax form donation supports DNR Wildlife Diversity Program which funds research, wildlife watching opportunities, education, and species reintroduction programs.

Visit parks and natural areas-more use means more financial support.

Building Artificial Habitat-nest boxes and platforms for Bluebirds, Kestrels, Wood Ducks, and Canadian Geese. Bat and butterfly roosting boxes can also be made.

Feeding stations-Bird feeders with a variety of food.

Brush and rock piles for habitat-basking turtles, nesting ducks, rabbits, snakes, birds and invertebrate cover.

Helping wildlife also reduces pests because you are helping their predators; many eat insects like mosquitoes.

## Who Am I? Cards

Eliminated from Iowa by 100 years ago  
Began wandering back into Iowa by the 1920's  
13,000 lived in Iowa by 1953  
Now over 200,000+ here, considered a pest  
Known as a hazard to humans driving cars  
This species likes to live along habitat edges  
Males with large antlers are prized by hunters  
Herbivore with cloven hooves

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Hunting eliminated them from Iowa by 1910  
Efforts to re-stock failed in the 1920's  
Captured in other states in the '60s & '70s  
Released animals made a dramatic comeback  
13,000 harvested in 1990  
Eats lots of acorns, insects, & other plants  
Roosts in trees in woodlands at night  
Popular holiday feast animal  
Now has a hunting season

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Used to be heavily trapped for their sleek fur  
Gone from most of the state by 1900  
DNR began reintroduction in 1985  
222 animals release at 11 sites 1985--1990  
Successful reproduction is evident  
Stream and river species-eats fish & crayfish  
Known for being playful in mud and snow  
Fisherman may think they compete for fish  
One of the largest and most valuable furbearers  
Still considered threatened

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Gone from Iowa by 1910  
Hunted for feathers, meat, eggs, & down  
Habitat loss occurred with drained wetlands  
Hunting restrictions helped population increase  
Need nesting sites on small islands to survive  
A large bird which migrates long distances  
Reintroduced since 1964, now in every county  
Eats water and land plants  
Now found here as commonly as in Canada

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Hunted for pretty feathers on male  
Unusual nesting site for its kind  
Loss of habitat from cutting of hollow trees  
Nest boxes help them to survive  
Babies jump out of nest and go to water  
Male is brightly colorful, female is brown  
"Wood" in name refers to its habitat

Drastic decline in numbers through the '70s  
Use of DDT greatly harmed population  
Reintroduction efforts began in 1989  
23 released in CR, 19 in Des Moines  
First attempt at breeding 1992 (after 30 years)  
Young live in a "hack" box at first  
Crow-sized bird with a dark "hooded" head  
Eats flying birds  
Can dive at speeds of up to 200 mph

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Killed for feathers and skins/meat in the 1800s  
Downy skins made powder puffs; feathers-hats  
Wetland drainage & pollution speeded decline  
Endangered by the 1920s, now over 12,000  
Lives on and around the water; Migrates  
Eats vegetation and aquatic invertebrates  
Male called a Cob; female called a Pen  
Looks very similar to other birds its size  
Largest waterfowl species in North America  
Call sounds like a trumpet

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Once ranged over entire Eastern U.S.  
From the '30s population declined almost 90%  
Habitat loss from removal of hollow trees  
Migrates South for the winter  
Insects they eat often poisoned w/pesticides  
Aggressive introduced birds compete and kill  
Monitored nest box trails help them survive  
Symbol of happiness, luck, and hope

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Hunted almost to extinction for pretty feathers  
Hunting restrictions saved the population  
Usually seen in Iowa in the summer  
Long legs help shallow water wading  
Long neck & sharp beak good fish catchers  
Fishes for small animals near streams & ponds  
"Snowy" in name refers to color, not habitat  
Still not very common in Iowa

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Hunted close to extinction nationwide in 1800s  
A small population survived out West  
Was considered a nuisance by railroads  
Used to be main food for Native Americans  
Will never roam freely in Iowa again  
Now herds survive wild out West  
Small ranch herds can be seen in Iowa

**Who Am I? Card**

Peregrine Falcon

White Tailed Deer

Trumpeter Swan

Wild Turkey

Eastern Bluebird

River Otter

Snowy Egret

Canada Goose

Bison (American Buffalo)

Wood Duck

