

# SAVE THE PARROTS

CARD 14

GROUP 11: CONSERVATION



**Parrots are popular pets throughout the world, loved for their rich plumage, intelligence, and ability to mimic sounds. But their popularity puts their future in danger.**

## KEY FACTS

### CONTROLLING THE TRADE

The Convention on International Trade in Endangered Species was established in 1973 to regulate the sale of wild animals. Enforcement of the regulations for parrots has been difficult.

Smugglers often tape parrots' beaks and feet, then

stuff the birds into hiding places, even though many parrots die as a result. The smugglers still make huge profits from the surviving birds.

Right: Trappers make large profits from illegally capturing and selling parrots such as the hyacinth macaw.



### CONSERVATION MEASURES

Controlling the sale of parrots is not enough to save them from extinction. Conservationists must also actively improve conditions for the birds in the wild.

Sometimes even wildlife reserves cannot provide suitable enough environments. For instance, Puerto Rican amazon parrots nest in large, old trees, but such

trees are becoming rare now. So specialists have created carefully disguised artificial nest boxes. They have also altered natural holes in the nesting trees to keep out rats and competing birds. The kakapo, a large, flightless parrot of New Zealand, is so vulnerable that scientists relocated all surviving birds to two small islands com-

pletely free of predators.

Captive breeding programs may increase the numbers of the most endangered species. The parrots will be released back into the wild when conditions are more favorable. Several species, such as the Puerto Rican, St. Lucia, and St. Vincent amazons, have bred well in these programs.

### ENDANGERED PARROTS

Some varieties of parrot have populations of less than a few hundred birds. Listed here are some that may soon become extinct without immediate inter-

vention. Their ranges and the principal causes for their decline are also provided.

**1. Paradise parrot, *Psephotus pulcherrimus*;** Australia. Habitat loss, pet trade.

**2. Red-necked amazon, *Amazono arausiaca*;** Dominica, British West Indies. Habitat loss, hurricanes.

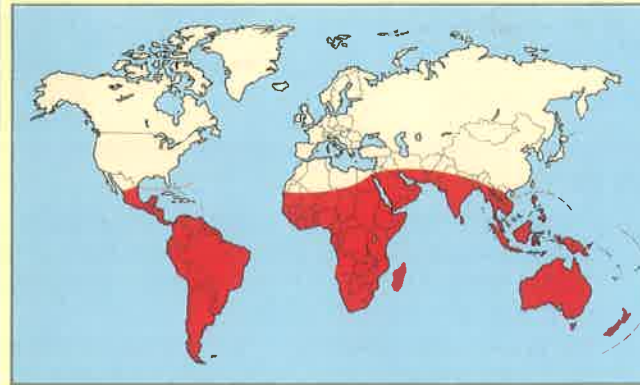
**3. Orange-fronted parakeet, *Cyanoramphus malherbi*;** New Zealand. Habitat loss.

**4. Mauritius parakeet, *Psittacula eques*;** Mauritius. Habitat loss, competition, predators.

**5. Lear's macaw, *Anodorhynchus leari*;** Brazil. Pet trade.

**6. Spix's macaw, *Cyanospitta spixii*;** Brazil. Pet trade.

**7. Red-tailed amazon, *Amazono brasiliensis*;** Brazil. Habitat loss.





*Parrots face many threats.*

*Timber cutting is destroying their natural habitats; the pet trade, hunters, and competition from introduced foreign animals are reducing their populations. More than 100 of the nearly 330 parrot species are threatened.*

## THE PET TRADE

For thousands of years people have kept parrots as pets. Today millions of parrots live in captivity, many owned by collectors in North America, Europe, and Japan. At least 600,000 parrots a year are shipped abroad, most captured from the wild.

Because the pet trade is such a profitable business, traders use drastic and sometimes illegal methods to trap and transport parrots. Trap-

ping expeditions to remote locations decrease the numbers of rare species, making them more prized by collectors. Traders sometimes catch chicks by first cutting down the nesting tree and killing the parents. They may transport the parrots over several days without food or water in cramped boxes.

It is believed that for every wild parrot reaching a pet shop, 4 to 10 others die.

*Left: Salvin's amazon parrot is becoming even rarer due to the destruction of its habitat.*

*Top right: Traders often export parrots illegally.*

*Bottom right: These dusky-headed conures are kept in inhumane conditions before being exported. Many will die before they reach their destination.*



## OTHER THREATS

In many parts of the world, parrots are popular prey for hunters. The macaw is considered a delicacy and is easy to hunt because of its size.

Hunting is a relatively small-scale threat, but to an already-dwindling population like the Caribbean amazon parrots, it can have devastating effects.

Parrots—particularly island

species—also suffer when non-native animals are brought into their habitats. For instance, the Mauritius parakeet, whose population numbered less than 11 in 1985, now has to compete for nest sites with introduced parakeets and mynahs. Rats and monkeys formerly found only on the mainland now raid its nests.



## HABITAT DESTRUCTION

Many species of parrot have become extinct over the last two centuries, and others are close to extinction today. The most serious threat is the loss

*Front cover inset: A pair of hyacinth macaws (left).*

of their natural habitat.

Parrots live primarily in forests. The felling of the trees that provide their food and nesting sites makes survival difficult. The red-tailed amazon and the golden-tailed

parrot face this problem as a result of heavy felling of the Atlantic forests of southeast Brazil.

The reduction of the habitat may not in itself result in the extinction of a species, but it

is often the underlying cause. Loss of habitat makes parrots more vulnerable to predators.

*Right: The colorful plumage of the scarlet macaw makes it popular for export.*

# SAVE THE NENE GOOSE

GROUP 11: CONSERVATION

CARD 13

ACTION FILE

HAS IT BEEN A SUCCESS?



**In 1949 there were fewer than 30 nene geese left in the wild. Because of an international breeding program, this unique bird has been saved from the brink of extinction.**

The recovery of the nene (pronounced *nay-nay*) from near extinction is one of the most successful cases in the short history of wildlife conservation. Scientists estimate that 750 nenes now live free in the wild. Yet little is known about the bird's habits in its natural habitat. This means that the continued survival of the reintroduced wild populations is not guaranteed.

Despite the apparent success of the captive breeding program, it has had some negative effects on the nene population. For example, subtle genetic changes in the nene are unavoidable, especially when the birds are kept in different conditions from those of their natural habitat. As a result, there has been an increase in the number of *goslings* (chicks)

that are born with extremely thin, cottonlike down. This trait may have evolved to help those chicks raised in warmer areas. But now that the nene lives mainly in the cooler areas of its former range, the chicks may not survive because of their thin down. Nenes bred in captivity also become less fertile, partly because of the inbreeding that occurs.

A better approach to saving the nene might have been to conduct extensive field studies to learn more about the bird, rather than to remove it from its natural habitat and breeding it in captivity. It is now generally believed that rare and endangered species like the nene should be left in their natural habitats and that action should be taken to protect them within their environments.



*Above: Tame birds do not always survive in the wild, since they tend to be less wary of danger.*



*Left: In the wild, a nene would not be able to raise as many goslings as are in this clutch that comes from a captive breeding program.*



Left: Lava flows from Kilauea on the mountain of Mauna Loa have endangered the nene's breeding grounds in recent years.

*Saving the nene from extinction is considered a triumph by conservationists. But despite this goose's reintroduction to its natural habitat, its continued survival in the wild is uncertain.*

### LIFESTYLE

The nene (pronounced *nay-nay*) is also known as the Hawaiian goose. Most scientists believe that it is descended from the Canadian goose. But it is now found only on Hawaii's volcanic mountains.

The nene's legs have become very strong as an adaptation to the rough ground of its habitat. The webs between its toes, no longer needed for swimming, have grown smaller.

Right: The nene has adapted to its barren landscape by feeding on low-lying plants, rather than on grass. As a result, it is more upright than other geese.



Above: A nene rests among low-lying vegetation.

Left: Although it is the largest bird native to Hawaii, the nene is a small goose; it weighs only five pounds and stands 20 inches high. Scarcity of water in its habitat led the nene to adapt to living on land.

### CONSERVATION

By 1947 the wild nene population numbered only 30 birds. In 1949 a new captive breeding program was begun at Pohakuloa in Hawaii to prevent the nene from becoming extinct. Although the program was successful, progress was slow, and only 24 young, called *goslings*, were raised during seven breeding seasons.

It was later discovered that the captive nenes had a low fertility rate. Lack of information about the birds also contributed to the poor breeding rate.

The nene was adopted as Hawaii's state bird in 1957, but widespread support for the breeding program has only occurred in recent years.



Left: Since the 1970s, nearly 2,000 captive-bred birds have been released in sanctuaries on the islands of Hawaii and Maui.

### HOW THE NENE BECAME ENDANGERED

In the eighteenth century, the nene population numbered approximately 25,000. Little more than a hundred years later the bird was becoming rare. The cause of its rapid decline is linked to the arrival of settlers who altered the nene's natural habitat.

Settlers introduced such animals as cattle, sheep, goats, and pigs, which bred rapidly because of the lack of predators. They soon destroyed the nene's breeding grounds.

The mongoose was also introduced to the islands to

control the rat population that damaged sugar crops, but it preyed on the nenes' eggs and young. However,

people were the most responsible for the nene's decline because they once hunted it for food.



### WILDFOWL TRUST

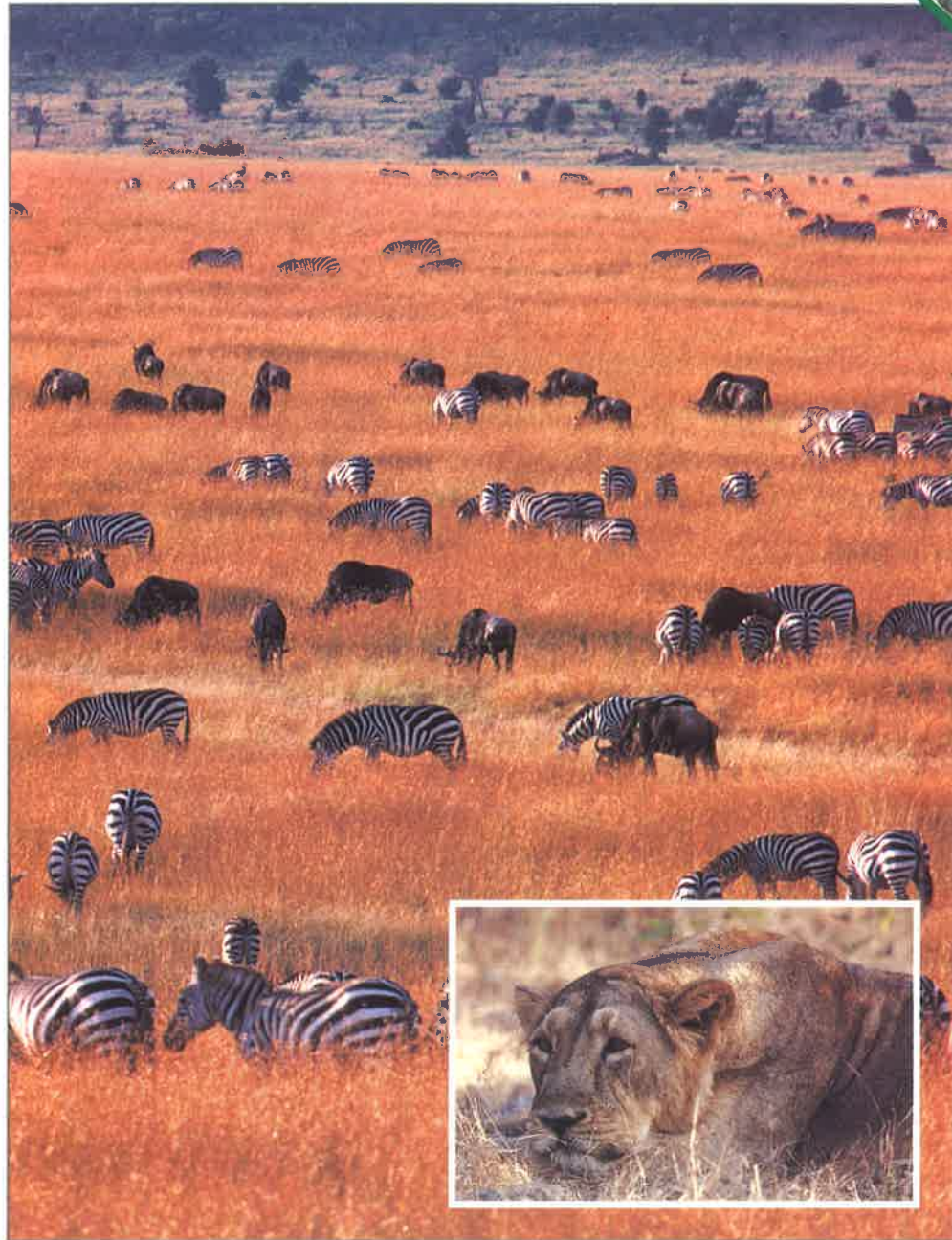
The Wildfowl Trust at Slimbridge, in England, pioneered conservation of the nene. The trust's curator began a captive breeding program in 1950. Nine goslings were raised successfully in 1952.

By 1958 there were 53 nenes at Slimbridge, and breeding birds were sent to other countries. By 1964 nearly 300 birds had been bred in captivity. Close to 1,000 had been born by 1970, and scientists returned 200 nenes from captive breeding sites to their natural habitat in Hawaii.

# SAVE THE TROPICAL GRASSLANDS

CARD 12

GROUP 11: CONSERVATION



**A complex community of mammals, birds, reptiles, and invertebrates has evolved in the tropical grasslands. But as these areas dwindle, their wildlife becomes increasingly threatened.**

## KEY FACTS

### CONSERVATION MEASURES

The impact of farming on grassland worldwide would be difficult to reverse. As human populations grow, the need for farming tropical grassland in the future increases. But for these areas to continue sustaining life, careful efforts

to conserve the soil must be made.

Livestock herds need to be reduced to fit the size of the land. Pastures should be left empty some years or planted with crops such as alfalfa to restore soil fertility. Lines of trees should be planted as

windbreaks to protect the crops and stem erosion.

Other measures to protect grasslands include laws protecting animals from hunting. The Convention of International Endangered Species (CITES) controls animal trade and products.

*Right: Providing a wildlife retreat, Serengeti National Park, or Masai Mara, stretches from Tanzania to southern Kenya in Africa.*



### NATIONAL PARKS

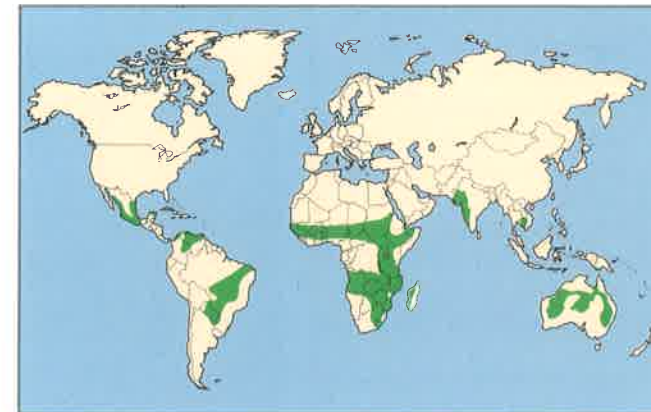
The future of tropical grassland conservation lies in setting aside land in national parks and reserves. Habitats in selected areas remain as wild as possible without human intervention.

The savannas in eastern and southern Africa have many national parks, including the large areas in Kenya's Tsavo or Tanzania's Serengeti. These parks harbor the largest grazing herds, maintaining wildlife once common in African grasslands.

Yet national parks have been unpopular with local people because of park restrictions. In some parks,

antelopes and elephants are killed because the protected herds become too large and destructive. Poachers still penetrate protected areas

and hunt endangered species. Despite shoot-to-kill policing in some countries, elephant and rhino poaching has increased.



*Map showing location of tropical grasslands throughout the world.*



*Tropical grasslands range from dry, open areas of grass to woodland savannah, where trees and turf mix. Rising human population and increasing demand on the area's natural resources threaten to disrupt the region's ecological balance.*

## HUNTING

Varieties of large animals on the open savannah terrain suffer from hunting. Killing fast-running animals is considered an exciting sport, and many make valuable trophies. Hunters kill some animals for food and some because they are predators that might attack domestic livestock.

As a result, large grassland

*Left: Amboseli National Park, shadowed by Mt. Kilimanjaro.*

animals have declined over the past few centuries. In India, blackbuck and Asiatic lions have decreased to low levels. African elephants, rhinoceroses, giraffes, zebras, lions, leopards, and cheetahs have all disappeared from their original ranges. Several species, including more than a million springboks, were brought close to extinction in the nineteenth century.



*Above: A poacher sets antelope snares in a national park.*



*Above: The skeleton of an elephant poached by hunters for its tusks.*

*Below: Farmers erect fences to keep out wild grazers competing with cattle for food.*

## LAND OF GRASS

Grasslands naturally form in tropical regions that get too little rain for forests but are not dry enough to become deserts. Vegetation dies in the dry season but grows during the summer rainy season. Grasses dominate the area, but drought-resistant trees such as acacias, baobabs, palms, and cassias also grow in the grasslands.

Grasses quickly grow again when their stems are bitten off or trampled. They recover easily after the fires that sweep

the terrain in the dry season. Narrow leaves provide dense cover and food for *herbivores* (plant-eaters). Grass roots bind the earth and provide food for soil animals.



*Right: Herbivorous mammals such as these blackbucks are counterparts of grazing livestock. Domestic herds threaten their food supply.*

## DWINDLING RESOURCES

Human settlement threatens the ecological balance between soil, vegetation, and animals on the tropical savannah and other grasslands worldwide. Land plowed and

tilled for crops or used as pasture for herds of cattle, sheep, and goats take over natural habitats. These domestic herds graze more intensively than wild herbivores, altering the pattern of vegetation and driving out native plants and animals.

Intensive grazing and cultivation in drier areas reduce plant cover until it no longer protects and binds the topsoil, leaving it exposed to the wind and rain. The soil blows and washes away, leaving the land uninhabitable for either animals or humans.

*Above: Sheep search for food on the overgrazed savannah.*

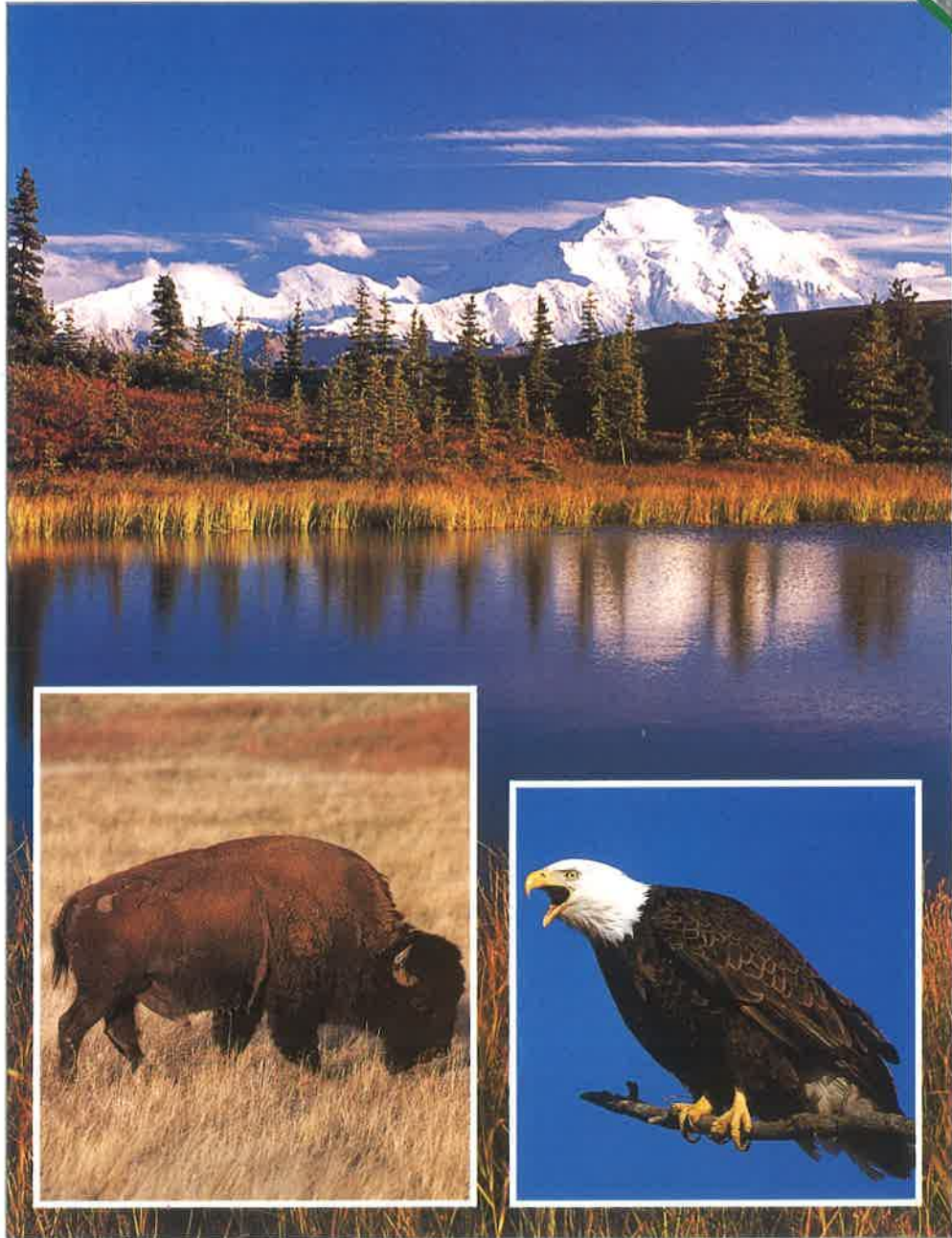


# NORTH AMERICAN NATIONAL PARKS

CARD 11

ACTION FILE

GROUP 11: CONSERVATION



**As native species become endangered, national parks in the United States are making an effort to conserve plant and animal species in protected reserves throughout the country.**

## LETTING NATURE TAKE ITS COURSE

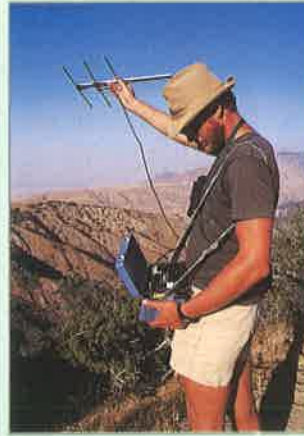
One National Park Service goal is to make national parks more natural. This means that after introduced species have been removed, native species will regain their natural place in the environment.

Here, native predators can

hunt native prey. The parks prohibit artificial feeding, which interferes with natural population control. But park managers will sometimes help the animals to feed if human activity causes shortages.

Natural factors are usually

allowed to occur without interference. Fire is important to parks because it leads to new growth of food for herbivores in areas low on foliage. Natural fires are allowed to burn unless they threaten human life or property.



**Left:** California condors in the birds' special breeding reserve are tracked by radar.



**Right:** Biologists release young Kemp's ridley sea turtles on Padre Island National Seashore.

## PANTHER PROGRESS

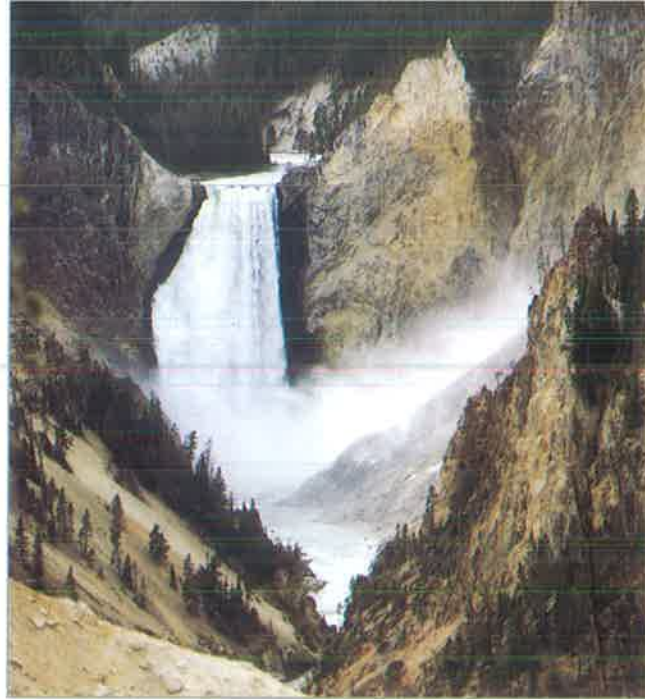
There are only 30 Florida panthers in south Florida, at Everglades National Park and Big Cypress National Preserve.

The Florida Panther Inter-agency Committee exists to increase the population of the panther. It does this by increasing stocks of prey, preventing disease, and restoring natural habitats.

The Florida panther needs a range between 20 and 120 square miles to survive. Both private and park land may be needed to maintain panther populations. Most local landowners seem to support restoration, and the panther's future looks promising.



**Left:** Hunters are still killing the endangered Florida panther. An additional problem is the limited available breeding stock. Careful monitoring of the panther's range and support from local landowners may save this big cat from extinction.



*The United States National Park System stretches from Alaska to the Virgin Islands in the east and to Samoa in the west. These natural preserves contain about half of all the North American plant, bird, and mammal species.*

## PROTECTING NATIVE SPECIES

By law, national parks protect native species in their habitats from removal, harm, or disturbance by humans.

The National Park System shelters 120 government-listed endangered species living within individual parks.

But in certain national preserves and recreation areas, native species may be legally

hunted or fished. These activities allow limited removal of some animal species that might become too numerous for their habitats. The result is that the park's *ecosystems* (ecological systems) are protected. Sometimes animals are moved to other areas to restore the native population in those locations.



*Far left: The Lower Falls, Yellowstone.*

*Left: The wolf is being re-introduced in parks.*

*Below left: Whooping cranes in Texas.*

*Above: A brown bear fishes in Katmai Park, Alaska.*

*Right: Parks protect natural ecosystems.*



## TURNING BACK THE CLOCK

New settlers in the United States in the seventeenth century changed the natural balance of many habitats. This caused several plant and animal species to disappear. The non-native species that the

settlers introduced also pushed many native species toward extinction.

To help prevent the extinction of plants and animals, the National Park Service (NPS) was established in 1916.

*Front cover: Denali National Park, Alaska. In the distance is Mt. McKinley, the highest peak in the United States.*

*Front inset left: A bison grazes in Yellowstone Park.*

*Front inset right: The bald eagle is protected in all states.*

## CONTROLLING EXOTIC SPECIES

Whether deliberately or accidentally, people have introduced *exotic* (non-native, or introduced) species in certain areas of the national parks. These species interfere with the restoration of the parks.



The National Park Service controls these introduced species to keep them from harming natural resources.

For example, in the 1950s some European wild hogs escaped from a private reserve

into the Great Smoky Mountains National Park and destroyed reptile, plant, and amphibian species. Their numbers grew to 2,000, but today the population is a manageable size of 400.

## RESTORING NATIVE SPECIES

Native species are those that migrate to or were born on park lands. The NPS has plans to restore native species to their original habitats. Nationwide restoration began in 1902 with an effort to build up a small herd of bison in Yellowstone Park.

To restore any missing species, scientists make sure that the species is native to the area before reintroducing animals or plants. They learn about the original population's subspecies and decide

if the correct habitat and food supply still exist. They determine the impact of the restoration on the existing natural communities, both in and outside the park.

Some species being restored include the box turtle in New York, the peregrine falcon in several parks nationwide, the woodland caribou in Minnesota, the bighorn sheep in California, and the northern Rocky Mountain wolf and the grizzly bear in the Rocky Mountains.



# SAVE THE GREAT APES

CARD 10

GROUP 11: CONSERVATION



**Poaching and the loss of rainforest habitat are fast endangering some of the world's best loved primates—the gorilla, the chimpanzee, and the orangutan—commonly called the great apes.**

## ACTION FILE

### WHAT CAN BE DONE?

The apes are best protected by the establishment of national parks and reserves within their natural habitats. These areas must be large enough to support the different ape troops, each of which needs its own territory. The Virunga Reserve in Rwanda, Uganda, and Zaire has been a highly successful gorilla reserve since the early 1980s.

But money is needed to establish more parks and reserves. Funds raised by independent wildlife organizations worldwide could be used to promote wider protection for the apes.

**Right:** *At the Karisoke Research Center, Rwanda, rescued gorillas are cared for and then "rehabilitated" into the reserve.*

**Below right:** *The unacceptable, irreversible destruction of the forests—and the apes.*



### BETTER LAND USE

The apes are being forced out of their natural habitat by the encroachment of poverty-stricken farmers who, out of desperation, seize the land to grow crops and raise cattle.

Local education and se-

lective logging and reforestation practices are two answers. Without them, the forests will be lost. The loss of the rainforests will adversely affect man and ape both, destroying a vital source of food and water.



### WHAT YOU CAN DO

- Support national and international wildlife organizations that have a special

interest in primates; get involved in fund-raising activities for forest preservation.

- Try to buy only those make-up products that have not been tested on animals.



*The great apes of Africa and Southeast Asia are facing varying degrees of threat to their existence*

*from man. The rare pygmy*

*chimpanzee has almost no protected*

*habitat, and the mountain gorilla is*

*in danger of extinction.*



## THE DWINDLING FORESTS

As Africa's population increases—in some cases as rapidly as 3 percent a year—more forest is cleared for cattle-grazing, logging, and crops. The local farmers use the slash-and-burn method of deforestation (forest clearing). Some conscientious logging companies take only the trees they need and allow the forest to return to its natural state. Gorillas will return to selectively logged forests after a regrowth period of about 6 years, as they favor less dense

forests with bushy undergrowth.

For chimpanzees, particularly the rare pygmy chimpanzee, rainforests left untouched by man are their only guarantee of finding enough food to survive. These dense and humid rainforests support a multitude of juicy fruits, which chimps need in order to get enough water. Secondary forest—where some clearing has occurred and regrowth is recent—contains less fruit,

**Above and inset: Deforestation in Southeast Asia can only spell doom for the orangutan.**

and chimpanzees must forage over a wider range.

The orangutan is also suffering from deforestation in Southeast Asia, as is the Javan gibbon, which has lost over 95 percent of its range.

Scattered attempts to rescue chimps from pet traders and return them to the wild have proved only moderately successful. This process also risks sending new diseases into the wild.

## POACHERS AT LARGE

Poaching in Africa and Southeast Asia is widespread. A whole range of wild animals are hunted for meat or trophies despite laws forbidding hunting in most countries. Many of the poachers accidentally catch chimpanzees and young gorillas in their wire traps.

In Africa, poachers deliberately trap or shoot gorillas. Both western and eastern lowland gorillas are poached for their hands, which are cut off to sell as ashtrays, or for their heads, which are sold as trophies to tourists.

In Nigeria, more western lowland gorillas are killed each year than are born; at this rate they will become extinct in as few as 15 years.

Central African natives, who do little cattle farming, depend on ape meat for protein.

In West Africa, highly organized poaching gangs are

hunting the chimpanzee to the brink of extinction. Another species facing imminent extinction is the mountain gorilla. It was first sighted in 1901, but it may become

extinct within a century after its discovery.

**Below: A rare mountain gorilla with young in a national park. Here, the wardens keep a constant watch for poachers.**



## THE CHIMPANZEE TRADE

Of all living species, the chimpanzee has a genetic make-up that is most similar to man's. Because of this, chimpanzees are regularly taken to be used for testing in scientific and medical institutions. Results from this research are of great medical value, but the chimps are often mistreated.

Chimpanzees are also captured to provide entertainment for tourists. The females are killed and their young are taken from them. Tourists

who pay to have their pictures taken with a chimpanzee are usually unaware that it will be killed when it is older.

Today, almost all countries have banned or strictly

regulated the live export trade, but such bans are hard to enforce.

**Below: Saved from the clutches of the export traders, a chimp waits to be sent back to the wild.**



# SAVE THE WHOOPING CRANE

GROUP 11: CONSERVATION



J. Foott/Survival Anglia Ltd.

**The whooping crane's decline has been so drastic that its entire population numbers fewer than 200 birds. The fight to save it from extinction is slowly but successfully increasing its numbers.**

## MIGRATION ROUTES

Whooping cranes begin their departure from their Texas wintering grounds in late March. The journey, which takes several weeks, follows a direct route from Texas to the Northwest Territories of Canada.

In mid-September, the birds follow the same path when they begin their winter migration back to Texas.



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## THE WHOOPING CRANE'S FUTURE

The decline in the wild population of whooping cranes has become a celebrated cause for conservationists, and, through their efforts, the wild population is increasing.

The population of whooping crane was at an all-time low in the 1930s, but it has shown a slow increase since then. From

between 15 and 33 birds in the 1930s, the numbers gradually rose to between 110 and 134 birds by 1987.

Barring natural disasters, the future of the whooping crane's breeding and wintering areas seems secure, and the last remaining birds have a good chance of survival. Still, the

population increase will be slow because of the crane's poor breeding success, and the fact that many birds die before they even reach breeding age.

Only a continuing study of the species, a commitment to its protection, and public awareness will allow the whooping crane to flourish.



Left: Whooping cranes in the Aransas National Wildfowl Refuge, Texas.



Right: The majestic flight of the whooping crane.

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## OTHER CONSERVATION MEASURES

Although the desperate plight of the whooping crane was recognized in the 1930s, its numbers had already been severely depleted. Their population is now slowly recovering as a

result of a captive breeding program and continued protection of their Texas wintering grounds.

National campaigns have been launched to educate the

public. Shooting of the birds, once a popular sport for hunters, has been banned. A special crane branch of the International Council for Bird Preservation was also formed.

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*A hundred years ago, the population of North America's whooping crane stood at about 1,300. By the early 1950s, it was fewer than 20. A large and majestic bird, it is one of a number of rare cranes that have predominately white coloration.*



J Foott/Bruce Coleman Ltd.

### POPULATION DECLINE

Fossilized remains of the whooping crane show that it was once far more widespread in the United States than in recent centuries.

During the 1800s, its breeding range extended from central Illinois to the present-day Dakotas, and north into Canada. As this region was settled, the cranes left.

By 1950, the last known whooping cranes to exist in the wild were a colony of 15 that wintered in the Aransas National Wildfowl Refuge,

established in Texas in 1937.

The breeding grounds of these birds remained undiscovered until 1954, when a fire broke out in the Northwest Territories of Canada.

Helicopter pilots helping to fight the fire noticed a pair of whooping cranes with their chick near a group of lakes.

Careful study revealed that these birds were from the Aransas National Wildfowl Refuge. They had chosen the most remote area possible in which to breed undisturbed.

### WHY THE DECLINE?

The crane is a shy bird that needs a large area of undisturbed wetland in which to breed. Agricultural projects drained the water in many of these areas, which caused the crane to die out.

Much more destructive still was the extensive hunting of the whooping crane as it made its journey to and from its breeding grounds. Its large size and white coloration made it an especially easy target for hunters. Those birds that did escape after being shot often died after getting caught on power cables located in their flight paths.

Once a species has been reduced to very small numbers, it becomes increasingly vulnerable to natural disasters.

Flooding of a breeding ground has been known to wipe out an entire colony of whooping cranes.

### CAPTIVE BREEDING PROGRAM

The discovery of the breeding grounds of the remaining colony of whooping cranes allowed for the birds to be studied carefully.

It was known that, while

cranes laid two eggs, only rarely did both chicks survive, usually because of competition between the two youngsters for food. By removing one egg from the clutch, there was a

good chance that the egg could be reared artificially.

This procedure also benefited the single chick that was reared in the nest, as it eliminated competition for food.

Right: A whooping crane successfully reared in captivity.

Below: One egg is removed, to be hatched artificially.



J Foott/Survival Anglia Ltd.



J Foott/Survival Anglia Ltd.

Left: A lone whooping crane is perfectly at home in a flock of sandhill cranes. These cranes have been used in successful programs to foster whooping cranes.

### FOSTER PARENTS

In 1975, a new method of artificially rearing crane eggs was developed. A colony of closely related sandhill cranes in Grays Lake National Wildlife Refuge in Idaho was selected for an experiment in egg fostering. Whooping crane eggs were substituted for the sandhill cranes' own eggs. The cranes incubated the eggs, which successfully hatched.

The young whooping cranes were accepted by their foster parents as their own, and now whooping cranes are regularly raised in this way.