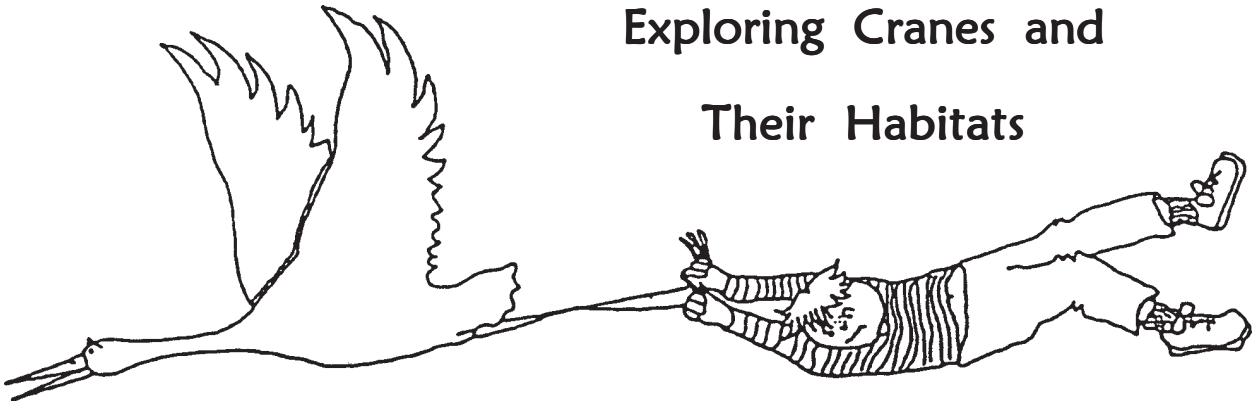
Cranes, Kids & Wetlands:

Exploring Cranes and Their Habitats



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Classroom and field trip activities for grades 3-5

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Introduction

We're delighted that you are planning a field trip to the International Crane Foundation (ICF). This packet includes everything that you will need for a successful class trip, including field trip instructions, reference materials, student activity sheets, and post-field trip activities. The activities are designed to complement your field trip to ICF, providing an introduction to crane biology and wetland and prairie ecology, as well as an exploration of the relationship between humans and the natural environment. Please review the instructions on the following pages to ensure that you, your students, and their chaperones get the most out of your visit to ICF.

The materials for teachers, chaperones, and students are organized seperately. You have permission to make as many copies as necessary of these materials.

Please fill out the evaluation provided and return it to us—we're anxious to improve our materials, and your comments are very helpful. If you would like to involve your class in the evaluation, ask your students to write a letter to ICF, explaining what they liked or didn't like about the field trip. If you would prefer to email us, please address your correspondence to the Visitor Programs Coordinator at ed@savingcranes.org.

Again, thank you for visiting the International Crane Foundation!

Table of Contents

The success of any field trip depends on how well prepared you, your chaperones, and your students are. The more background information your students have, the more questions they will ask, and the more they will learn. While it is not necessary to do any of these activities prior to coming here, it is helpful for students to have a fundamental understanding of what they will be seeing and for your chaperones to understand their responsibilites.

This packet supplies instruction sheets, reference materials, and student activity sheets for you to use in preparation for your field trip, as well as post-field trip activities to use after you return to your classroom. We have listed the student activities in a suggested order, however you may wish to rearrange the activites to accomodate your lesson plans. The student activites are divided into 2 units that may either be used separately in your natural and social science classes or, alternately, may be used together for an interdisciplinary study of cranes in your classroom.

Teacher Instructions and Materials

Student Activity Sheets (in pockets)

Unit 1: Cranes and their Habitats

Unit 1 focuses on the topics of crane biology and wetland and prairie ecology. The activities are dividied into 5 sections that may be easily incorporatated either individually or as a complete unit into a variety of Science classes.

Crane Life Cycle

The following activities introduce students to cranes, their geographic distribution, seasonal cycles, development, and migration.

- Crane Nuggets
- Where in the World?
- And the Seasons... They go Round and Round
- Chick Chat...and Growing Up
- Crane Count
- Sandhill Crane Migration

Adaptations

Cranes, like other wildlife, have many physical adaptations that help them to survive in their environment. With these activities, students will learn how birds are adapted for flight and to specific feeding styles. Use the fourth activity, "Crane Puppet," as a starting point for a discussion of crane adaptations for younger students.

- Oh Dem Bones!
- Why Can't Kids Fly?
- Amazing Adaptations
- Crane Puppet

Wetland Ecology

In order for cranes to survive, we must also protect the habitats in which they live. Use these activities to introduce your students to wetlands and their importance to cranes, other wildlife, and people.

- Cranes and Wetlands
- Wet and Wild!
- What is a Wetland?... It Is a Wonderful Place!
- Why Care About Wetlands?
- Classroom Wetland Experiment
- The History of Wetlands

Prairie Ecology

In addition to wetlands, prairies provide important habitat for cranes. These activities explore the ecology of prairies and the impact of humans on these rare communities.

- Getting to the Root of Prairies!
- Where Have All the Prairies Gone?

Disscussion / Review

Use this set of activities to guide a discussion of the impact of personal values and human action on the natural environment. The first activity, "Mix & Match," may be used as a review of key vocabulary words from the activity packet.

- Mix & Match
- Well, What Do You Think?

Unit 2: Cranes and People

Unit 2 introduces students to the role of cranes in human cultures. The activities are divided into 5 geographic sections representing the continents where cranes are found.

The activities examine how both ancient and modern people have incorporated cranes into their daily lives through symbolism, music, dance, and myth. Through these topics, the activities explore the larger theme of the relationship between humans and the natural environment. The activities are appropriate for Language Arts, Social Studies, Art, and Music classes.

North America

- Myth and Folklore
  How Crane Got His Long Legs
- People and the Natural Environment
- Whooping Cranes in the Red Earth Region

Asia

- Cranes for Peace
- Haiku
- Cranes and Music

Australia

- Myth and Folklore
  Brolga, the Dancing Girl
- Do a Dance…A Crane Dance
  Crane Dances
- As Time Goes By…

Africa

- Myth and Folklore
  Arap Sang and the Cranes

Europe

- A Snow Wreath?

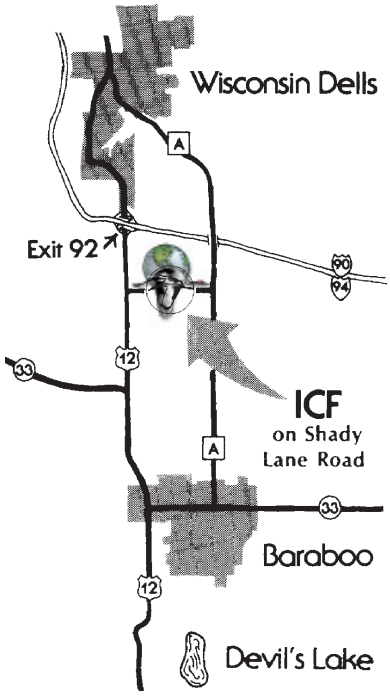
Teacher Instructions

Preparing for the field trip:

* Brief students on the field trip. Students should be properly dressed for the weather. This includes comfortable shoes, raincoats, and warm clothing. **We will go outside even if it is raining**.
* Collect admission fees from students.
* Recruit as many chaperones as possible. Prior to the field trip, give each chaperone a copy of the "Chaperone Instructions" and "Introduction to Cranes."
* If you have any questions about the activities or the field trip, please call the ICF Education Department at (608) 356-9462, ext. 127 and we will be happy to help you.

1. Arrival and Introduction

A map to ICF is located to the right. Have the bus drop your students off at the Cudahy Visitor Center before parking. Please plan on arriving 15 minutes prior to the start of your tour to organize your group and to allow time for a restroom break, if needed. Note that there are restrooms only at the Cudahy Visitor Center. An ICF Naturalist will greet you, show the students into the theater, and direct you to the Gift Shop where you can pay for the group. The Naturalist will welcome your class, show a short slide show, and brief everyone on the activities to follow. After the introduction, your class may be divided into two or more groups. Each group will be led by a Naturalist and will participate in all of the activities, though not necessarily in the same order.



2. Observing the Cranes

The Naturalist will lead your group to the Johnson Exhibit Pod, where you will see thrirteen species of adult cranes on display. Two other species will be observed at the Wattled Crane Exhibit and the Amoco Whooping Crane Exhibit (see ICF Site Map). The Naturalist will lead the discussion on crane biology, current threats to cranes, the role of habitat protection in endangered species conservation, and ICF's work in international crane conservation.

3. Nature Trail

The Naturalist will lead the students on a short hike to view our on-site restoration work. At various stops, students will learn about the ecology of wetlands, prairies, and oak savanna ecosystems, their importance to cranes and other wildlife, how they have changed over time, and how ICF works to preserve or restore these ecosystems. Students will also view Crane City, our main breeding facility, from a distance.

4. Schroeder Exhibit Room

Each group will visit the Schroeder Exhibit Room to learn about raising chicks at ICF. An ICF Naturalist will lead the discussion.

Chaperone Instructions

Thank you for leading a group of students on this International Crane Foundation field trip!

Your involvement with the students is helping to foster stewardship and appreciation for our natural world that will last a lifetime. Your main responsibility will be to supervise your group. To help prepare for the trip, please obtain a copy of "An Introduction to Cranes" from the teacher and read it before the day of your visit. This introduction will allow you to answer questions that students commonly ask, but don't worry, we don't expect you to be an expert! You will probably learn a lot during the trip, too, so if you have questions about these magnificent birds or the places where they live, please ask!

We organize the field trip as follows:

An ICF Naturalist will welcome your group and show them into the auditorium. After a brief introduction and slide show, he or she may divide the class into smaller groups. Each group must have one or more chaperones. From the auditorium, each group will visit the following areas, though not necessarily in the same order.

1. **CRANE TOUR**
   The Naturalist will lead your group to the Johnson Exhibit Pod, where you will see thirteen species of adult cranes. The two other species of cranes will be found at the Wattled Crane Exhibit and the Amoco Whooping Crane Exhibit. The Naturalist will lead the discussion on crane biology, current threats to cranes, the role of habitat protection in endangered species conservation, and ICF's work in crane conservation.

2. **NATURE TRAILS**
   Exploring our nature trails gives students an opportunity to learn about the ecosystems that cranes use in the wild. The Naturalist will introduce your students to ICF's restored wetland, prairie, and oak savanna ecosystems, and will explain the importance of Crane City, our main breeding facility.

3. **SCHROEDER EXHIBIT ROOM**
   Each group will visit the Schroeder Exhibit Room to learn about raising chicks at ICF. An Naturalist will lead the discussion.

When finished with the tour, the Naturalist will ask for final questions and then lead your group back to the Cudahy Visitor Center. If your students plan on shopping, please do not allow more than 10 students in the shop at one time. Please help supervise students in the Gift Shop after the tour.

We hope you enjoy being a chaperone, and **THANK YOU** for volunteering!
HAVE FUN ON YOUR TOUR!

An Introduction to Cranes

Cranes are one of the most vulnerable families of birds in the world, with eleven of the fifteen species considered threatened with extinction. The two species of cranes in North America demonstrate the range of population sizes: over half a million sandhills live here, while fewer than 300 whooping cranes survive in the wild. Sandhill cranes are considered to be one of the oldest known living species of bird, with fossil evidence showing sandhills in North America almost ten million years ago. Of the seven continents, only South America and Antarctica lack cranes.

Herons, storks, and spoonbills also have long legs, necks, and bills and look similar to cranes, but are not closely related. Rather, the different families have evolved similar adaptations to a common wetland habitat. In actuality, the smaller coots, rails and limpkins are the closest relatives to cranes.

Individual and Social Behavior

Cranes pursue each other, or small prey, by running. A running crane takes one to three steps per second and may extend its wings for more speed or balance. While ungainly looking, cranes can outrun a human. All cranes can swim, but adults usually avoid it unless necessary. Chicks are active a few hours after hatching, and must swim if they are to follow their parents, since most cranes nest in wetlands.

Feathers give cranes both the ability to fly and to regulate their temperature. Made of the same material as human fingernails and hair, feathers require constant attention. A crane preens by nibbling the base of a feather and then drawing it through the bill. This is particularly true for the large flight feathers. Feathers are replaced during a seasonal molt, when old feathers are pushed out by emerging new feathers. Most species of crane are flightless during this period, and usually molt during chick-rearing. It is not unusual for flightless cranes to stay near heavy cover until they and their young can fly.

When preening, cranes smear their feathers with oil from an oil gland located on the upper side of the tail. Contrary to previous belief, the oil does not serve as waterproofing, but helps condition the feathers and may have fungicidal and antibacterial properties. Prolonged preening follows water or dust bathing.

Some sandhill cranes also "paint" themselves by preening mud into their feathers prior to the breeding season. Painting is an important camouflage tactic that helps sandhills hide amid the brown vegetation in a springtime marsh. Siberian cranes also paint themselves near the base of the neck as part of a breeding ritual.

Displays and Vocalizations

Cranes are aggressive birds. When fighting, they leap into the air to rake opponents with their sharp claws. This continues until one bird runs or flies away. But fighting is dangerous, so cranes have developed a complex system of warning behaviors to prevent combat.

Communication with other cranes includes physical postures and vocalizations. Crouch threats, ruffle threats, drop-wing threats, and flight intention postures are some of the behaviors you may see during your visit to ICF. Most crane species use a red patch of skin on the head as a warning display. Cranes can pump extra blood to the patch, turning it a bright crimson, and then point the patch at an invader or opponent.

The contact call is a soft, purring call made by adult cranes. This call alerts other cranes to the caller's whereabouts. The young have a high-pitched, peeping contact call. Chick distress calls are louder than their contact call, and parents react quickly to them. Beyond an age of about three months, chicks are able to perform the guard call, a single loud call that warns other cranes of danger.

The most significant vocalization is the "unison call." A pair gives the unison call together either to form and strengthen pair bonds or to enforce territory boundaries. In many species, the female has a two-note call while the male has a single-note call. Males of some species, such as the white-naped crane, Siberian crane, and brolga, may flex their wings while unison calling. Members of a pair usually stand within a few feet of each other while unison calling.

A unique call made by the grey crowned cranes is "booming." The birds use their gular sacs to develop resonance. The gular sacs are the small red pouches hanging below their chins. Crowned cranes also use a "quack" call to locate their mates.

Flight and Migration

Cranes typically run into the wind to achieve the speed necessary for flight. Cranes may fly as fast as fifty two m.p.h. without a helping wind during level, flapping flight. When soaring in thermals (updrafts of warm air), cranes will circle until they reach a desired altitude, usually between 3,000 and 5,000 feet. They then leave the thermal and glide forward while losing altitude. Next, they find another thermal and repeat the procedure. Some species, though, fly much higher to clear mountain ranges.

Flapping flight is an energy-intensive activity. Although soaring in thermals is slower than level flapping flight, it conserves energy. Cranes usually spend two days feeding for every day they fly during migration. Daily flights may range from a few miles in bad weather to several hundred miles if suitable stopover points are unavailable. Cranes also fly further on days when there are favorable winds. Cranes begin their migration in families or small groups. As migration progresses, however, groups join to form flocks of up to several thousand birds.

At night, migrating cranes roost at "staging areas" in water that is deep enough to cover their toes. Staging areas consist of safe roosting sites in shallow marshes or on submerged sandbars in rivers. There are usually good foraging areas within a short flight of the roosting sites. Examples of staging areas used by sandhills include the Platte River (Nebraska), Jasper-Pulaski State Wildlife Area (Indiana), and the Sandhill Wildlife Demonstration Area (Wisconsin).

Nesting and Reproduction

Cranes have low reproductive capabilities. A pair will produce only one or two chicks each year, but that production will continue through most of their twenty to thirty year life-span. Their survival strategy is the opposite of short-lived animals, like rabbits or mice, with high reproductive rates. Cranes typically do not begin breeding until three to four years of age, and some species, like the Siberian crane, may not nest until they are five to seven years old.

Cranes are territorial during the breeding season, with each pair defending an area in which it will attempt to raise young. Sandhills may nest in areas of less than five acres, but the average territory size is larger than fifty acres. Larger crane species typically have larger territories. Territories will tend to be smaller in areas of abundant food, good nesting habitat, higher population densities, and little disturbance from predators or humans.

It takes a crane pair from one to seven days to build a nest. Once the female lays the eggs, the pair shares incubation duties. The "nest exchange," or switching of incubation duties, occurs about every two hours, giving both birds a chance to feed and exercise.

The time of hatching coincides with the emergence of insects that the young will feed on. This timing is particularly important for migratory cranes so the young can grow and gain enough size and strength to migrate before winter sets in. Timing of nesting is less important with non-migratory cranes.

Most species of crane lay two eggs, but usually only one chick survives. The chicks are aggressive and often fight until one is driven away from the family group or dies from lack of attention. The remaining chick then has the complete attention of both parents and has a very good chance of surviving, even when food is scarce.

Both parents feed the chicks, but the male usually feeds them first. The newly hatched chick may be offered small pieces of the egg shell. The rest of the shell may be eaten by the female or carried away and discarded. Both parents brood, or sit over, the young birds to protect them from cold and precipitation. Brooding is important, since the chick cannot control its body temperature for the first few days after hatching. The family may leave the nest a day after the second chick hatches, but return to the nest in the evening for several days. The young birds may beg for food by "bill-touching" with their parents.

Cranes as "Flagship" Species

Biological communities are a complex web of life, incorporating all the organisms that exist in an area. In many of these communities, cranes occupy one of the upper levels of the food pyramid. Since they are dependent upon so many other species below them, biologists consider cranes to be flagship species; the health of the crane population is often a good indicator of the health of the ecosystem as a whole. By working to protect cranes, we work to protect all the other community members which may not be as conspicuous or easily recognized.

Wetlands

Most of the world's crane species rely on wetlands for their survival. Within these complex ecosystems, cranes find the necessary resources to survive.

Feeding is one of a crane's most time consuming activities. In wetlands, food is abundant in many forms: seeds, small mammals and reptiles, eggs of other birds, insects and other invertebrates, such as worms, clams, and crayfish. In addition, cranes find valuable carbohydrates in the starchy tubers growing on the roots of many wetland plants. Cranes are well-adapted to such food sources, with long beaks and necks which allow them to probe deep into the water and muck of a wetland.

The tall vegetation of a shallow marsh also helps hide cranes from predators, especially while nesting. In deeper marshes, cranes build massive nests sometimes five to six feet across and high enough that the water doesn't touch the eggs. Often a "moat" forms around the nest because the cranes use so many of the nearby plants for constructing the nest. The standing water protects the birds, as the noise of splashing will alert the parents of an approaching threat.

Many other creatures also make their homes in the wetland community. It is estimated that over one third of all threatened or endangered species in the U.S. are found in wetlands. Mammals such as beavers, muskrats, rabbits, and deer depend on the food and shelter of wetlands, as do waterfowl and other migratory birds.

Humans, too, reap many benefits from wetlands. Wetlands are known to reduce or prevent flooding and remove pollutants and sediment from surface water. As a source of food for humans, wetlands provide spawning grounds for about 90% of the fish and shellfish harvested in the coastal U.S.

Despite these benefits, wetlands continue to decline throughout the world. Often considered only as useless waste areas, wetlands have been drained, filled, plowed, and developed. Their seasonal nature can make them difficult to identify, and many are destroyed during dry periods when it appears they are no longer functional. Yet in most cases, dry spells of a few months to a few years are natural, and do not reduce the value of the wetland.

Wisconsin retains only about 54% of its original wetlands. Since the 1800s, almost half of the wetlands in the contiguous U.S. have been destroyed, and approximately 300,000 additional acres are lost every year. Not only does this trend threaten the plants and animals which live in wetlands, but it also threatens human communities which rely on wetland processes.

Prairies

In addition to their reliance on wetlands, most cranes will also use upland areas for feeding. Demoiselle and blue cranes nest in upland areas, and show physical adaptations, such as their shorter bills, for feeding on insects and seed pods that they find there.

Prairies were common throughout the Midwest before Europeans settled here in the 1800s. Prairie communities host hundreds of species of grasses and flowers, which support many mammals, insects, and birds, including cranes.

Specifically adapted to survive the Midwest's extremes of temperature and moisture, prairie plants invest two-thirds of their growth underground. Roots may reach up to eighteen feet down in the soil to insure that the plant will be able to find water during times of drought. This deep root system is one reason why prairie soils were resistant to erosion before being cut by the plow. Ironically, the rich soils which prairies developed made them very attractive as farmland and pasture. In Wisconsin today, only 0.1% of the original two million acres of prairie remains.

Another factor in the decline of prairies has been the disappearance of the forces that sustain them. Fires periodically swept the landscape and removed woody vegetation. Large herbivores such as bison and elk also removed young trees by grazing and browsing. Both processes served to remove above-ground vegetation and return minerals to the soil where roots could gain access to them. Removal of fire, bison, and other large herbivores from Wisconsin allowed woody vegetation like sumac, cedar, and aspen to invade the prairies.

Oak Savanna

One tree that is able to survive the effects of fire is the bur oak. This tree has evolved a thick, corky bark, which insulates living tissue from the extreme heat of a wildfire. The resulting mosaic of open grown trees widely scattered over a landscape of grasses and flowers, called savanna, was once the dominant ecosystem in the lower half of the state, with over seven million acres present in 1840.

In this oak savanna setting, light conditions on the ground vary from open sun to complete shade. Both sun-loving prairie plants and shade-tolerant forest species will thrive in very close proximity. The result is an incredibly rich diversity of plant and animal life. Unfortunately, savannas are also extremely rare. Today, only 1,360 acres remain in Wisconsin.

Academic Standards

To assist you in planning your visit to the International Crane Foundation, we have compiled the following list of Wisconsin Model Academic Standards fulfilled by a field trip to our site and the completion of the provided student activities. An asterisk (*) next to the standard indicates that a field trip to our site aids in fulfilling the standard. All other standards require both a site visit AND completion of pre-visit and/or post-visit student activities.

To assist you in identifying the activities that satisfy your classroom needs and goals, the standards that apply to each of the 2 units are identified separately. Note that the stardards apply to the unit as a whole and do not apply to individual activities within the unit. The standards for Unit 1 are reproduced from *Nature Net's Guide to Wisconsin Model Academic Standards* (Grade 4), which is also available on Nature Net's website at www.naturenet.com.

Unit 1: Cranes and their Habitats

Environmental Education: A.4.1, A.4.2, A.4.3, $B_1$4.4*, $B_1$4.6*, $B_2$4.1*, C.4.1, C.4.3*, D.4.2*, D.4.3, D.4.4, D.4.5, E.4.1, E.4.2

English: A.4.1, A.4.2, A.4.3, A.4.4, B.4.1, B.4.3, C.4.1, C.4.2, C.4.3, D.4.1, D.4.2, E.4.1, F.4.1

Mathematics: A.4.1, A.4.2, A.4.3, A.4.4, A.4.5, B.4.1, B.4.3, B.4.4, B.4.5, C.4.4, D.4.1, D.4.3, D.4.4, E.4.1, E.4.2, E.4.3, E.4.4, E.4.5, F.4.3, F.4.4, F.4.5, F.4.6

Science: A.4.2, A.4.5, B.4.1, B.4.2, B.4.3, C.4.1, C.4.8, E.4.1, E.4.2, E.4.3, E.4.6, E.4.8, F.4.1*, F.4.2, F.4.3, G.4.1

Social Studies: A.4.2, A.4.4, A.4.6., A.4.8

Unit 2: Cranes and People

Environmental Education: A.8.1*, A.8.4, A.8.5, B_1.8.5*, B_1.8.9, B_1.8.10, B_2.8.1, B_2.8.4*

English: A.8.1, A.8.2, A.8.3, A.8.4, B.8.1, B.8.3, C.8.1, C.8.2, C.8.3, D.8.1, D8.2., E.8.1, F.8.1

Mathematics: A.8.1, A.8.2, A.8.4

Science: B.8.1, B.8.2, B.8.4, B.8.6, E.8.6, F.8.8, F.8.10*, G.8.3

Social Studies: A.8.8, A.8.9, B.8.1, B.8.10, E.8.3, E.8.9, E.8.10, E.8.13, E.8.14

Activity Answers

Unit 1: Cranes and their Habitats

Crane Nuggets

Sandhill cranes paint themselves in the spring to provide camouflage during the nesting season. The brown coloration is caused by iron oxide in the soil that the cranes preen into their feathers.

During the nesting season, the cranes are more vulnerable as they incubate and care for their chicks. The brown coloration of their feathers helps the cranes to blend in with the surrounding brown vegetation of early spring, providing increased protection from predators for both the adults and chicks. After the breeding season, the cranes molt, loosing the stained feathers that are replaced by natural gray feathers.

Where in the World?

Seven of the 15 species are currently considered endangered. Four of the six endangered crane species are found in Asia. The only two continents were cranes are not found are South America and Antartica.

Chick Chat...and Growing Up

Many common songbirds, such as the robin, nest in trees where their chicks are protected from the weather and predators. Cranes, however, nest on the ground, and the chicks must be able to follow their parents to find food and flee from predators within a few hours of hatching.

Crane chicks grow quickly so they will be able to migrate with their parents and other adult cranes in the fall. Most crane chicks hatch in the spring to early summer. The chicks have only five to seven months to reach their full size and gain the strength that enables them to successfully complete their migration.

Sandhill Crane Migration

Cranes usually resist flying over large bodies of water because they don't offer resting places if they get tired or if bad weather strikes.

Some visual landmarks that sandhill cranes may use to navigate during their migration include Lake Winnebago in Wisconsin, Chicago, Lake Michigan, the Ohio River, the Appalachian Mountains, Okefenokee Swamp along the border of Georgia and Florida, and Lake Okeechobee in Florida.

Amazing Adaptations

The drawings are arranged in the following order:

Bills: spearing, seed-crushing, scooping, tearing
Feet: grasping, perching, swimming, wading, climbing

Cranes have feet for wading and bills for spearing. These adaptations make it easier for cranes to walk through a wetland and find food. People have adaptations like an opposable thumb, a large brain, and the ability to walk upright.

Cranes and Wetlands

Cranes use wetlands as a place to rest during migration, raise their young, find protection from predators, find their food, and build a nest.

The unscrambled names of the wetland plants and animals are: 1. snail, 2. raccoon, 3. crane, 4. snake, 5. cattail, 6. frog, 7. duck, 8. turtle, 9. dragonfly, and 10. rabbit

Wet & Wild!

Animals and plants in the picture that may be eaten by a crane include: snakes, turtles, snails, frogs, arrowhead plants, water lilies, mice, young rabbits, dragonflys and other insects, cattails, fish, and spiders.

Other animals in the wetland include raccoons, deer, owls, ducks, red-winged black birds, and woodpeckers. Like cranes, all of these animals depend upon foods that are found in wetlands.

Classroom Wetland Experiment

Like a man-made ditch, the brick in the experiment increases the speed at which the water flows
from one end of the pan to the other. As the water is poured on one end of the brick, it quickly carries the soil to the other end, polluting the water that is poured into the pan.

In contrast, the sponge slowly absorbs the water as it is poured, leaving less water in the pan than the experiment using the brick. The water that does filter out of the sponge is cleaner than the water poured over the brick. Like a wetland, the sponge acts as a filter to remove the soil from the water and helps to store excess water.

Mix & Match

The correct answers for the vocabulary words are: c, f, g, k, b, m, i, j, a, o, h, n, e, l, d.

Well, What Do You Think?

The discussion questions have no simple answers, but should stimulate thinking about the ways in which people interact with the natural evironment and the value that we as individuals place on natural resources. You may lead the discussion with the whole class, or break students into small groups. After each group decides on their answers, have representatives share their results with the class.

Unit 2: Cranes and People

Many of the activities within this section are exploratory in nature and allow for a variety of interpretations. We have included the following suggestions for selected activities to help guide class discussion and examination of the activity themes.

North America: People and the Natural Environment

Using the account of the history of whooping cranes near the Red Earth Indian Reserve in Saskatchewan, this activity examines how people learn about the natural environment through personal experience and observation, as well as the impact of humans on the natural landscape.

The account describes a historically close relationship between the Cree and the natural environment. This relationship is a result of direct observations and experience due, in part, to the Cree's traditional dependence upon their local natural resources for survival. Following are selected excerpts from the account that students may use in illustrating this relationship between the Cree and the environment.

• **Observation of crane habitat**: "they [whooping cranes] were walking in the water on the edge of the marsh;" "saw white cranes out on the prairies"

• **Observation of crane nesting behavior**: the nest was "just a few sticks on the ground in the swamp" with three eggs

• **Cree use of natural resources**: "My grandfather, Okimawipimotew, tried to kill them [whooping cranes]...He got very close but they flew before he shot;" "I was with a hunting party that was after moose on Kennedy Creek;" "he found three eggs in the nest and he took them to be eaten"

The account contains several possible clues as to why the whooping crane is no longer found in the region today. Students may cite hunting or egg collection as the most obvious possible cause. However, the account also refers to more subtle historical changes in the landscape that may have directly affected the whooping crane's habitat. For example, the following excerpts describe changes in the human landscape with the arrival of European settlers, and the resulting changes in the natural landscape as local land use practices changed in the region.

• "Miikwanaakeskam said he saw lots of white cranes **out on the prairies before the white man came**."

• "My grandfather saw whooping cranes here a long time ago in the spring. They were walking in the water on the edge of the marsh. **That was before the willows grew up there**."

Two factors that may have contributed to the growth of the willows in the marsh are fire suppression and soil erosion. Prairie fires set by lighting and Native Americans historically limited the growth of woody trees like willows, which may use up the water that feeds a wetland. With the arrival of European settlers in the Red Earth area, fire suppression may have resulted in the establishment of willows in the wetland. The second factor, soil erosion, may have resulted from changes in land use around the area, such as agriculture or cattle grazing introduced by the new settlers. Increased soil erosion into the wetland would encourage the establishment of larger shrubs and trees, such as willows. With the change in vegetation in the marsh, suitable habitat for the whooping cranes was reduced.

North America cont.

• "In the 1930s there was a big forest **fire**, which burned through the whole territory to the north of Red Earth. It came from the west, from the **farming settlement**, and it burned across Kennedy Creek and as far east as the Sipanok Channel. **After the fire we didn't see the whooping cranes anymore**."

Fire suppression also leads to the accumulation of high fuel loads that, when a fire does start, can burn much hotter than normal. The resulting fire could destroy both crane nests and habitat, such as the vegetation near Kennedy Creek, that might otherwise recover from a fire.

Asia: Cranes as Symbols

This activity examines the characteristics and values that people identify with abstract symbols. People often choose birds as symbols because they represent certain characteristics, such as strength, intelligence, or beauty that we feel are important or valuable. For example, the bald eagle is equated with strength and courage, and, as the symbol of our country, it imparts these characteristics to the people of the United States as the symbol of our country.

Australia: Crane Dance

People may incorporate the crane dance into their cultures for a variety of reasons. They may admire the beautiful movements of the crane and naturally copy these motions in their dances. People may also copy crane dances because the birds have a special meaning to them, or they believe that by dancing like the crane they take on the spirit of the bird to perform special traditions or prepare for important events.

Africa: Arap Sang and the Cranes

The moral of "Arap Sang and the Cranes" is to think carefully before bestowing a gift upon a person. As Arap Sang laments at the end of the story,

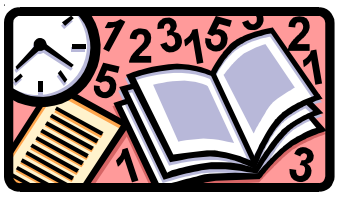
"I'm old and I'm foolish," he said, "and I harm my friends. I had forgotten that men also were greedy and selfish and that they'll do anything for gold. Let me undo the wrong I have done by **giving without thought**."

Europe: A Snow Wreath?

To the soldier in the poem "Cranes," the birds symbolize fellow soldiers lost in battle. This belief may stem from the meaning that the cranes hold for the soldier as both a pure and somewhat otherwordly creature. For example, the poem contrasts the white plumage of the Siberian crane with the soldiers who died in "bloody fight" - a gruesome death that is made pure by the symbolism of the white bird. The crane is also both a part of the soldier's world (the soldiers often see the cranes), as well as distant (the cranes are described flying in the sky far overhead). This contrasting view of the crane may reflect the feelings that he has for his fallen fellow soldiers, who are both close in his memories and very much removed in death.

After the Field Trip...

We recommend spending an hour or two of class time on follow-up activities after your field trip to ICF. You may wish to keep this exercise as simple as an informal discussion about what your students liked best about the trip, or you may choose to do one of the suggested projects listed below.



PROJECTS, PROJECTS, AND MORE PROJECTS

• Ask your students to make a poster or design a mural that encourages people to learn more about endangered species, demonstrates why people should protect wetlands, or focuses on one of the crane species your group saw at ICF. Hang the finished projects in a hallway or display case in your school.

• Locate a wetland near your school (even if it's just a wet place along the road) and design a class project to study it for several weeks. Divide the class into several groups and assign a specific task to each group:

- design a map of the wetland
- measure the water depth in several different locations
- draw pictures of animal tracks found near the wetland
- draw pictures of different plants found in the wetland
- collect water samples in jars and draw pictures of animals and plants found in the water

Make these measurements once a week during the course of the study. As the study progesses, add the locations of the water measurements, plants, animal tracks, and water samples to the wetland map. How does the wetland change during your study?

• Adopt a crane! By making a donation to ICF, your class can help support our captive breeding, reintroduction, habitat protection, and education projects around the world. Raise money for the adoption by collecting aluminum cans, organizing a rummage sale, or sponsoring a bake sale or raffle. To adopt a crane, contact the Visitor Programs Coordinator at ICF.

• Plant a prairie garden. This is something you can do in your own backyard or school grounds to protect rare plants and learn more about native prairies. A good reference on how to start your own prairie is *The Prairie Garden: 70 plants you can grow in town or country* (1980) by J. Robert Smith and Beatrice S. Smith, University of Wisconsin Press.

• Cranes depend on water and people do too! The water you use each day affects the health of wetlands, cranes, and other wildlife. Water in an area usually flows toward a river, like the Mississippi or the St. Lawrence Rivers. The area which contributes water to the river is called its watershed. Identify the watershed where your school is located. Next, make signs which read "The Other End of the _____ River" and post them above the faucets in your school and home. This will help classmates and family remember how their choices affect other areas.

• Let local, state, and national officials know that you care about the environment! Write to your government representatives, including your mayor, governor, and even the President to express your views and concerns about the environment. Your school or public library can help you find the appropriate addresses.

Read On!

The more you know, the more you can help! To keep learning about wildlife and the environment, find the following books at your school or public library.

Environmental Action

Blashfield, Jean. *Recycling.*
The Earth Works Group. *50 Simple Things Kids Can Do to Save the Earth.*
Environmental Action Coalition. *It's Your Environment.*
Getis, Judith. *You Can Make a Difference.*
Love, Ann and Ann Drake. *Take Action: An environmental book for kids.*
Miles, Betty. *Save the Environment: An ecology handbook for kids.*
Newkirk, Ingrid. *Save the Animals!: 101 easy things you can do.*
Simons, Robin. *Recyclopedia.*

Field Guides

Douglas, Jackie L. *Peterson First Guides.* Field guide series appropriate for young naturalists. Titles include *Birds of North America*, *Insects of North America*, and *Reptiles and Amphibians.*

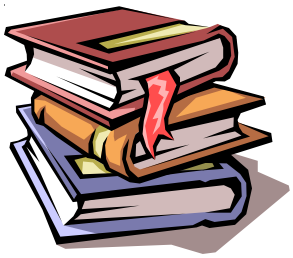
Kress, Stephen. *The Audubon Society Guide to Attracting Birds.*

Nature/Ecology

Callen, Larry. *Sorrow's Song.*
Mitchel, John and The Massachusetts Audubon Society. *The Curious Naturalist.*
National Wildlife Federation. *Ranger Rick's Wonder Book.*
North, Sterling. *Rascal.*
Dr. Seuss. *The Lorax.*
Silverstein, Shel. *The Giving Tree.*
Wong, Ovid. *Hands-On Ecology.*

You may also contact the following organizations for additional information:

Environmental Defense Fund, 257 Park Avenue South, New York, NY 10010, www.edf.org
Greenpeace, 702 H Street NW, Washington, DC 20001, www.greenpeaceusa.org
National Audubon Society, 700 Broadway, New York, NY 10003, www.audubon.org
National Wildlife Federation (NWF), 8925 Leesburg Pike, Vienna, VA 22184, www.nwf.org
Ranger Rick's Nature Club, As a member of the club, your class will receive *Ranger Rick*, a monthly nature magazine for children ages 7-12 published by the NWF. For more information, contact the NWF or visit Ranger Rick's website at www.nwr.org/rrick.
The Natural Resources Defense Council, 40 West 20th Street, New York, NY 10011, www.nrdc.org
The Nature Conservancy, 4245 N. Fairfax Drive, Suite 100, Arlington, VA 22203, www.tnc.org
The Rainforest Action Network, 221 Pine St, Suite 500, San Francisco, CA 94104, www.ran.org



Cranes in Folklore & Fiction

An Annotated Bibliography for Teachers

ASIA

Bodkin, Odds. *The Crane Wife*. Harcourt Brace. 1998. A poor sail-maker finds happiness with a lovely wife who mysteriously appears at his door after he helps a wounded red-crowned crane. (Grade 1-5)

Chen, Kerstin. *Lord of the Cranes: A Chinese Tale.* North South Books. 2000. In this traditional Chinese story, the Lord of the Cranes is aided by a poor innkeeper, who is later rewarded for his kindness by the Lord. (Grade 1-5)

Ching, Emily and Ko-Shee Ching. "The Crane-Riding Immortal." In *Chinese Children's Stories.* Series No. 47. 1991. This story recounts one of the many tales of Lye Dungbin, one of the eight immortals of Chinese legend. Lye Dungbin's birth is associated with the appearance of a crane, whose image he uses as an adult to reward a virtuous tavern owner. This story is one of two legends involving Lye Dungbin in the bilingual volume that is written in both Chinese and English. (Grade 3-5)

"The Cruel Crane Outwitted." In *Indian Folk and Fairy Tales.* Edited by Joseph Jacobs. G.P. Putnam's Sons, New York. 1968. In this Indian story, a Siberian crane develops a plan to trick several fish in a small pond so that he may eat them. Unfortunately, the crane is outwitted in the end when he attempts to trick a crafty crab into becoming his meal. (Grade 3-5)

"The Lion and the Crane." In *Indian Folk and Fairy Tales.* Edited by Joseph Jacobs. G.P. Putnam's Sons, New York. 1968. This Hindu story describes an encounter between a Siberian crane and a lion in India. The crane frees a bone that has become stuck in the lion's mouth and learns to be wary of the "King of the Beasts" after the experience. (Grade 3-5)

Matsutani, Miyoko. *The Crane Maiden*. Parents' Magazine Press, New York. 1968. The story is also retold in *The Crane's Gift: A Japanese Folktale*, by Steve and Megumi Biddle. Shambhala/Banefort Books. 1994. After rescuing a red-crowned crane from a trap in the mountains of northern Japan, an old man and his wife are visited by a beautiful and mysterious young woman, who lives with them until they discover her true identity. (Grade 1-5)

AFRICA

Harman, Humphrey. "Arap Sang and the Cranes." In *Tales Told Near a Crocodile*. The Viking Press, Inc., New York. 1967. The great chief Arap Sang rewards a flock of crowned cranes for helping him cross the hot African plain near Lake Victoria by granting the cranes golden crowns. Unfortunately, the cranes are pursued for their precious crowns, and Arap Sang must rethink the meaning of his gift to the cranes. This story is also available in the Junior Great Books Curriculum, Series 2, published by The Great Books Foundation. 1992. (Grade 3-8)

AUSTRALIA

Leach, Maria. "How Crane Got His Long Beak." In *How the People Sang the Mountains Up*. Viking Press, New York. 1967. An Aboriginal story from the Gumaitj Tribe describes how Emu's spear became Crane's long beak. (Grade 1-5)

Meeks, Arone Raymond. *Enora and the Black Crane: An Aboriginal Story*. Scholastic Inc., New York. 1991. Enora, a young Aboriginal child, discovers a rainbow of colors in the rainforest and is transformed after he kills a crane while trying to learn the meaning of his discovery. (Grade 1-5)

Roberts, Ainslie. "Brolga, the Dancing Girl." In *The Dawn of Time: Australian Aboriginal Myths in Paintings*. Rigby Limited, Adelaide, Australia. 1969. This Aboriginal story describes the transformation of a young girl who loved to dance into a crane by an evil magician who was spurned by the girl and her Tribe. (Grade 3-12)

EUROPE

"The Fox and the Crane," "The Peacock and the Crane," and "The Wolf and the Crane" are from the popular collection of stories known as *Aesop's Fables*. The collection is traditionally attributed to Aesop, a man who is believed to have been a Greek slave. Through the interaction of the main characters -- birds and animals who talk and behave like humans -- the stories teach important morals and values. The three stories that feature a crane depict the tall bird as clever, kind, and noble in his encounters with other animals. Aesop's Fables have been translated into many different languages and have been retold for centuries. The stories are available in a variety of edited volumes and can also be found in online collections. A recommended online collection of over 600 fables may be found at www.aesopfables.com/. "The Fox and the Crane" and "The Wolf and the Crane" can also be found in *Aesop's Fables Coloring Book* published by Dover Publications Inc. (Grade 1-12)

EDITED COLLECTIONS

Hayward Scott, Dorothea. *A Flight of Cranes: Stories and Poems from Around the World*. The Denvil Press. 1990. This excellent collection of stories and poems about cranes underscores the influence of cranes on cultures from throughout the world. Included in the collection are the stories "Arap Sang and the Cranes" and " Brolga, the Dancing Girl." (Grade 3-12)

NORTH AMERICA

Belting, Natalia. "Why Crane's Feathers Are Brown and Otter Doesn't Feel the Cold." In *The Long-Tailed Bear and Other Indian Legends.* The Bobbs-Merrill Company, Inc., Indianapolis. 1961. An Assiniboin story tells why the sandhill crane has brown feathers and a dark bill. (Grade 3-8)

Bruchac, Joseph. *The Great Ball Game: A Muskogee Story.* Dial Books for Young Readers, New York. 1994. This traditional story from the Muskogee, or Creek, Indian Nation recounts the story of a ball game between the birds, who are lead by Crane, and the animals to settle a dispute between the two groups. The conclusion of the story also explains why birds migrate south in the winter. (K-Grade 3)

"The Frogs and the Crane." In *Wigwam Evenings: Sioux Folk Tales.* Retold by Charles and Elaine Goodale Eastman. University of Nebraska Press. 1990. Several frogs learn a valuable lesson about pride after they are frightened by a hungry crane in this Sioux story. (Grade 3-8)

Mooney, James. "The Race Between the Crane and the Hummingbird." In *History, Myths, and Sacred Formulas of the Cherokees.* Historical Images, Asheville, North Carolina. 1992. Crane challenges Hummingbird to a race around the world to win the affections of a beautiful woman in this Cherokee story. Unfortunately, both suitors loose in the end when the young woman decides to remain single after she learns who won the race. (Grade 3-12)

Wood, Douglas. *Rabbit and the Moon.* Simon & Schuster. 1998. A Cree story tells how the whooping crane was rewarded with a red patch on the top of its head after carrying Rabbit to the moon. This story is also retold in Belting, Natalia. "How Crane Got His Long Legs." In *The Long-Tailed Bear* and *Other Indian Legends.* The Bobbs-Merrill Company, Inc., Indianapolis. 1961. (K-Grade 2)

FICTION

Bang, Molly Garrett. *The Paper Crane.* Greenwillow. 1985. A mysterious man pays for his meal with a paper crane and brings prosperity to the restaurant. (K-Grade 2)*

Byars, Betsy. *The House of Wings.* Viking Press, New York. 1993. In this perceptive novel, a young boy left with his grandfather learns to deal with the physical needs of a bird and gains a trusting relationship with both the whooping crane and his grandparent. (Grade 3-5)*

Coerr, Eleanor. *Sadako.* Putnam. 1993. Backed by Ed Young's soft, gentle illustrations, Coerr retells the story of Sadako and her battle against leukemia. (Grade 3-5)*

----------. *Sadako and the Thousand Paper Cranes.* Putnam. 1999. Coerr's classic story combines with Ronald Himler's soft artwork to tell of Sadako's determination to fold a thousand paper cranes as she struggles with leukemia. (Grade 3-8)*

Hamanaka, Sheila. *Peace Crane.* Morrow. 1995. After learning about Sadako and the Peace Crane statue, a young African American girl wishes a crane would carry her away from the violence of her own world. (Grade 1-5)*

Keller, Holly. *Grandfather's Dream*. Greenwillow Books, New York. 1994. After the Vietnam War, Nam shares his grandfather's dream of bringing back the sarus crane to his village and learns the importance of making the land safe for their return. (K-Grade 3)*

Laurin, Anne. *Perfect Crane*. Harper Collins. 1981. A lonely Japanese magician gains friends through the paper crane that he brings to life, and through kindness, is rewarded by the loyalty of the crane. (K-Grade 3)*

LeBox, Annette. *The Princess Who Danced with Cranes*. Second Story Press, Toronto, Canada. 1997. Princess Vivian learns the value of the beautiful marsh near her home after it is drained and the whooping cranes that formerly visited the area no longer return. (Grade 1-5)

Martenova, Charles and Veronika. *The Crane Girl*. Orchard. 1993. Yoshiko goes to live among the cranes, whose magic transforms her into one of their young until she is ready to return to her family. (Grade 2-4)*

Owens, Mary Beth. *Counting Cranes*. 1992. A poetic counting book that introduces readers to the whooping crane as the endangered bird's numbers grow from 1 to 15. (K-Grade 2)

Say, Allen. *Tree of Cranes*. Houghton. 1991. A story of a Japanese mother who melds her early life in America with Japanese tradition as she shows her young son the meaning of an American Christmas. (K-Grade 2)*

Schrack, Ward. *Shimingo: The Rites of Passage*. Morris Press, Kearney, Nebraska. 1993. Set in central Nebraska in the mid-1980s, this story relates the experiences of a Pawnee boy as he cares for an injured sandhill crane and makes the difficult journey into adulthood. (Grade 3-8)

Spinelli, Eileen. *Song of the Whooping Crane.* Eudmans Books for Young Readers, Grand Rapids, Michigan. 2000. Delicate watercolor illustrations complement this poetic story of the seasonal migration of the whooping crane. (K-Grade 2)

*Citations from *Flying with the Cranes* in Booklinks March 1996 by Carolyn Wiseman. Permission to use granted from Book Links: Connecting Books, Libraries, and Classrooms, the American Library Association.

Evaluation

THANK YOU for taking the time and effort to fill out this evaluation form. This information will be used to better serve you and others in the future.

Please mail your completed evaluation to:
International Crane Foundation
Visitor Programs Coordinator
P.O. Box 447
Baraboo, WI 53913

Tour Date: **Weather Conditions:**

School: **Grade(s):**

Please indicate with a check which categories were applicable to your tour. Please indicate with a circle how useful each was, using the following scale:

1 – Excellent/Very Helpful **2- Adequate** **3–Poor/Not Helpful**

Use the space provided or an extra sheet of paper for additional comments regarding any of the activities.

Preparation Activities: Activity Packet

____Teacher Instructions	**1**	**2**	**3**
____Chaperone Instructions	**1**	**2**	**3**
____Student response to the activity packet	**1**	**2**	**3**
____How did the activity packet fit into your lesson plans?	**1**	**2**	**3**
____How useful was the activity packet and field trip in assisting you in satisfying the Wisconsin Model Academic Standards in your classroom?	**1**	**2**	**3**

How much time did you spend on preparation activities? _____

Evaluation of Activities:

____How useful were the activities? **1** **2** **3**

____Was the organization of the activities useful? **1** **2** **3**

How could our activities be improved?

Field Trip:

____Tour format **1** **2** **3**

____Duration of tour **1** **2** **3**

____Tour content **1** **2** **3**

____Student response to tour **1** **2** **3**

____Instructor response to tour **1** **2** **3**

____How likely are you to come again? **1** **2** **3**

How could the field trip be improved?

Projects:

____How useful were the additional projects? **1** **2** **3**

Which one(s) did you choose?

Additional comments:

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