



Ethology: The Study of Animal Behavior

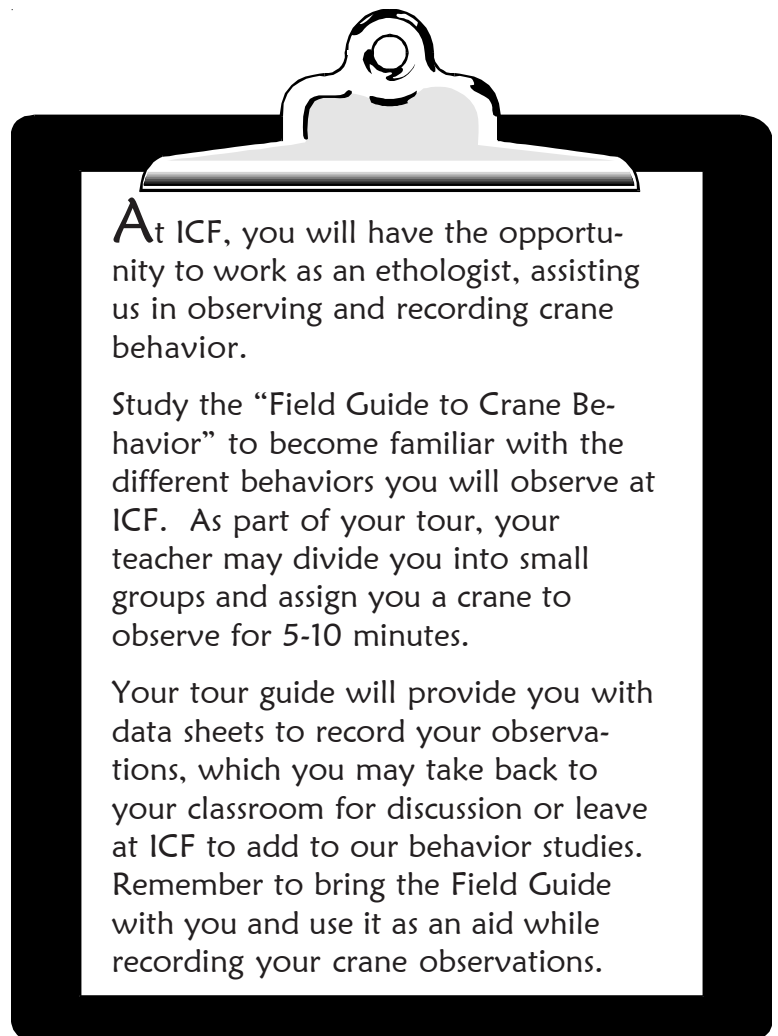
Animal behavior is a complex, but fascinating, subject. **Ethology**, the study of animal behavior, is a relatively new science in which exciting new discoveries are being made each year. As an ethologist, your first job is to observe animal behavior and precisely record it. The key to accurate recording is careful observation, aided by photographs, sketches, and extensive notes.

After recording a particular behavior, the ethologist tries to analyze the purpose or function of the behavior. Questions like “Why is this animal doing what it is doing?” are asked. Often the answer to these questions can be figured out from direct observation.

More complicated questions, however, often require more intensive, long-term study and experimentation. Examples of these questions include:

1. Is a particular behavior primarily learned or genetically controlled?
For example, is a crane chick taught a threat display by its parents, or does it innately know the behavior?
2. Can a particular species’ behavior change to meet the demands of a changing environment?
As an example, if a crane species is introduced to a new food item, such as corn in an agricultural field, will it learn to exploit this new food source?
3. Do all members of a species react in the same way to the same situations?
For example, if threatened by a predator, will a whooping crane in Florida react the same way as a whooping crane in Canada?

These questions may take years of careful observations before solid conclusions can be drawn.



At ICF, you will have the opportunity to work as an ethologist, assisting us in observing and recording crane behavior.

Study the “Field Guide to Crane Behavior” to become familiar with the different behaviors you will observe at ICF. As part of your tour, your teacher may divide you into small groups and assign you a crane to observe for 5-10 minutes.

Your tour guide will provide you with data sheets to record your observations, which you may take back to your classroom for discussion or leave at ICF to add to our behavior studies. Remember to bring the Field Guide with you and use it as an aid while recording your crane observations.



AN INTRODUCTION TO CRANES

Cranes are one of the most vulnerable families of birds in the world, with ten of the fifteen species considered threatened or endangered. The two species of cranes in North America demonstrate the range of population sizes: over half a million sandhill cranes 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 sandhill cranes 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 sandhill cranes 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.

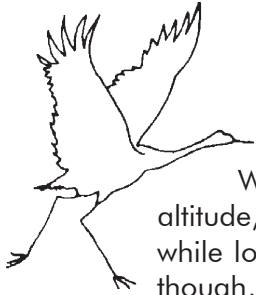
Communication with other cranes includes physical postures and vocalizations. Crouch threats, ruffle threats, drop-wing threats, and flight intention postures are some of the behaviors you may see during your visit to ICF. Most crane species use a red patch of skin on the head as a warning display. Cranes 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 sandhill cranes 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. Sandhill cranes 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.



Crane Life Cycle...

The following life cycle applies to migratory crane species, such as the sandhill crane. Circle the correct choices to complete the life cycle diagram. For answers, refer to your handouts, "Field Guide to Crane Behavior" and "An Introduction to Cranes."

1. Cranes pair: a) only during the breeding season; b) until their chick is mature; c) for life.

2. In the spring, pairs establish:
a) a staging area; b) a migration route;
c) a territory in a wetland.

3. The incubation period for a crane egg is a) 5 days; b) 30 days; c) 60 days.

4. Incubation of the eggs is done by: a) the female; b) the male; c) both parents.

5. Chicks develop quickly and leave the nest within a week. At this time, they are able to find food a) on their own; b) from their parents; c) with the help of other chicks.

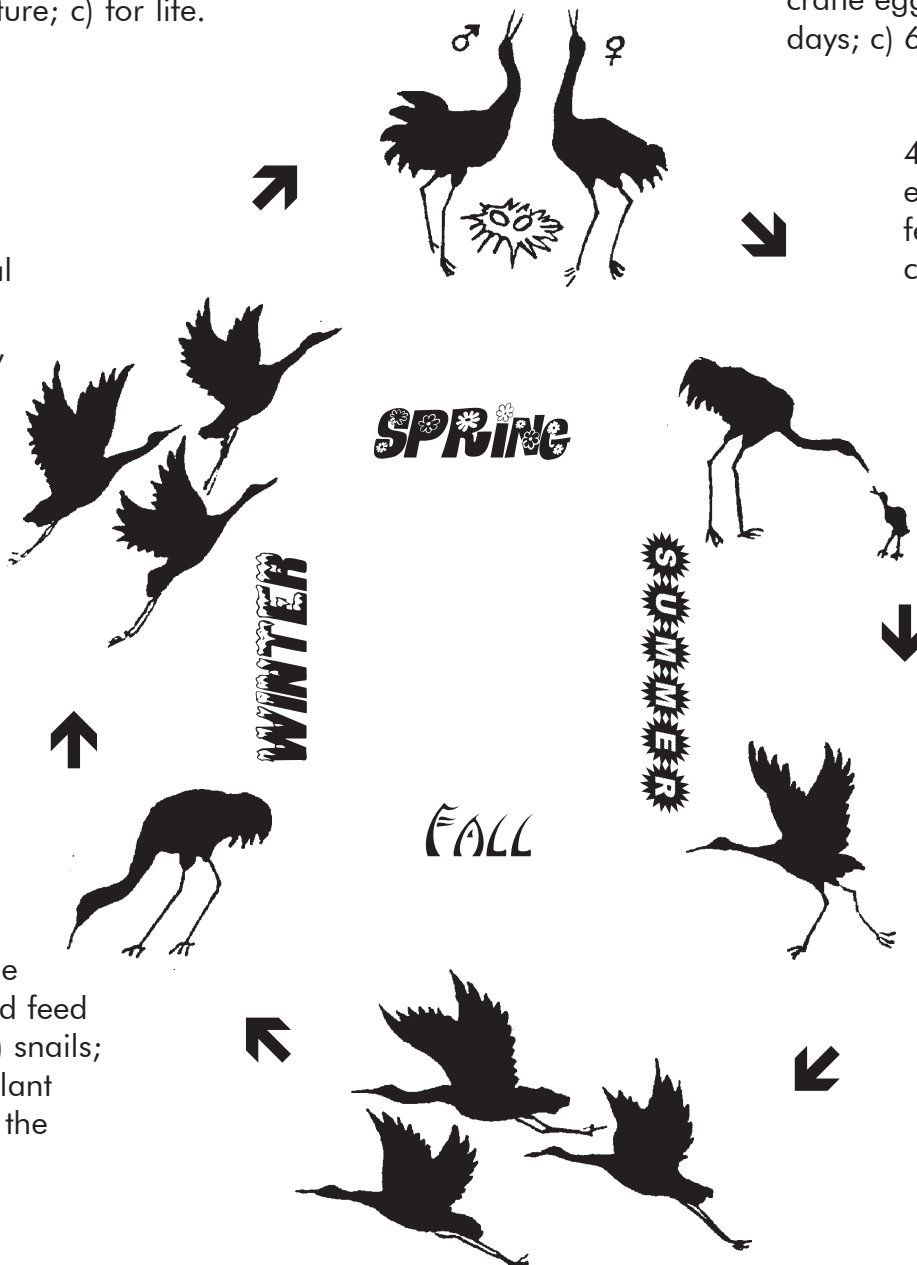
6. Shortly after the chicks hatch: a) chicks and parents become aggressive toward each other; b) the adults begin molting feathers and cannot fly; c) bachelor flocks begin invading nesting territories.

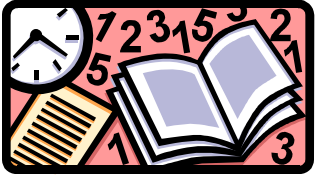
7. At 3 months of age, the chick begins to a) leave its parents; b) fly; c) breed.

10. The family migrates to their traditional nesting area. Along the way, the one-year-old chick: a) joins a bachelor flock; b) establishes its own territory; c) finds a mate.

9. All winter the cranes loaf and feed on: a) corn; b) snails; c) insects; d) plant roots; e) all of the above.

8. In the fall, the family migrates south with the flock. The chicks know the migration route from: a) following their parents; b) instinct; c) by observing the stars.





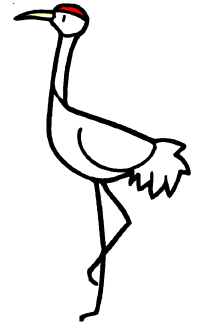
Using the Old Cranium

Use your “Field Guide to Crane Behavior” and “An Introduction to Cranes” handouts to answer the following questions:

1. Why do some sandhill cranes “paint” mud onto their feathers?
2. Define the word “brooding.” Why is it important for a newly hatched chick to be brooded?
3. What method of flight do cranes **prefer** to use for most of their migration? Why?
4. In what situation would cranes use a distraction display? Why?
5. What time of year are you most likely to hear a unison call? What is its function?
6. Why are wetlands important for cranes?
7. Name three behaviors that male and female cranes perform together.
8. What forces are important in maintaining prairie and savanna ecosystems?



You be the Guide!



What do you know about cranes and endangered species conservation?

After completing this activity, you will be well on your way to becoming a crane expert! Your teacher will assign each student or group of students a crane species and related topic to research. After completing your research, each individual or group is responsible for presenting your results to the class. Don't panic! You may choose to do a formal oral presentation, or be creative - design a poster, write a mock newspaper article, or even develop a play or short story to convey your findings to your class.

Use the following questions to guide your research and presentation. Information on your related topic need not be specific to the crane species that you are studying, but may focus on the conservation or behavior issues associated with that topic.

Crane Species: _____

Related Topic: _____

1. What is the current status of this crane species in the wild? Examine both population size and trends and species distribution.
2. What distinct physical characteristics or behaviors does this crane exhibit?
3. What factors have contributed to the decline or growth of the wild population?
4. Are there conflicts between the crane species and human populations?
5. What is the connection between your crane species and the related topic?
6. What other animal or plant species are affected by your related topic?
7. What is the relevance of your related topic and the daily lives of your classmates?



??? Bewildering Behaviors ???

1. a. Cranes use elaborate threat displays to avoid direct physical contact. Why do they usually use these threat displays instead of fighting over territorial boundaries?
 - b. List four other animals that are territorial, and describe the “signal” or display they use to avoid conflict.
Example: People ---- fences, signs
 - 1.
 - 2.
 - 3.
 - 4.
2. Why do male and female cranes rotate the eggs when they change places on the nest during incubation?
3. Most ground-nesting birds, like quail, ducks, geese, and cranes, have chicks that are **precocial**. This means that upon hatching the chicks can see, have downy feathers, and strong legs so they can leave the nest. Why do you think the crane chicks are adapted to leave the nest so quickly?
4. Crane chicks also **imprint** very quickly. This means the chicks recognize the first large, moving object they see as their parent. Why is it important that precocial birds imprint very quickly? What challenges does this present to captive breeding and reintroduction?
5. Crane parents defend large wetland territories to protect their young and find food. But once the chick fledges (starts to fly) they become more mobile and are less territorial, even though the chick is still with them. Why?
6. All crane chicks are either brown or gray for about 3-4 months. How does this coloration benefit the chicks?
7. In many common species of birds (mallards, cardinals, etc.) males and females look strikingly different. In cranes, however, males and females look almost identical. What accounts for this difference between species?



ETHOLOGICAL ELABORATIONS

1. We have seen that cranes are territorial and use elaborate threat displays while defending their territory. Ethologists believe that displays have evolved from maintenance activities. Examples of maintenance activities include: eating, drinking, bathing, walking, and preening. Use your "Field Guide to Crane Behavior" to find those displays that look similar to, and may have evolved from, the maintenance activities listed below.

incubating --- crouch display (EXAMPLE)

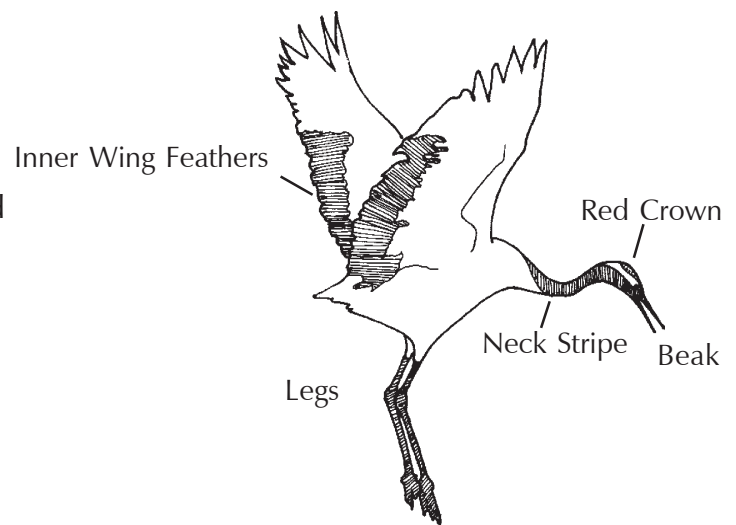
walking ---

preening ---

wing flapping ---

feather ruffling ---

Cranes have evolved different structures and coloration to make their displays more effective. Red-crowned cranes, for example, have long been admired for their beauty. But their beauty has a function. Their striking coloration and body structures are used in territorial and breeding displays. The diagram to the right of a red-crowned crane shows the structures used in display behaviors.



2. Using your Field Guide, find a display that uses each of the following structures, and describe how it is used.

Legs (example): threat walk--slow walk with legs held up and stiff.

Beak:

Neck stripe:

Inner wing feathers:

Red crown:

3. Why do cranes use their wings in many of the displays illustrated in your Field Guide?

4. The red crown on the crane's head is used as a signal in territorial displays. Why? [Hint: to answer this question think about your reaction to the color red and its use in our society]



SIBERIAN AND SARUS CRANES: Specialists vs. Generalists

Siberian cranes are rare, while Indian sarus cranes are comparatively more abundant. Ironically, the ranges of the two species overlap during the winter (one of the three remaining Siberian crane populations winters in India). Why is one species rare and the other more common?



1. While in India, Siberian cranes only feed on sedge tubers found in wetlands. Sarus cranes likewise eat aquatic plants, but in addition commonly feed on grains, such as rice and wheat, and insects and roots found in vegetable fields. Examine the range of each species in India, and speculate on the effect feeding habits might have on these differences. You will have to use both maps.
2. Siberian cranes have been hunted throughout south and central Asia for centuries and are currently hunted for meat and sport in Pakistan and Afghanistan. Sarus cranes have been strictly protected from hunting for centuries in India, because the local people believe that killing one of these birds brings bad luck. Since a crane pair usually raises only one chick each year, how would hunting affect a population of cranes? Would the fact that Siberian cranes are hunted and that sarus cranes are not hunted tend to affect their behavior around people? For example, how would the two species react to human disturbance near nesting or feeding areas? How might these potential differences affect their survival?
3. The following are characteristics common to many endangered birds. Underline those relevant to Siberian cranes. Discuss, as a class, why each of these characteristics would contribute to endangered status.
 - small range (especially islands) vs. large range
 - hunting pressure vs. protection
 - specialized habitat vs. general habitat
 - specialized nest site vs. generalized nest site
 - specialized feeding habits vs. generalized feeding habits
 - slow reproduction vs. fast reproduction



Siberian Crane Migration

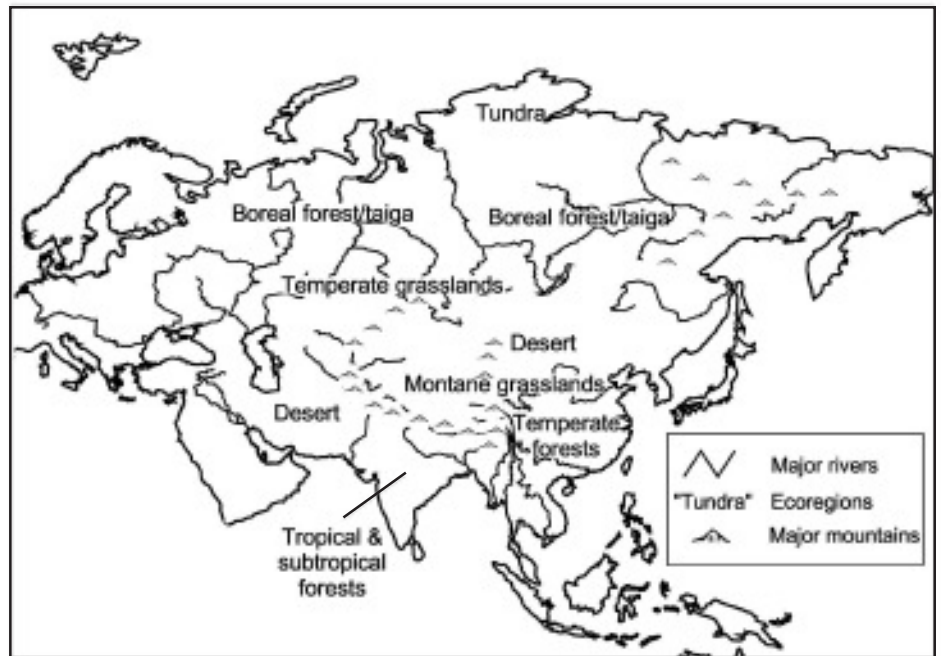
The endangered Siberian crane breeds in two distinct areas and migrates in three flocks to separate wintering areas. Use the figures provided to analyze the Siberian crane's migration routes.

Use an atlas and the maps on the following page to answer questions 1-2:

1. What countries does each flock pass through during their migration?
2. Outline in dark pen or pencil hostile political borders that Siberian cranes cross during their migration. How might these tense borders affect ICF's international conservation efforts?

Use the figure to the right to answer questions 3 and 4.

3. How many different terrestrial **ecoregions**, or large areas with distinct climates, ecological features, and plant and animal communities, does the central flock pass through during their migration? What geographic areas might they have to cross in a single flight (for example, mountains, deserts, etc.)? Would you expect their feeding habits to change during the spring breeding season, spring and fall migrations, and winter? If so, why?

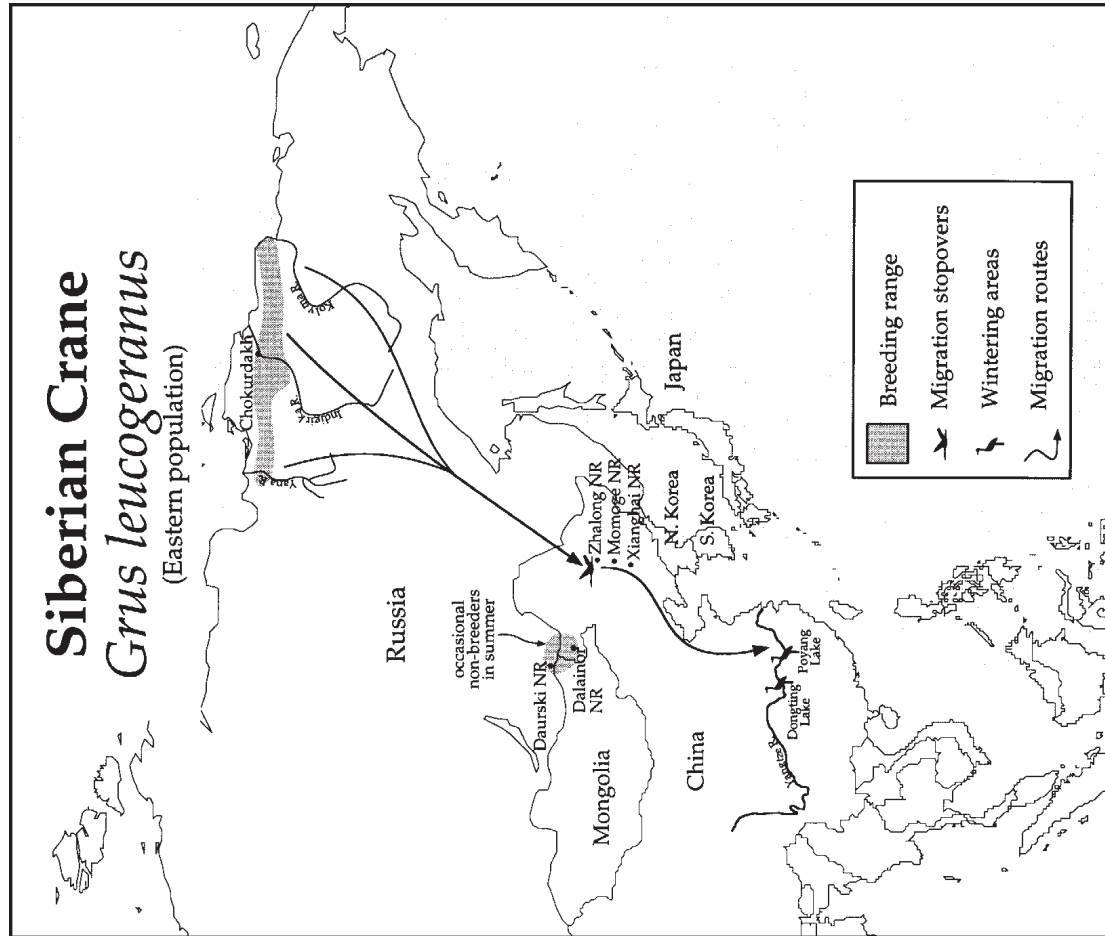


4. Cranes learn their migration route from their parents and are thought to navigate in part by geographic landmarks. Circle one landmark on the above map which Siberian cranes might use on each of the three migration routes.
5. Migration is one of the most dangerous times for cranes. The central flock migrates about 3,500 miles one way, while the western and eastern flocks each migrate about 3,100 miles one way. Drawing on your answers to the previous questions, what are some of the threats that Siberian cranes may encounter during their long and difficult migration?

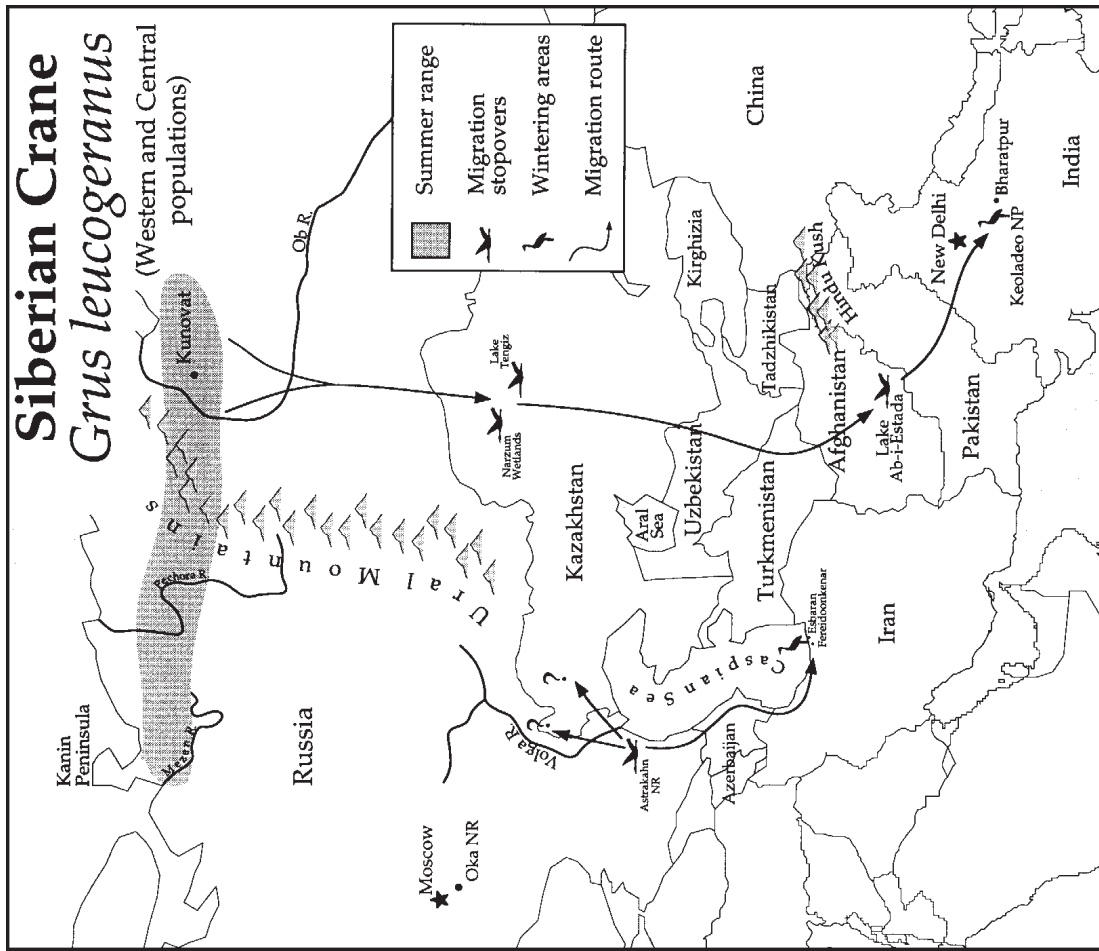


Use these maps to answer the questions in the "Siberian Crane Migration" activity.

Siberian Crane *Grus leucogeranus* (Eastern population)



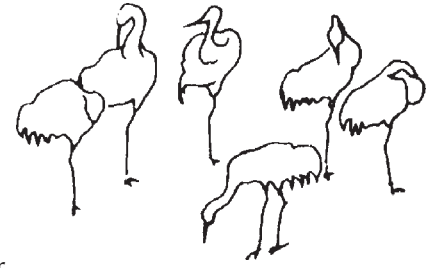
Siberian Crane *Grus leucogeranus* (Western and Central populations)



Maps courtesy of Milford Muskett.



Sandhill Cranes: Learned Behavior



The crane behaviors observed at ICF are largely “programmed,” or genetically controlled, postures and calls. These displays are used primarily for communicating with other cranes in courtship, territorial defense, or flocking. We know that cranes do not learn these displays, because a chick reared in complete isolation from other cranes will perform exactly the same behaviors. Study the following list of behaviors observed in wild sandhill cranes, and answer the questions below.

Observations:

- A. Sandhill cranes are now nesting in wetlands that were traditionally thought to be too small to support cranes. Also, for the first time ever, pairs of sandhill cranes have been found nesting in marshes where they can see other nesting pairs. Formerly, crane pairs would not tolerate other cranes within view of their territory.
- B. Groups of sandhill cranes have recently been observed feeding in cow pastures, turning over piles of manure and feeding on beetles.
- C. Families and flocks of sandhill cranes are now often seen feeding on waste grain in harvested cornfields.
- D. Flocks of unpaired birds, called “bachelor” flocks, will often walk through cornfields in the spring, picking young corn plants and eating the seed kernels.
- E. If landowners scare cranes away from their fields during the day, the cranes will feed at night.

Questions:

1. Some ethologists argue that sandhill cranes can learn, or acquire, behavior patterns. Use the information presented above to agree or disagree with this statement.

2. How have the above behavior patterns helped sandhill cranes adapt to the current land-use patterns?

3. Which of the above behaviors are “new,” and which are similar to things cranes might have been doing prior to European settlers changing the landscape?





SANDHILL CRANE TIMELINE...

The following historical sequence outlines many of the key points in the history of sandhill cranes in Wisconsin since European settlement:

- 1840: First settlement by Europeans in central Wisconsin begins. Sandhill crane population size unknown, but possibly numbering 15,000.
- 1890: Market hunters report shooting 80 cranes in one day near Portage. State crane population estimated at 10,000.
- 1915: State of Wisconsin Department of Agriculture reports that 80,000 acres of wetlands have been drained in the last decade. Crane population estimated at 400.
- 1926: State Conservation Commission makes hunting of cranes illegal.
- 1929: Aldo Leopold estimates only 25 breeding pairs of sandhill cranes remain in state.
- 1932: Economic depression deepens, many farms in former wetlands are abandoned.
- 1935: Sandhill cranes declared an endangered species in Wisconsin.
- 1943: Leopold's "Marshland Elegy" is published. Wisconsin crane flock estimated at 500.
- 1949: Sandhill cranes first observed feeding in cornfields.
- 1958: Exact crane populations unknown, but estimated at perhaps 1,000.
- 1973: International Crane Foundation established in Baraboo, Wisconsin.
- 1974: First Master's Thesis on crane biology published.
- 1976: First volunteer crane count completed.
- 1981: Volunteer crane count and graduate student research estimates crane population at 4,000.
- 1982: First wetland protection legislation passed by Wisconsin legislature.
- 1993: About 2,500 volunteers count over 11,000 sandhill cranes in Wisconsin.
- 2000: Sandhill crane population estimated at 13,000 in Wisconsin.
- 2005: Annual Midwest Crane Count turns 30. Over 2,800 volunteers count over 12,500 sandhill cranes in Wisconsin.

Analysis:

Graph the population of sandhill cranes in Wisconsin from 1840 to the present. Put dates on the horizontal axis and population on the vertical axis.

1. Where is the graph's downward slope most severe? Give two reasons for this decline.
2. During what period of time does the graph "bottom out?"
3. During what years does the graph rise? Give two reasons for the rise.
4. As a class, speculate on the future of Wisconsin's sandhill crane flock. Will the graph continue to rise if habitat continues to disappear? What if habitat remains constant? What other factors play a role in the size of the sandhill population?





That's Debatable!

In the past 200 years, the sandhill crane population has varied dramatically in Wisconsin. In the early 1800s, sandhill cranes were common residents of the prairies and wetlands of Wisconsin, with the total population estimated at 15,000. However, during the next 100 years the human and physical landscape of Wisconsin changed dramatically, and the sandhill crane population varied in response.

These changes were driven by a flood of European settlers, who were drawn to the seemingly endless land and resources that the new state offered. The settlers brought with them new land use practices and an increased demand for resources to sustain their families and growing communities. The European settlers also displaced many of the Native American populations found in Wisconsin, suppressing the fires that the Native Americans traditionally set to help maintain the prairies and converting many of the natural biological communities to farmland. In response to these changes the sandhill crane population declined through the nineteenth and early twentieth centuries, reaching an estimated low of 25 breeding pairs by the mid 1930s.

Today, the sandhill crane population is nearing the same level as the early 1800s. Seventy years after the sandhill crane almost disappeared from the state, the population is estimated at 13,000 in Wisconsin. This dramatic increase is due, in part, to the 1926 repeal of sandhill crane hunting in Wisconsin, along with increased conservation efforts to help protect the remaining wetlands in the state. In addition, in response to the loss of the native prairies, sandhill cranes have learned to exploit other resources for survival, such as agricultural fields. Sandhill cranes have learned to feed on insects and germinating corn and potatoes in agricultural fields, leading, in some cases, to significant crop damage in fields.

As the sandhill crane population has increased in Wisconsin, incidents of crop damage are increasing as well, leading to a proposal for the reestablishment of a sandhill crane hunt in the state. The hunt has been proposed to help limit the sandhill crane population, reduce potential crop damage caused by cranes, and to provide additional hunting and recreational opportunities. However, opponents of the hunt maintain that the sandhill crane population will limit itself as the birds use up the available nesting habitat in the state, and a fall hunt will not affect crop damage that mainly occurs in the spring.

What do you think? Divide the class into groups to discuss the issue in your classroom. You may choose to divide into two groups: one group supporting and one group opposing the proposed hunt, or you may adjust the format of the debate differently. Remember that it is important to back up your position with facts. However, keep in mind that this issue can be very emotional, and often people's values play an important role in this discussion.



What Happens Next?

The proposed sandhill crane hunt was placed on the agenda for the April 1999 Wisconsin Conservation Congress meeting. The Conservation Congress meetings are open to all state residents and provide a forum for citizen input on conservation issues concerning wildlife. At the meeting, the proposed hunt was supported by a vote of 2,465 to 1,165. The 1999 vote by the Wisconsin Conservation Congress supporting a limited hunt is an early step in a long process. The proposal will need to go through multiple agencies and levels of government for approval, which may take several years. In Wisconsin, the Conservation Congress decision will be taken into consideration in the final proposal review conducted by the state Natural Resources Board, the Department of Natural Resources, and the State Legislature.

Furthermore, because the Midwest sandhill crane population is migratory, the state of Wisconsin cannot authorize a hunt in isolation and must take into account the impact of a hunt on the citizens and natural resources within the flyways utilized by the birds. The Midwest sandhill crane population migrates along two flyways, crossing from the Mississippi Flyway to the Atlantic Flyway during their migration from their breeding grounds in the Upper Midwest to Florida and southern Georgia for the winter months.

As a result, the Mississippi and Atlantic Flyway Councils, which consist of representatives of the states and provinces in the flyways and the U.S. Fish & Wildlife Service, a federal government agency, must approve the hunt proposal. The first step in the Flyway Council's recommendations regarding the proposed hunt is the development of a management plan that covers the status, trends, and objectives for the Midwest sandhill crane population, and evaluates the impacts and harvest levels for a hunt. The state of Wisconsin cannot authorize a hunt without the approval of both Flyway Councils.



Take Action! If you would like to express your opinion on the proposed sandhill crane hunt, you may write and express your views to the following state representatives:

- Mr. Darrell Bazzell, Secretary, Department of Natural Resources, P. O. Box 7921, Madison, WI 53707-7921
- Mr. Trygve Solberg, Chair, Wisconsin Natural Resources Board, P. O. Box 7921, Madison, WI 53707-7921.
- Your State Senator, P. O. Box 782, Madison, WI 53707
- Your State Representative, P. O. Box 8952 (if last name is A-L) or P. O. Box 8953 (if last name is M-Z), Madison, WI 53708

Call the Legislative Hotline at 1-800-362-9472 for the names of your State Senator and Representative.



