

Activity 8: Your Field Notes Make History



Summary

Students observe and record notes in the field to examine data collection strategies.

Objectives

Students will be able to:

- Understand the scientific method
- Describe different methods of monitoring Whooping Cranes in the wild
- Record written data in the field
- Sketch their observation in the field
- Explore variation that results from data collection
- Explain how and why different people make different observations

Standards

Science C.8.2 and C.8.6

Art and Design K.8.4

Social Studies B.8.4

Materials Needed:

- “Wisconsin DNR Whooping Crane Observation Form”
- “Eastern Migratory Whooping Crane Population Distribution Map”
- Pencils
- Clipboards
- A few sheets of paper or copies of the “Data Observation Sheet”
- An area (preferably a wetland) to make observations
- Radio transmitter (in trunk)

Background:

The scientific method is the process that people use to gather information about the world around them. Data collection is an important part of this process. People ask questions, come up with hypotheses (educated guesses to their questions), collect data, analyze the data, and draw conclusions.

For upper elementary school students: “Scientific Method” at:

<http://questgarden.com/109/05/5/100914141254/>

For middle school student: “Finding the Lighthouse Diamond Thief” at:

<http://contenidos.educarex.es/mci/2004/30/WebQuest/WQhechasparaTareonomia/Cientificas/Faro/projects.edtech.sandi.net/kroc/scimethod/index.htm>

Data can be collected in a variety of ways depending on what types of questions people are asking. For example, if we were interested in discovering what types of foods captive Whooping Cranes prefer, we might select the top five foods that we think they eat, offer those to the cranes, and see which ones they prefer the most. If monitoring Whooping Cranes in the wild, we can examine their scat (poop) to see what types of foods that are ingesting. Or, we could observe them from a safe distance with binoculars and record everything that we see them eating over a specific time period. We could collect and identify the plants they are consuming. Many kinds of information can be collected to help people answer questions about Whooping Cranes and their environment.

Sometimes people ask specific questions and collect data to answer those questions. For example, we may want to know what materials Whooping Cranes use to build their nests. To answer this question, we would design a particular

method of data collection to examine nest materials. We could visit abandoned nests and collect a pint of



materials from every nest to take back to our laboratory for examination. Other times, we may ask more general questions, such as, “What types of plants and animals will we find in one wetland compared to another? What kinds of plants and soils are found in each wetland? How do we classify them? Is one a marsh? A bog? A wet meadow?” When answering these more general questions, a survey method of data collection works well. We could visit each wetland with a pencil and notebook and record information about the species of plants and animals that we observe.

Consistency is an important part of collecting data. Scientists develop specific guidelines that they use while gathering information so that the conclusions they draw from their data are not biased. That is, scientists try to gather data objectively so that their own beliefs and assumptions do not affect the way that they answer scientific questions.

Even though people try to be as objective as possible in collecting data, everyone has different perceptions of the world, and different people may notice different things. For example, if you and your friend go to the pond with a pencil and paper and are asked to record what you see, you will likely notice some different things and some of the same things. Maybe you notice the chirping of the birds and the ripples across the water caused by a light breeze. Your friend notices ants busy in an anthill and sees a robin making a nest far off in the distance. Perhaps you both notice the large clouds in the sky and a pair of ducks swimming across the pond with their ducklings. If you were busy watching the wind ripple across the surface of the pond, it’s likely that the robin your friend was observing could have flown away by the time you looked away from the water.

An important part of collecting data is writing it down. In fact, it is also helpful to consider what types of recording tools to take in the field. Ideally, one would like to have a pencil and water-resistant paper (often found in outdoor or sporting goods stores). Ballpoint pens are not effective for recording data because they freeze when it gets cold outside, and the ink runs if it gets wet.

Whooping Cranes are monitored what people all over the United States and Canada share their observations. Biologists use observation forms like the one used by the U.S. Fish and Wildlife Service (see pg. 75). Birds are also monitored by biologists and technicians employed by the partner organizations in WCEP (Whooping Crane Eastern Partnership), the Louisiana Department of Wildlife and Fisheries, and by volunteers.

All Whooping Cranes in the Eastern Migratory Population and the Louisiana Non-Migratory Population wear color-bands that identify individual birds. These bands are placed around the birds’ legs before they are released from captivity. Many Whooping Cranes in the reintroduced populations also wear radio transmitters that help biologists find them on the landscape. While the birds might find them peculiar at first and try to preen them off with their beaks, it seems they eventually get used to them. Biologists can then track the Whooping Cranes from aircraft or vehicles with large roof-mounted antennae or by using handheld antennae and receivers that will pick up the radio signal from transmitters glued to the birds’ bands. If both the bird and the tracker are on the ground, the range of signal of a radio transmitter is only about three miles. If both are in the air, however, the signal can travel of 100 miles! These radio transmitters



run on batteries that last about 1.5 years, so biologists replace the batteries whenever they capture birds for health checks. Have students examine the radio transmitter in the crane trunk.

Some birds also wear a transmitter that emits a satellite signal called a satellite monitored platform transmitter terminal, or a PPT. These transmitters have an antenna, but are very light (they weigh 30 grams, or a little over an ounce). The signal from the PPT is not emitted continuously. Instead, it only transmits on certain days. It will emit a signal for eight hours on days when it is transmitting. This signal allows birds to be tracked within 15 to 1,000 meters of their precise location.



These Whooping Cranes all wear colored bands so that they can be easily identified. The arrow indicates the radio transmitter attached to the chick's leg. Photo: USFWS



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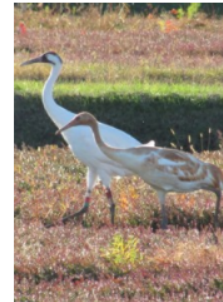
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REPORT A WHOOPING CRANE SIGHTING

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How to Identify a Whooping Crane – With the exception of black wing tips (primary feathers) and a black mustache, the body plumage is snow white. Red skin and sparse, black hair-like feathers cover the bird's crown. Eye color is golden yellow while the bill is yellowish and sometimes tipped with dull green. Visible portions of the legs and toes are black. Juveniles have entirely feathered heads. Juvenile plumage, except for primaries, is whitish and heavily mottled with cinnamon feathers that diminish as the chick ages. The primaries are dullish black. Click here to learn more about Whooping Cranes.



Still not sure which species you observed? There are several birds in North America that resemble cranes and are often mistaken for a crane at first glance (even by biologists!) If you are unsure about what species you are observing, click here for images and descriptions of some birds that are commonly mistaken for cranes.

We will share your sighting with our staff and colleagues working to protect Whooping Cranes in Louisiana, Texas and in the eastern United States through the Whooping Crane Eastern Partnership.

Whooping Crane Sighting Report

▼ Your Contact Information

Your Name*

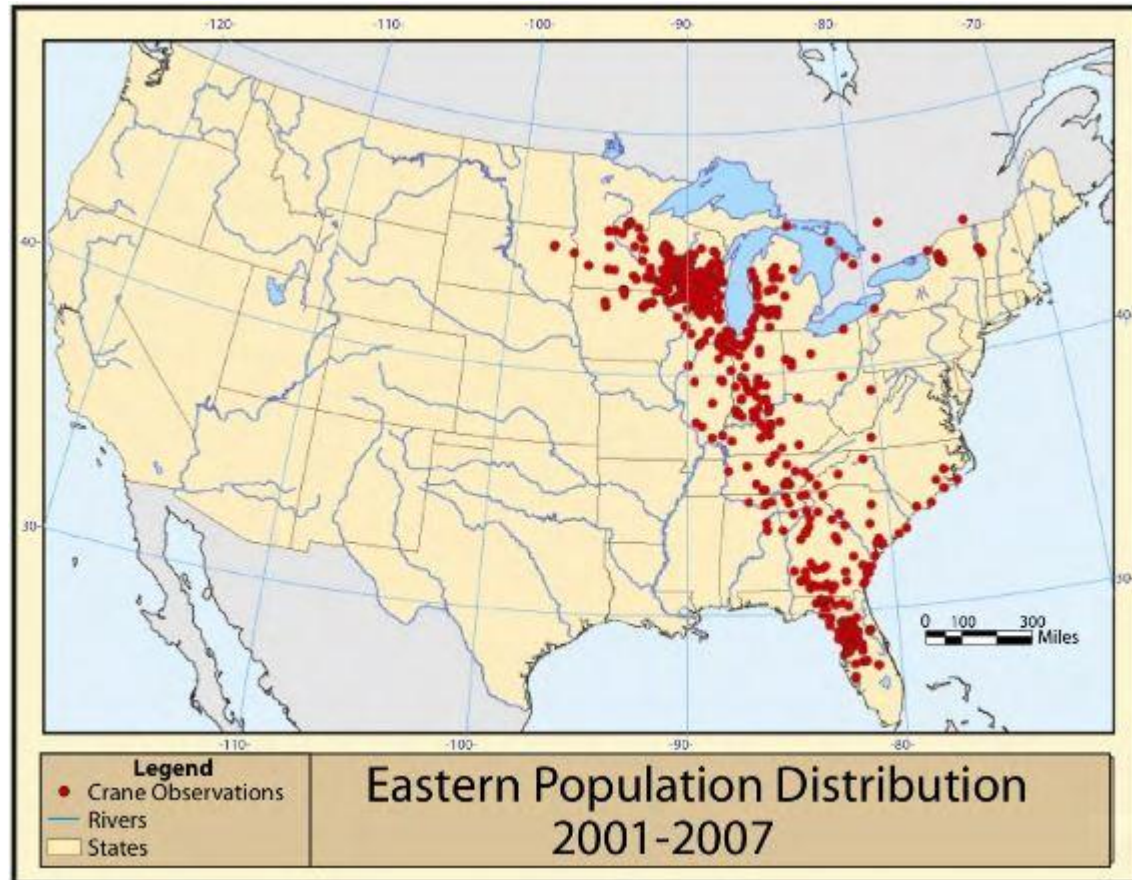
Phone Number

Email Address*

Whooping Crane observation form developed by WCEP for biologists and the public to document their observations. This form can be accessed at: <https://www.savingcranes.org/report-whooping-crane/>.



Eastern Migratory Whooping Crane Population Distribution Map



Source: Wisconsin Whooping Crane Management Plan



Procedure:

- 1) Let students examine the radio transmitter (in the trunk) that scientists attach to cranes in order to track their movements. Ask the students to think of a time when they had to get used to wearing something they were not used to. Did it always bother them, or did they get used to it? For example, have any of them had braces put on their teeth? Or a new watch?
- 2) Ask students why they think it is important to write down observations in the field instead of just trying to remember them.

No matter how great our memories are, we still forget some things, and it is nearly impossible to keep track of all the data we collect just in our minds – especially if we are trying to count something. Writing things down allows us to perform statistical analyses with our data, compare our data to the data collected in other studies, and go back to our records at a later date to review our data if necessary.

- 3) Ask students what kinds of information they think are important to record when observing wildlife. Have students list all of the types of information that they think are important to record when making observations in the field.
- 4) Show students the “U.S. Fish and Wildlife Service Whooping Crane Observation Form” (page 76). This is an online form that biologists use when they observe Whooping Cranes. It is helpful to project staff and database managers to have as much information as possible when someone sees a crane in the wild. Ask students what is included on this form that they did not include on their list. What is included on their list that is not included on this form?
- 5) Show students the “Eastern Migratory Whooping Crane Population Distribution Map” (page 77). Have students list the states that Whooping Cranes have visited. Which states have the Whooping Cranes been to that your students have also visited?
- 6) Take the students out in the field to practice data collection. A list of local field trip locations to explore wetlands with Whooping Cranes can be found in Appendix 1. Students should take a pencil, a clipboard or something to write on, and a few sheets of blank paper or copies of the “Data Collection Sheet” with them. Have students head outside to a place where they can make some observations. If students are not using the “Data Collection Sheet”, have them include the following information in their data collection:
 - a) Who are you? How can people contact you if they have questions?
 - b) What is the date? Time of observation?
 - c) Where are you? What is your general location? Specific location?
 - d) Describe the habitat you are observing.
 - e) What do you see? Include both sketches and written description.



- f) Describe the behaviors of any wildlife that you observe. What are they doing?
- g) What are the weather conditions? Hot? Cool? Sunny? Cloudy? Windy?
- h) Is there anything that you don't see that you would expect to observe?

Here are some ideas of places and things to observe:

- Go out to an area with trees, and watch for birds. Which bushes or trees are receiving the most bird visitors? Why? What other wildlife is there?
 - Visit a wetland, and record the types of plants and animals found there.
 - Visit a few different habitat types, such as a forest, wetland, and prairie, and compare and contrast what you find in the different ecosystems.
 - Pick a field, stream, or wetland near the school and record what plants and animals you find.
- 7) After completing their observations, have students work in pairs or small groups to answer the following questions:
- a) What similar observations did you make?
 - b) What did you notice that your partner did not and vice versa?
 - c) What do these similarities and differences tell us about data collection in general?
 - d) Is there anything that you recorded today that you think you would not observe a month from now? Why or why not?
 - e) What types of things would you have observed a month ago that you did not observe today?
 - f) How do the time of the year and the time of day affect what we observe?
 - g) Explain how different people's perceptions can result in different information being recorded.
 - h) When recording their observations, what can people do to keep differences in perception to a minimum?



Data Collection Sheet

Name:

Today's Date:

Time:

Location – (exact spot, i.e., on the north side of the school, approximately 20 feet SE of the oak tree. Are you on private or public property?)

Street address:

City:

State:

County:

Temperature:

Weather conditions:

Observations:



Use this section to sketch three things you thought were interesting or were surprised to see during your observation period.