

Student questions: Eagles, Eggs and Ecosystems

Directions: You will need a copy of the *Bald Eagle Migration Counts* from Hawk Mountain Sanctuary for this activity and graph paper.

1. Make a Chart: Use the graph paper and the *Migration Counts* to make a **line graph** showing the number of migrating Bald Eagles. As a class, decide on the interval of data that you will use in the chart, two, five, or seven years. Plot the information and connect the points with a line.
2. Label the chart properly with a title and axis labels.

Now, use the chart to answer Questions 1-5:

1. What year did the number of migrating Bald Eagles begin to decline? _____
2. Approximately what year did they begin to rebound? _____
3. Which year had the lowest count of migrating Bald Eagles? _____
4. Which year had the highest count of migrating Bald Eagles? _____
5. Predict: How many Bald Eagles do you think Hawk Mountain will count five years from now? _____ 10 years from now? _____

6. DDT is a chemical or pesticide that was heavily used throughout the world to control mosquitoes and other pests. What effect did DDT have on birds of prey?

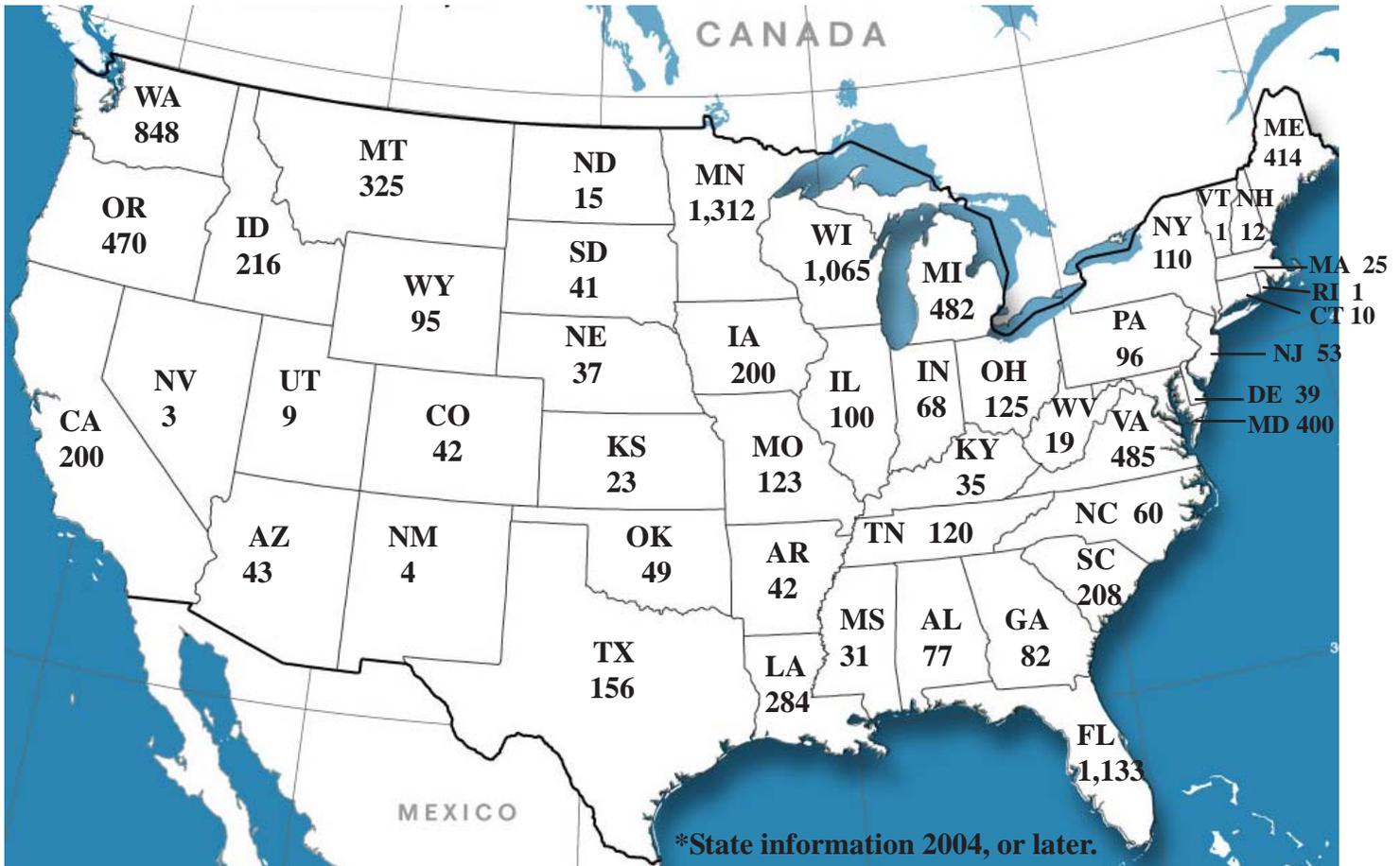
7. Before DDT was used the average thickness of a Bald Eagle eggshell was 0.40 mm, while DDT was used it was only 0.28 mm. What is the *difference* in thickness? _____

8. The following is a list of the eggshell thickness from 6 Bald Eagle eggs *during* the time DDT was used (listed in mm) 0.26, 0.33, 0.30, 0.28, 0.32 and 0.29. Place the measurements in order of *increasing* value: _____

9. The following is a list of the eggshell thickness from 6 Bald Eagle eggs 15 years *after* the use of DDT ended (listed in mm) 0.38, 0.37, 0.42, 0.40, 0.37 and 0.39. Place the measurements in order of *decreasing* value: _____

Estimated Number of Bald Eagle Breeding Pairs (by State)*

Information from the U.S. Fish and Wildlife Service



Directions:

Use the map and to answer the following questions. You will need colored pencils for this activity.

- Shade in the 5 states with the highest number of nesting pairs of Bald Eagles.
Why do you think these states might have so many? _____
- Shade in the 5 states with less than 10 pairs of Bald Eagles (use a different color). Name the 2 states with the least number of pairs. _____
- In 1963, there were only 487 pairs of Bald Eagles. How many total birds were there? _____
- Today, there are more than 9,789 pairs of Bald Eagles nesting in the lower 48 states. How many total birds are there today? _____
- Find Pennsylvania on the map and shade it in. Make a prediction about the future of the Bald Eagle population in Pennsylvania.
There are probably _____ pairs currently nesting in PA.
There will most likely be _____ pairs of Bald Eagles nesting in PA 10 years.

Make an Eagle History Timeline (from <http://www.learner.org/jnorth/tm/eagle/Population.html>)

Directions: Use the Internet and/or other reference materials to find the dates when the following events occurred and mark them on the graph below to make an Eagle History Timeline.

- Bald Eagle Act passed
- Endangered Species Act passed
- Bald Eagle officially removed from Endangered Species List
- World War I
- World War II
- DDT discovered by Swiss chemist Paul Muller
- Dr. Joseph Hickey determines how much DDT kills half a population of robins
- Dr. Joseph Hickey organizes a meeting bringing together the top scientists in the world to figure out how DDT is destroying Peregrine Falcon and Bald Eagle reproduction
- Rachel Carson's *Silent Spring* is published.
- President Richard Nixon's administration bans DDT for most use in the U.S.

Do events on the timeline seem related to eagle numbers? Why or why not? _____

Bald Eagles Observed During Christmas Bird Counts 1900-2000

