



# Wild Illinois History

[www.wildillinois.org](http://www.wildillinois.org)

## Too Many Otters?

### Concepts

Wildlife biologists use a variety of techniques to manage wildlife populations. When a population reaches its Carrying Capacity, natural forces or management techniques adjust the population to readapt to the resources.

### Objectives

Students will be able to:

- List 2 things wildlife biologists do in their work.
- Identify what areas make suitable habitat for otters.
- List management techniques that could be used to manage river otter populations.

### Next Generation Science Standards

3-LS4-3; 3-LS4-4

### Illinois Social Science Standards

SS.G.1.6-8.MdC.; SS.G.2.6-8.LC.

### Materials

Copies of River Otter Management Map

Scissors

Copies of the background information (below) and questions (below) for students

### Space

Classroom

## **Background Information for Educators and Students**

### **The Work of Wildlife Biologists**

Wildlife biologists manage populations of animals. (A population is the entire number of animals of any species that lives in a specific area.) Biologists have several methods they can use to increase, decrease or stabilize wildlife populations.

Biologists sometimes improve habitats by creating marshes and wetlands or planting trees or grasslands to provide food and shelter. They work with other scientists to clean up polluted areas to make them better places for animals to live.

To expand or create new populations, sometimes they capture animals from one location and release them into new territories.

When populations get too large or exceed the Carrying Capacity (see below) they help establish hunting and trapping seasons to control the numbers of animals and maintain a healthy population.

Wildlife biologists also help people understand and learn more about wildlife. They provide information to homeowners on how to improve their property for wildlife, and they help resolve conflicts between homeowners and wildlife.

### **What is Carrying Capacity?**

The number of animals an area can support is called the Carrying Capacity. The amount of food, clean water, space and shelter in an area determines the Carrying Capacity. When animals reach the Carrying Capacity, they have fewer young, they may die of starvation, or they may move out of the area. Sometimes Wildlife Biologists use the techniques listed above to adjust the population to match the Carrying Capacity.

### **Otter Habits and Habitats**

River otters live near lakes, ponds, rivers, and wetlands. They are excellent swimmers and find most of their food in water. Their favorite foods are fish, crayfish, mussels, frogs, insects and turtles. A river otter needs about 3 square miles of quality habitat to find enough food to survive. If they cannot find enough food, they may relocate by swimming up or down rivers to find new habitat. If they can't find good habitat they may die of starvation.

River otters normally live alone, although they are social during mating season in late winter or early spring. Groups of otters seen at other times of the year are probably mothers with their young. On average, females give birth to 2 to 4 pups. Males do not help raise the young.

### **Activity (teacher info)**

In this activity, students will take the role of wildlife biologists and try to manage the population of otters in a given area.

Divide the students into groups of 3 or 4. Have them research otters in books or on the Internet. Provide them with the background information above.

Give each group the Management Map. Have them cut out the otter squares at the bottom

of the Management Map. Then ask the students to work through the questions below and discuss their answers with them.

### **Student Activity**

You are a team of wildlife biologists preparing to release a group of 4 adult river otters into Milford State Park. There have not been river otters in your area for over 20 years. You are responsible for managing the new river otter population in a 50 square mile region (see map). To help track the otters, your map is divided into 16 squares, or quadrants. Each quadrant is about 3 square miles. As a team, answer the following questions.

1. Place 4 otter cards in the single quadrant (1-16) you think will be best location to release them. Why did you pick this quadrant for the release?
2. After release, the 4 otters move into their own territories. Which quadrants do you think they will use? Why? Move the otter cards, one in each quadrant, to where you think the otters will live.
3. After 2 years, the river otters have raised 4 new pups. Now there are 8 otters in the area. Place 4 new otter cards into the quadrants where you think they will live. Why do you think the otters will select these quadrants?
4. Do you think a river otter would survive in the City Park in quadrant 12? Why or why not?
5. The next year 2 adult otters die of old age. (Remove 2 otter cards.) The remaining otters give birth to 4 more pups. Will all the otters find enough quality space to live?
6. One young otter moves into the small lake in quadrant 11. People in the neighborhood have stocked that lake for fishing and are angry that the otter is eating the fish from the lake. Another young otter makes its den under the house in quadrant 7, and the homeowners do not want it living there. As wildlife biologist, what, if anything, can you do?
7. A factory in quadrant 14 dumps chemicals in Mustel Swamp. The pollution kills off the fish and other life in the swamp. What do you think will happen to the otters that live nearby?
8. In the following years, the otters raise fewer pups, and some are dying of starvation. Why? As wildlife biologists what things can you do to help maintain a healthy otter population in your area?

### **Extensions**

- Do research to find out which states do and do not allow trapping of otters.
- Research what otter pelts can be used for.

### **References**

Illinois Department of natural Resources,

<https://www.wildlifeillinois.org/gallery/mammals/found-near-water/river-otter/>

University of Michigan Museum of Zoology Diversity Web,

<http://animaldiversity.org/>

EEK- Environmental Education for Kids,

<https://www.eekwi.org/animals/mammals/river-otter>

**Evaluation:**

<b>Group:</b>				
	<b>Participation</b>	<b>Presentation of answers</b>	<b>Reflection/Applications</b>	<b>Score</b>
<b>4 – Excellent</b>	All group members participate in the activity and actively discuss answers to questions given.	Group presents thoughtful and complete answers to questions.	All group members provide thoughtful and new ideas when reflecting on the activity and its applications to the wildlife biology fiend.	
<b>3 – Good</b>	Most group members participate in the activity and discuss answers to questions.	Group presents their answers to all questions.	Most group members provide thoughtful ideas when reflecting and applying the information learned in the activity.	
<b>2 – Needs improvement</b>	Some group members participate in the activity and discuss answers to questions.	Some group members present answers to questions. Answers need more thought.	Some group members participate in reflection and applications of activity results.	
<b>1 – Poor</b>	Group members are not actively engaged, or many questions are unanswered.	Questions are not fully addressed, or answers lack critical thinking.	Group members do not actively participate, or the reflection/applications are not properly thought out.	
<b>0 – No attempt</b>	Group does not participate in the activity.	Group does not present answers or does not have answers.	Group does not participate in reflection/applications discussion.	
<b>Grand total ____/12</b>				

