

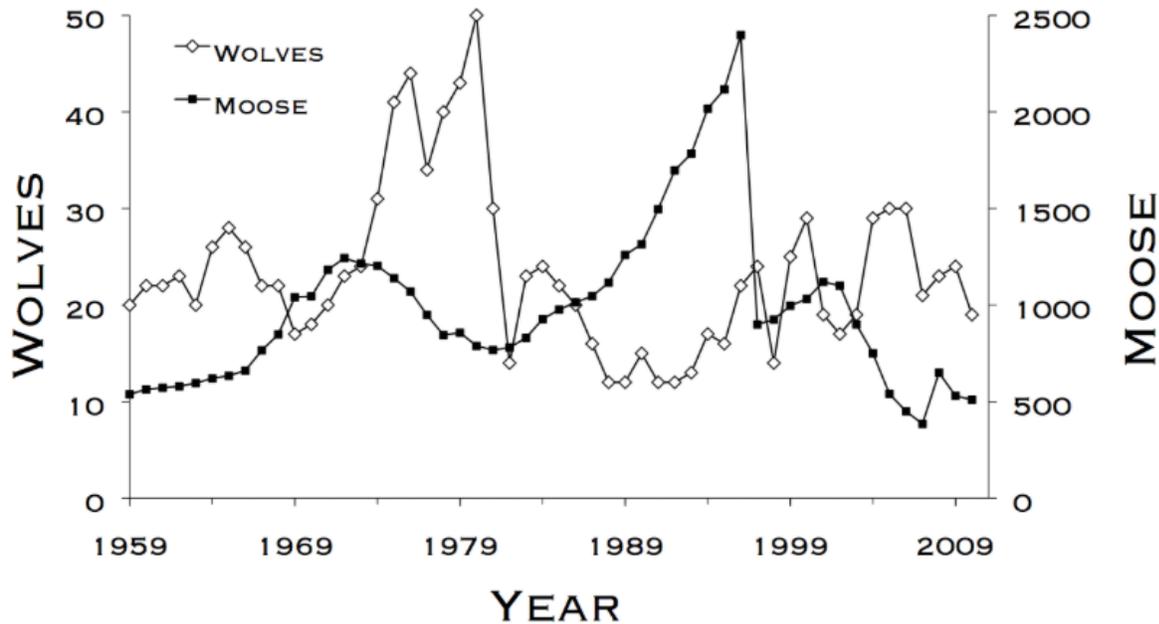
Essential Question: Who speaks for Nature?

Activity 6 – Ups & Downs <http://www.isleroyalewolf.org/>

Purpose: I can *analyze* predator/prey systems (both biotic factors) and explain how **carrying capacity** affects **population** size.

Background: For decades, wolf and moose **populations** on Isle Royale in Lake Superior have been in a precarious balance. Use the data below of the wolf & moose **populations** to answer the following questions:

Graph 1. Wolf & Moose Populations on Isle Royale



1. When the moose population increased between 1966 and 1971, what happened to the wolf population?
2. When the wolf population increased between 1969 and 1974, what happened to the moose population?
3. When moose population increased sharply between 1990 and 1996, what happened to the wolf population ?
4. Why is there a “lag time” between when one population increases and the other responds?

When man moves away from nature his heart becomes hard. Native American (Lakota) Proverb

Student Review: 1-Below Standard, 2-Approaching Standard, 3-Standard, 4-Above Standard
Use the scale to evaluate completeness & correctness of the job. Put score, Initial & date in boxes.

Score

Initial/Date

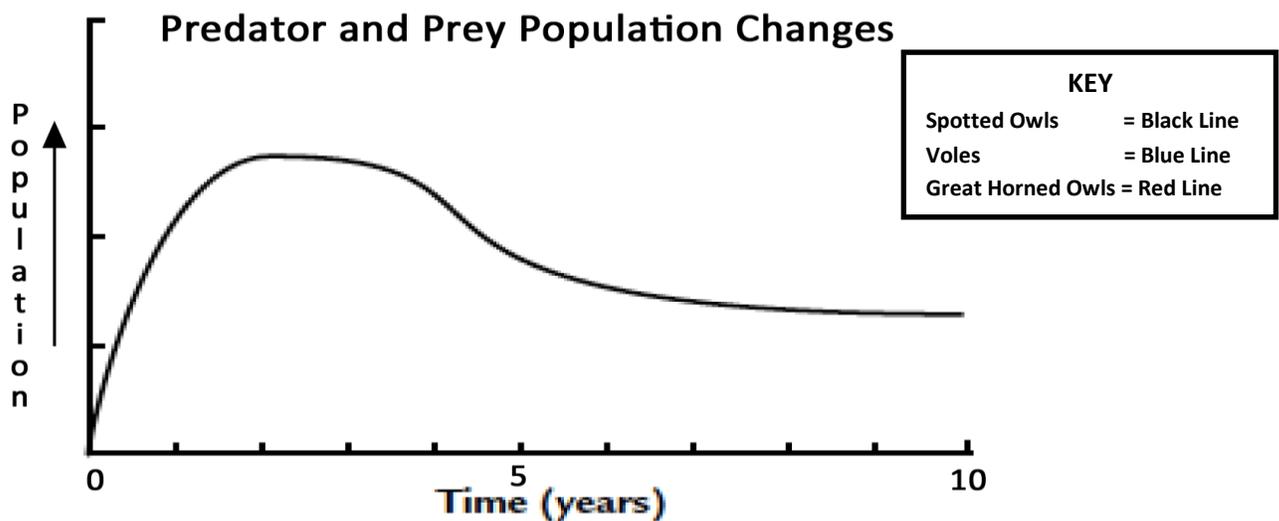
5. **Predator and Prey Population Changes over time.** The graph below shows the number of Spotted Owls in a forest ecosystem over 10 years.

a. Spotted Owl Prey Prediction: Fact: Owls eat Voles

- Considering the rise and fall of the **Spotted Owl** population shown below, **predict** what the graph of the **Vole population** will be over time as the population of the Spotted Owls changes over time. Draw a **blue line** showing your prediction of what the Vole population will be, compared to the Spotted Owl population over time.

b. Spotted Owl Predator Prediction

- Great Horned owls eat Spotted Owls. Consider this fact **and** the rise and fall of the Spotted Owl population shown in the graph below, **predict** what the graph of the Great Horned Owl's **population** will be over the same time period.
- Next draw a **red line** showing your prediction of what Great Horned Owl's population will be, compared to the Spotted Owl population over time.



Carrying Capacity: Read 'Is There Room for One More?' on pages E-70 - E-73 with your group. Answer the Stopping the think questions below.

6. Stopping to think 1A

7. Stopping to think 1B.

8. Stopping to think 2A

Student Review: 1-Below Standard, 2-Approaching Standard, 3-Standard, 4-Above Standard
Use the scale to evaluate completeness & correctness of the job. Put score, Initial & date in boxes.

Score

Initial/Date

9. Stopping to think 2B

10. Stopping to think 3A.

11. Stopping to think 3B

12. Stopping to think 3C

13. Stopping to think 3D.

14. Stopping to think 4

15. Define Carrying Capacity

Write three questions w/answers you think might show up on a test about this activity:

Level 1 – Easy Piezy

Level 2 – Challenging, but not tough!

Level 3 – Tough, but doable