Isle Royale has a unique population of wolves and moose. Since the island is distant enough from the mainland to prevent mammals from swimming to the island, the animal populations on the island are not affected by migration.

You might ask how the animals came to be on the island in the first place?

With developments in recent DNA comparison, the wolf population on Isle Royale can be traced back to one female wolf. This wolf was most likely brought over by people. DNA testing has also shown that the moose population present on Isle Royale is most similar to moose from northwestern Minnesota. These moose were most likely brought to the island by people also.

Population dynamics within an ecosystem can vary, especially within predator-prey relationships. This population relationship is typically graphed, in order to show the cyclical nature or the relationship.

As you can see the graph, a population spike of the predator closely follows a population spike of the prey. This happens because when the prey population is high it allows the predator population to grow due to the greater amount of food available. Animals need food (energy) in order to survive and reproduce. When there is not enough food available an animal will not be able to spare the energy to reproduce and the population will stay the same or decline.

ISLE ROYALE POPULATION ACTIVITY

Today you will be playing a population game that will determine the population fluctuations on Isle Royale.

Note: This activity does not actually depict the population of the moose or wolves living on Isle Royale in the past, present or future.

Materials:

Dice- If you do not have a physical die, use this website. <http://www.roll-dice-online.com/>

MS Excel

Isle Royale Population game.pptx

Directions:

1. Create a chart in Excel that has numbers 1-20 down the rows and moose and wolves in the columns.

1. The grey squares represent wolves. Orange circles represent moose.

2. Isle Royale currently has 6 moose and 2 wolves. Place 6 moose and 2 wolves on the island. For each wolf in the game, roll the die twice. If the die lands on a 4, 5 or 6, the wolf has caught a moose. If the wolf caught 0 moose, then the wolf dies. If the wolf caught 1 moose, then the wolf lives. If the wolf caught 2 moose, then the wolf reproduces and 1 additional wolf is added to the board.

3. After each round 3 moose are added to the game.

4. After each round record the number of moose and the number of wolves in the chart you created in Excel.

5. Play the game for 20 rounds. If the number of total wolves in the game reaches 0, start the next round with 1 wolf.

Hints: If you run out of squares or circle, copy and paste to make more.

6. When all 20 rounds are complete. Graph your population data to show the changes in population.

7. Answer the following questions.

What shape does your population graph look like? Does it show population cycles?

Did either animal ever go extinct? If so, what would happen to the other animals if we did not bring more of the extinct animals into the game?

Do you think we should manage population sizes? Why or why not?

8. Post data table, graph and questions to Isle Royale Population Activity.