

Moose and Wolf Scientists – Vocabulary and Background Information

Track Mystery

Observation	Something that can be clearly identified or seen
Inference	A guess based on evidence (observations and prior knowledge)

Students often find it difficult to tell the difference between making an observation and making an inference. It is important to understand that an observation is something that can be easily seen whereas an inference is a guess or idea that needs to be supported by evidence.

For example, students can make the observation that a moose has four very long legs. They could then make the inference that the moose can move fast because of the observable evidence of the leg shape. However, until the moose has been observed moving quickly the guess is still an inference, not an observation.

The class T-chart will have a variety of observations and inferences. Any inference that is based on observations is valid.

But here is what the scientist observed in the field. A large moose was walking through the forest and met up with wolf and pup. Both the moose and wolf stopped, watched each other for a few moments. Two ravens landed nearby to watch. Then the wolf (and pup) turned and walked away and moose continued on. This is how most moose and wolf encounters play out on Isle Royale.



Further exploration on observations and inferences from [Beetles Project - Making Claims and Evaluating Evidence](#)

Meet the Scientists

Ecosystem	A community of living things and their nonliving environment, interacting in a system
Prey	An animal that hunts, kills, and eats other animals

Predator	An animal that eats plants
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Where is Isle Royale?

Isle Royale is an island located in Lake Superior. It is part of an archipelago—a group of islands. The shortest distance from Isle Royale to the mainland is fourteen miles.

What is Isle Royale?

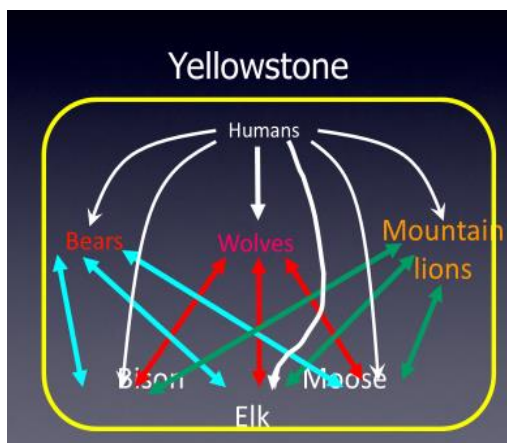
The archipelago of Isle Royale is a National Park. Everything in the park is protected. There are not very many buildings or roads. Animals cannot be hunted, and flowers cannot be picked.

It is difficult for animals, and people, to get to Isle Royale. Everyone must cross Lake Superior. People come on boats or sea planes, but animals must find their own way. No people live on the island during the winter.

Why do scientists come to study at Isle Royale?

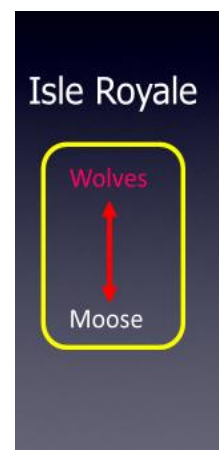
Scientists come from all over the country (and the world) to study the ecosystem of Isle Royale National Park. It is a great place to study the relationship between species because:

- 1) Isle Royale is a national park. All the species and their habitat are protected.
- 2) Isle Royale is an island. Many kinds of plants and animals that live on the surrounding mainland do not live on Isle Royale. There is only one big prey species: moose, and one big predator: wolf. The ecosystem is simple and easier to study than other places.



Studying wolves and moose at Yellowstone National Park VS at Isle Royale National Park. Which looks easier?

The longest running study in the world of a predator and its prey happens at Isle Royale. Moose and wolf populations have been monitored for over 60 years. Scientists study moose and wolves, but they also study balsam fir trees, moose ticks, beaver, climate, and other variables. Each variable



provided valuable insight into the complex ecological interactions on the island.

- 3) Everything about the island is just right. Not too close (if it was closer to shore other kinds of mammals – like deer would be there. Not too far (if it was further away moose and wolves might not have gotten there), Not too big (Small enough that you can hike and see and study every part of the island). Not too small (if much smaller would not be big enough to support packs of wolves)

Wolves arrived in the late 1940s by crossing an ice bridge between the mainland and Isle Royale. From that time, they have been the single island predator of moose. When the wolf population declined in the early 2000s, concern for their extinction and the resulting impacts on the ecosystem prompted more drastic conservation efforts.

A wolf relocation effort was made by the National Park Service and partnering organizations between fall 2018 and fall 2019. Nineteen wolves were relocated to Isle Royale in attempt to restore the predator population.

Full report on wolf relocation [Wolves and the Isle Royale Environment report](#)

Bone Detectives

Bones have a lot to say about the life of a moose. Researchers, including Dr. Rolf from the video, spend a lot of time collecting bones.

Bone Detectives Worksheet

Side 1: Jaw Bones

Do you think a dentist would be very happy with the moose that had the upper jaw? As moose age, their teeth begin to loosen up. Small twigs can get stuck between their teeth. I know it is surprising, but moose don't floss. The twigs rot and cause painful infections (necrosis).

Moose with toothaches don't eat properly, so they get weak and so it's easier for wolves to catch them. A moose might even starve. This kind of infection is that it smells bad. In fact, a wolf could smell a problem like this from a ¼ mile away. Yikes!

Students will likely observe the numbers on the bones. Each moose who has bones in the collection is given a number. They have collected bones from close to 5000 different moose!

Side 2: Hip Bones

The hip socket on the right looks like a problem. The piece pelvis shows evidence of severe arthritis. Imagine you were this moose. What would you feel each time you took a step?

As with humans, moose begin to develop problems with their bones as they age. Arthritis and osteoporosis are very common problems for older moose. Bone evidence suggests that half of the older moose on Isle Royale have arthritis.

What other problems might this arthritic hip have caused this moose? Who might be interested in taking a closer look at a limping moose?

Images for Bone Detectives Worksheets courtesy of R.O. Peterson