

## Ecosystem Investigators: Vocabulary and Background Information

### Day in the Life

Ecosystem	A community of living things and their nonliving environment, interacting in a system
Producer	An organism that makes its own food
Herbivore	An animal that eats plants
Carnivore	An animal that eats other animals
Prey	An animal that gets eaten by other animals
Predator	An animal that hunts, kills, and eats other animals
Food chain	A model that shows the transfer of food energy

### Moose on the Loose!

Moose arrived on Isle Royale around 1900 (likely by swimming.) Since then, moose have become one of the key players in the longest running predator/prey study in the world. This study has kept track of moose and wolf populations on Isle Royale for more than 60 years.

The Isle Royale moose population had been surveyed before the current study started. It is estimated that 1,000 to 3,000 moose were present on the island in 1930. This number was too high for the island to support, almost all the plants that moose eat were gone and within a few years the number of moose was below 500. A huge forest fire in 1936 changed the island's landscape. Plants regrew quickly after the fire and moose population rebounded. It is likely the population would have crashed again if not for the wolves who crossed the ice and arrived at Isle Royale in the winter of 1949.

Moose are browse feeders. In the winter they eat the twigs and buds of woody plants and chew on balsam fir. In the summer they feed on deciduous leaves, shoots, and aquatic plants.

The Isle Royale wolves eat mostly moose. A small percentage of their diet is beaver and snowshoe hare.

For more information on these Isle Royale species: [All about Moose](#) and [All about Wolves](#) from the Isle Royale Wolf Project

For updated chart and graph of Isle Royale Wolf and Moose populations over time: [Isle Royale Wolf and Moose Population Data](#)

## Web Effects

<b>Apex predator</b>	The predator at the top of the food chain. On Isle Royale, wolves are the apex predator
<b>Food web</b>	A network of interconnected food chains in an ecosystem
<b>Biodiversity</b>	The number of different species of living things in an ecosystem.

## Quick Draw

<b>Abiotic factors</b>	Nonliving parts of an ecosystem, such as air, water, soil, and sunlight
<b>Biotic factors</b>	Living parts of an ecosystem, such as plants, animals, fungi, and microorganisms
<b>Trophic Pyramid</b>	A model which s

All **ecosystems** are based upon the **abiotic** characteristics of the landscape and climate. The combined topography, soil type, amount of precipitation, amount of sunlight, temperature regime, and wind regime all affect what kinds of life will flourish in a particular area.

For most ecosystems, the sun is the source of energy for the **biotic** components—all the living organisms.

**Trophic levels** are simply a way for ecologists to model the **food chain**.

Level One are the **producers**. Producers are the algae, cyanobacteria, and plants within an ecosystem. They (typically) use the energy from the sun to produce the foods on which the other organisms feed.

Level Two are the **herbivores** and level 3 (and often 4) are the **carnivores**.

Trophic levels are visualized as pyramidal in shape. Because energy is lost at each level, the quantity of life that can be supported becomes smaller at each level. All biological factors decrease at each ascending level: energy, biomass, and number of organisms.

[Keystone-species-101 from the Natural Resources Defense Council](#)