

Place-Based Education at Our Table Cooperative Farm
Spring 2020: Beavers: Interdependent relationships in Ecosystems

Fifth Grade – Life Science 5-LS2 Ecosystems: Interactions, Energy and Dynamics

Ecosystems: Food for almost any kind of animal can be traced back to plants...Organisms can survive only in environments in which their particular needs are met. A healthy ecosystem is one in which multiple species of different types are each able to meet their needs in a relatively stable web of life. (5-LS2-1)

Beavers are vegetarians. Their main food source is leaves, twigs and bark. They especially like the *underbark* of Aspen, Birch, Maple and Cherry trees. They also eat water lilies, pondweeds, their droppings and perhaps an apple.

Beavers do the work of building a *dam* and a *lodge* to create a suitable environment for themselves. They use their specially designed anatomy to fell trees and build dams and lodges. Beavers are rodents. The word *rodent* means "THE BEAST THAT GNAWS." All rodents (except one) have two upper front teeth and two lower front teeth called *incisors* that continue to grow throughout the animal's life. They use these teeth to slice and grind through things like a pair of scissors. All rodents (except one) also have grinding *molars* in the back.

In order for this mammal to live a *semi-aquatic* life, beavers utilize a host of adaptations that help them navigate the water. Beavers have powerful front claws and webbed back feet that help them transport branches and easily swim through the waterways. *Nose and ear valves* shut to keep out water while submerged, and *nictitating membranes* or transparent "third eyelids" act as goggles. Perhaps most useful is that their lips close behind their oversized front teeth, allowing the beaver to transport building materials and food without drowning. They use their wide rudder-shaped tails for swimming as well as for slapping against the water to communicate with other beavers that there could be danger nearby.

Beavers build dams in forests and often the ordinary forest is turned into a wetland habitat. This new *ecosystem* supports the needs of many plants and animals. The variety of plants along the pond and near the river will change due to the water levels. This can also impact the diversity of the animals that are attracted to these newly reformed areas. Some of the animals on our farm who benefit from the beavers' presence are dragonflies, ducks, frogs, turtles, and heron. Water quality is also positively affected by the flow of the river or stream that was dammed by the beaver.

Scientists have come up with a name for the beavers, and other creatures, who keep their surrounding ecosystem and all its inhabitants happy and healthy. They are called *keystone species*.