

## Step Outside: Your Guide to Nature's Events

### Nature Guides

## Beavers: The Boreal Engineers

*Mid-June*

### Featured Species: Can't Live Without the *Dam* Beavers

Beavers that have been entombed in their lodges all winter are out and active. They are busy repairing damages to their dams, and in case of dispersed young, building new ones. Beavers are nocturnal and meticulously maintain their dams, so don't be surprised if any damage to a dam is repaired by the next morning!

Beavers are good swimmers, but fairly slow and vulnerable on land. They build dams to raise the water level upstream high enough that it doesn't freeze in the winter, creating suitable and safe habitat for their lodge and winter food cache, and easier access to stands of Trembling Aspen (a favoured food). The lodge is built so that it has above ground chambers, but only aquatic entrances/exits that are inaccessible to land predators. Their winter food cache is placed under water so that in the winter they never have to go out on land.

Beavers prefer waterways with a firm, mud bottom that aren't too deep or fast flowing. Trees, sticks, rocks, mud, and grass are used as construction materials. Trees up to about 40 cm in diameter can be felled, and if needed two Beavers will work together. Dams are built at narrow points in the waterway where the current is fastest. To begin a dam, Beavers jam in branches with the butt ends facing upstream secured with mud and stones, using the current to spread and securely embed them. Layer upon layer, branches and sticks are weaved in, and stones, roots, and mud are packed in. A pair of beavers needs just a few days to build a basic dam. Large dams can be as high as 5m, and as wide as 33m (note how these 'engineers' curved the dam for greater strength). Dams are maintained throughout the year, but the most material is added during periods of high water, typically in the spring.

These Beaver-created wetlands results in the loss of habitat for some species, and creation of habitat for others. Because of this role, the Beaver is considered a keystone species. Flooded trees die and attract woodpeckers. Sediments and organic materials accumulate upstream, which increase bottom-dwelling invertebrates that feed on the debris. By felling trees more sun reaches the area, causing increases in plankton, which in turn increases aquatic invertebrates. Habitat is created for aquatic plants like the Watershield, Common Bladderwort, White Water-lily, and Bullhead Lily. Dragonfly and damselfly larvae, whirligig beetles, and water striders are common residents that are preyed upon by American Bullfrogs, Green Frogs, Mink Frogs, Eastern Kingbirds, and Tree Swallows. Beaver ponds also attract waterfowl such as Wood Ducks and Black Ducks. The threatened Blanding's Turtle may use the lodge and dam to sun on. Moose feed on the water lilies and new shoots. Downstream habitat is likely important for the very rare Hungerford's Crawling Water Beetle.

Natural succession occurs when Beavers leave the area once food supply such as Trembling Aspen has been depleted, or when a colony is killed. The dam breaks, the area drains, and nutrient rich muck that was previously the pond bottom is colonized by sedges and grasses, and turns into a lush meadows for species such as the Swamp Sparrow, and Meadow Jumping Mouse. Eventually, sun-loving Trembling Aspen return, attracting Beavers yet again.

#### Top R4R Picks

Resources for extending the learning

**Beaver, Moose, and Freshwater Turtle: The Dependence of Canada's Iconic Species on Freshwater Habitats**

Elementary, Middle

**Black Bear Ecology-Interactions within Ecosystems**

Elementary, Middle

See lesson three

**Moth, the Fire Dancer**

Elementary

See lesson: The Scents of Attraction

**Black Bear Ecology-Growth and Changes in Animals**

Elementary

See lesson two

**Little Brown Bat**

Elementary

A great video on Beavers in action can be watched [here](#).

### Other Happenings:

- [Loons are incubating](#) their eggs. They build their nest near shorelines and islands with a pile of aquatic vegetation. Usually the same nest site is used year after year. Loons are easily scared off their nests, which can cause egg chill and increase the likelihood of predation. The low-lying nests are also vulnerable to swamping from boaters. Boaters can help by slowing down near shorelines and avoiding nesting areas. Loons will also nest on [loon nest platforms built](#) to attract loons to lakes without suitable habitat. If you consistently paddle a particular lake, consider joining the [Canadian Lakes Loon Survey](#) to help monitor population health.
- Male [Mallards](#) start [moulting](#). Males only stay with females for about the first 10 days of incubation. They then leave breeding territories, and hide out in vegetation while they moult all their feathers, which renders them flightless. Their new “[eclipse moult](#)” resembles the female plumage, not their [brilliant breeding plumage](#). Males can still be distinguished by their [more yellow bill](#).
- [Black Bears](#) mate from early June to early August. In trying to find a mate, Bears [rub their haunches on trees](#) to leave their scent. They will also [claw](#) and [bite](#) trees. At this time of the year [Black Bears feed on newly emerged sedges and grasses](#).
- [Little Brown](#) and [Big Brown](#) Bats give birth to a [single young](#) in mid-late June.
- Meanwhile, [moths are trying their best to avoid bats](#). To do so, they have a few handy adaptations. Moths have [ears sensitive to bats' echolocation calls](#). If however, they are surprised at close quarters they fold their wings and dive-bomb directly down. [Tiger moths](#) (family [Arctiidae](#)) even produce their own ultrasonic sounds that serve to advertise that they are poisonous (many of the larvae, like Monarch Butterflies, feed on milkweed). These sounds are not emitted until bats are within a meter, and may also serve to startle bats.
- [Giant silk moths](#) are mating. In fact mating is about all they do – the adults don't even eat! The females attract males by releasing airborne sex pheromones in extremely small quantities. The large, feathery-looking [antennae of males](#) are able to detect these chemical molecules as far as 5km away! [Luna](#) and [Cecropia](#) Moths are two well-known giant silk moths. Others include the [Polyphemus](#), the [Promethea](#), and the [Io Moth](#). They are attracted to bright, white lights particularly near water. Note the eyespots on many of the wings. These may serve to startle predators, or make them think that the moth is actually a predator itself.
- [Brook Sticklebacks](#) are spawning and like members of the Sunfish Family it is the [male](#) that does most of the work. The male [builds a nest](#) with vegetation, small sticks, and a sticky secretion produced by his kidneys. He entices one or more females to lay eggs in it. The male also fans and defends the eggs and young.
- Many, many plants begin to bloom! In bogs and fens [Dragon's Mouth](#) and [Rose Pogonia](#) are spectacular orchids in bloom. Other species beginning to bloom include [Wild Black Cherry](#), [Common Red Raspberry](#), [Blackberry](#), [Wood Lily](#), [Blueflag](#), [Mountain Blue-eyed Grass](#), [Canada Anemone](#), [Yarrow](#), [Riverbank Grape](#), and [Philadelphia Fleabane](#).
- [Orchard Grass](#), [Smooth Brome](#), and [Meadow Fescue](#) are non-native forage grasses that are currently in flower. When the weather is dry enough, usually from drying north winds, [hay](#) will be cut. Unfortunately, this often crushes nests of [Bobolinks](#), [Eastern Meadowlarks](#), [Savannah Sparrows](#), and [Northern Harriers](#) that commonly nest in hayfields.
- [Balsam Poplars](#), which have been scenting the June air, release their silky [seeds](#).
- Yellow pollen from [Eastern White](#) and [Red Pines](#) will [dust lakes](#) and flat surfaces for a week or more. The [pollen grain](#) has two air bubbles to make it light so that it can be carried by the wind to facilitate pollination.