# BEAVER
## *(Castor canadensis)*


Photo credit: US Fish and Wildlife Service

## Introduction

The beaver is known to be industrious and is the national animal of Canada. Its pelt was highly valued from the 17th to the mid 19th Century, and the pursuit of this humble rodent was a driving force behind the early exploration of Canada, mainly by Europeans.  Today it is featured on our nickel and on the coat of arms for Alberta and Saskatchewan.

## Characteristics

The beaver is the largest rodent in North America and measures approximately 1.3 metres long – including its trademark flat broad tail, which measures from 0.3 to 0.4 metres.  It can weigh from 18-23 kg (40-50 lbs).  It is dark brown and has two layers of fur: an outer layer of "guard hairs" which are long and coarse and an inner layer of lighter, reddish-brown fur to insulate it from the weather.  It is this soft under fur that was so highly prized by European trappers and which led to the beaver's near extinction in the mid 1900s.

The beaver has small, rounded ears and small dark eyes, which are protected by clear membranes while it swims underwater.  It also has valves which close the nostrils, ears and throat to water – allowing it to swim, gnaw on wood and work for up to 15 minutes while submerged.  The beaver's tail is used as a rudder while swimming and is also used for balance when it stands on its hind legs.  Its hind legs are very powerful and are slightly longer than its front legs.  The beaver's hind feet are large and triangular-shaped with five toes that are webbed for swimming. An extra claw on the second toe of each hind foot is used for grooming.  The beaver's front feet are also five-toed but are smaller

and not webbed.  Perfect beaver tracks are difficult to find because the beaver's tail drags behind as it walks and tends to smooth over its own footprints.

A beaver's teeth are perhaps its most notable feature and are indispensable.  Its upper and lower incisors never stop growing and must be ground down continually to keep them at a manageable length.  Its teeth enable it to gnaw the bark and wood it requires for food, and also to fell small trees for the construction of dams and lodges.  The beaver is well known for its engineering skills and is one of the only mammals that builds its own shelter.  It has also been known to build canals in order to float logs from one place to another for food storage and construction and it is even able to engineer dams to withstand varying water speeds.

**Lifecycle**

The beaver lives approximately 10 years in the wild, but can live close to 20 years in captivity.  Beavers are monogamous and mate for life, although if one partner dies its mate will find another.  Females are sexually mature at about two and a half years, and males and females first mate at about three years old.  Castoreum, held in scent glands near the reproductive organs of both sexes, is secreted to attract mates as well as to mark territory. Mating occurs in January and February and the gestation period is approximately 3 months. Females generally have one litter of four kits per year, although they are known to give birth to anywhere from two to eight kits.  Both males and females care for the kits, and a typical beaver family (or colony) includes parents, yearlings and kits.  After about two years, young beavers leave or are forced from the lodge when kits are born.  Kits are born with all of their fur and are able to swim after only a few hours.  At birth, they are approximately 40 centimetres long including their tails, and weigh anywhere from 250 to 600 grams.  Kits are weaned at one month and yearlings are responsible for babysitting kits from an early age.  Family life is very cooperative, with all members helping to gather food and to repair and build the lodge.

**Habitat and Behaviour**
Beaver habitats include rivers, streams, marshes, lakes, ponds and even islands – any location at water's edge that enables the beaver to build its lodge with a submerged entryway to protect against predators.  If necessary, a beaver will dam a waterway with logs, branches, mud and stones in order to create the depth of water it requires to build its lodge with an underwater entrance and food storage area.  It will then use similar materials to create a large mound at water's edge, into which it must gnaw from underwater to create access tunnels, underwater chambers, and rooms above the water level for sleeping.  Lodges are dome-shaped with a ventilation hole at the top and are approximately 2.5 to 3.5 metres in diameter and about 1 metre high.  As winter approaches, the beaver coats the lodge with a layer of mud which freezes to form a barrier that is nearly impenetrable to predators.  Yearly repairs and layering increases the size of the lodge as time passes.  Beaver dams, which have been known to cover several acres of land with water, naturally enhance the biodiversity of an area through flooding

which creates rich wetlands that eventually turn to silted meadows and become habitats for other animals.

Beaver populations range up to the northern treeline. They are not found in deserts and rarely on the prairies.

The beaver is an herbivore and the water lily is its favourite food.  It eats the bark of deciduous trees such as aspen, poplar, birch, willow, maple and alder, and cambium which is the thin layer of tissue underneath the bark. When available, buds, leaves, pond vegetation, apples and berries are also a part of its diet.  Beavers store food in an underwater cache, which is accessible from the lodge during the winter months.  Beavers do not migrate for the winter nor do they hibernate.

Beavers are considered to be semi-aquatic and, although short and somewhat awkward on land, they are graceful and powerful swimmers.  They use their webbed hind feet and their tail for swimming and can stay underwater for up to 15 minutes at a time.  Beavers are primarily nocturnal, although they can sometimes be seen in the early morning or evening.  The beaver is a highly territorial animal and entire beaver families will defend against other families felt to be encroaching on their territory.  The beaver can act aggressively when threatened and is also known to slap its tail on the water to warn other beavers in the area of approaching danger.


**Threats**
Although the beaver was near extinction in the early 1900s which was a consequence of over-trapping and habitat destruction as settlers cleared and drained land for farming and other uses, the population has since returned to healthy levels.  Under Section 9 of the British Columbia *Wildlife Act,* it is now illegal to disturb, molest or destroy a beaver habitat.  The exceptions to this rule include actions by licensed trappers, the disturbance of beaver dwellings in order to "provide irrigation or drainage under lawful authority for the protection of property" and actions sanctioned by regulation.  Beavers are still endangered by human activities, however, and are particularly sensitive to deforestation and pollution.  Deforestation can result in both habitat destruction and a lack of food and silting of streams can interfere with the ecosystems upon which beavers depend.  Beaver trapping is government-regulated and is restricted to a certain percentage of the population per year.  Road accidents are also responsible for numerous beaver fatalities.

In addition to human-caused mortality, the beaver has several natural predators in the wild.  Minks, hawks and owls have been known to prey on young beavers; and bears, wolves, wolverines, lynx and otters are a danger—even to full-grown adult beavers. Nature itself can take its toll. For example, in extremely cold winters, a beaver can starve if it is prevented from accessing underwater food storage areas due to thick ice. In the event of flooding, a beaver may drown if its lodge is damaged and it is unable to escape.

**What can we do to help?**

Beaver populations are increasing throughout North America, largely due to the introduction of legislation designed to protect them. Trapping is restricted and efforts are made to relocate beavers when their damming and lodge construction causes flooding and other disturbances. Beaver pipes and drainage devices are often installed to relieve nuisance flooding and strategic fencing is employed to protect against objectionable tree cutting.

Aside from the efforts already being put into their conservation, what the beaver needs most from us is our understanding. What may at first appear to be damage caused by a beaver colony will ultimately result in enhancement of the biodiversity, beauty and health of the natural environment. Flooding creates rich wetlands, which eventually silt in and provide food and habitat for other creatures. The beaver is best understood as a precursor to new life and ecological renewal and it is this that people need to know if the beaver is to remain a protected and valued part of North American wildlife.

**Conclusion**

The beaver has an important role to play in North America's natural environment, and from its webbed hind feet and broad flat tail to its long sharp teeth, it is perfectly suited to the task. Its intelligence is evident in its engineering capabilities and its strength and diligence is obvious from its ability to gather the materials required to build dams and lodges. The beaver was crucial to the early fur trade in North America and was a driving force in the exploration and eventual settlement of Canada by Europeans and other peoples. The beaver holds an important spot in our country's history and is rightly honoured as Canada's national animal.

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