



## Beavers in New Jersey

### Natural History

The beaver, (*Castor canadensis*) has played an important part in New Jersey's and the nation's early history. The pelts of this one animal played a great part in the economic base for the trade and eventual growth of New Jersey's earliest settlements, especially those along the banks of the Delaware River. The beaver's range prior to European colonization was throughout the forested areas of all North America from Alaska thru Canada and south to Mexico.

Beavers were plentiful at the time when over 4,000,000 acres of New Jersey were forested. Trade in the mid 1600s was reported to be 9,000 to 10,000 pelts per season in the areas along the Delaware near the New Sweden settlements alone. Beaver skins and wampum (shell beads) were the currency in the early years of settlement by the people along the river. The settlers purchased the pelts from the Indians, paying for them with wampum. The sellers then used the pelts to purchase the supplies and services that the settlements required. At the time, the pelts were worth about seven florins or two dollars each. Historical reports tell of members of the settlement of New Sweden who made a trip to Manhattan in 1643 to purchase animals to work the fields. In Manhattan, the leader of the expedition purchased seven oxen for 124 pelts, one cow for 22 pelts, and 75 bushels of rye for 32 pelts. Trade continued into the 1700's. New Jersey had a flourishing beaver-hat trade with Portugal and the West Indies. This trade died out prior to the Revolutionary War period. The combination of the earlier high and unregulated demand for beaver pelts and the extensive deforestation and cultivation of the land and the expansion of the human population greatly reduced the beaver numbers as the eighteenth century came to a close. These same factors led to the near extirpation of the beaver in most of the country. However, the process was greatly accelerated in the northeast because the human population was greatest in that area.

By the late 1800's in New Jersey, the beavers had almost disappeared from Atlantic, Camden, Cape May, Mercer, Burlington, Ocean, Salem and Warren counties. Some of the last sites with active beaver colonies were in the Great Egg Harbor, Machesautuxen, Nescochaque, Big Timber Creek, Wading River, Sluice Creek, Toms River, Raccoon Creek and the Assunpink waterways.

Beaver activity was described in 1902 around the towns of Roseville and Two Bridges in Sussex County. At that time those beaver represented almost all the activity in the state. It is possible that these beaver in the northern areas were the results of escaped beaver from the Rutherford-Stuyvesant game preserve in Allamuchy, Warren County. Apparently, these escaped beavers were able to gain a foothold and spread across the Delaware River from Sussex County to Monroe County, Pennsylvania.

Historical reports note that a bill before the state legislature in 1902 gave total protection to beaver, and in fact, the beaver was afforded complete protection in 1903. In the first half of the twentieth century, New Jersey, as well as other northeastern states began augmenting the few remaining beaver colonies with beaver obtained from Wisconsin, Michigan, Wyoming, and Minnesota. This restocking enabled the beaver to re-establish itself and by 1947, New Jersey instituted a trapping season on the animals. Today beavers have established themselves throughout most of the state, excluding the most metropolitan counties of Essex, Hudson, Middlesex, Somerset, and Union.

### **General Description**

The largest North American rodent, the beaver is a muscular animal often exceeding 60 pounds in weight at maturity. The only rodent in the world larger than the beaver is the capybara of Central and South America.

A beaver's vision is weak, although its hearing and sense of smell are very good. Food is located by smell. Beavers are slow movers on dry land but are very mobile in their natural element – water. A beaver can stay underwater for up to 15 minutes. During a dive, the heart of a beaver slows, and valves close off the ears and nose.

A beaver's front teeth are always growing; a beaver must gnaw continually throughout its life to keep them worn down. The lower and upper incisors are the primary cutters. The lips of the beaver seal tightly behind the incisors and the tongue fits tightly against the roof of the mouth providing a watertight seal so that the animal doesn't choke when gnawing underwater.

Both male and females have musk sacs, called castors (thus the Latin designation for the beaver – Castor). These sacs produce an oily, heavily scented substance called "castoreum" used to mark its territory. This castoreum is used commercially to produce medicines and perfumes. Beavers also have two other glands at the base of the tail which secrete an oil which is used during grooming to waterproof its fur.

The forefeet are equipped with claws that enable the animal to dig burrows and hold food. The hind feet are webbed for swimming. The second toe on each rear foot has a split double toenail that allows the beaver to remove parasites and to groom and oil its fur. Its tail is large and muscular serving as a rudder while swimming. The tail also helps in temperature regulation and fat storage. Beavers *do not* carry mud around on their tails or use them to "pat" the mud into place on the dams or lodges as old wives' tales have related to us through the years.

The fur of the beaver consists of two layers. The outer layer of fur is made up of sparse, coarse guard hairs. The inner layer of fur (undercoat) is dense soft and waterproof. The pelage color varies but usually ranges from brownish black to yellowish-brown.

## **Habitat**

The beaver can live anywhere a lake, stream, marsh or river is adjacent to suitable woodland habitat. In this habitat the beaver constructs its dams or lodges and burrows. The dam is most important to the animal enabling the beavers to raise the water levels necessary for the floating building materials and food to the lodge, burrow or cache area. Beavers may raise the height of the dam to raise the water level of their pond to reach more food without leaving the safety of the water, or they may build additional dams up or downstream for the same reason. All members of the beaver colony, except the very young keep the dam in good repair.

The lodge is constructed by the beaver laying down layers of mud and sticks over a bank burrow entrance or in a shallow area of already elevated waterway. The beaver forms a roughly conical structure as it lays down additional material, leaving the center as a hollow chamber. The entire lodge may be 6 to 8 feet high when completed. The bottom is thicker than the top; the loose top layer allows for ventilation. Tunnels lead from the chamber and lead underwater. Each fall in New Jersey, beavers build a stockpile of tree branches and limbs near the lodge or burrow. These stockpiles are called a cache. These caches enable the beavers to continue activity throughout the winter if the watercourse is completely covered by a layer of ice.

## **Diet**

A beaver eats 1.5 to 2 pounds of food each day. Beaver will utilize the bark of birch, poplar, maple, willow, cherry, hazelnut, viburnum, alder, beech, ash, dogwood, pine and hemlock. Beavers will also eat grasses, sedge and roots such as cattail or water lily in the spring and summer.

## **Reproduction**

Breeding occurs in January and February. It is assumed that the male and female beavers form a pair bond for life. The young, usually 3 to 5 in number (depending on the quality of the food) are born about 3 ½ months later. The kits which are fully furred at birth and weigh between 1 and 1½ pounds and have been known to enter the water within the first week after birth. The kits stay with the colony until they are 1½ to 2 years of age and are sexually mature, at which point they are either driven away by the adults or disperse on their own and attempt to establish themselves in another area.

## **Behavior**

The activities of the beaver are often viewed as points of controversy among its human neighbors. In areas where beavers and suitable beaver habitat and human development exist side by side, views of the beaver's activity range from beneficial to detrimental. Normal beaver activities such as the cutting of trees and the building of dams alter the environment in dramatic ways. The flooding of these areas by the dams built by the beavers can flood large areas which depending on the individual and their perception of the situation can be either wonderful or terrible. The beavers

alter the existing area by flooding roads and property and areas that once supported deer, rabbits, squirrels, livestock, and other land-dwelling animals. However, the beaver can create habitat that not only benefits itself but also waterfowl, muskrat, otter, amphibians, and many other life-forms associated with aquatic habitats and the food sources found there. Beaver impoundments are beneficial because stream flow is stabilized, and soil erosion is controlled by the creation of the dams.