

## Beavers and Their Control

### Introduction

Beavers were numerous in New Hampshire when European settlers first arrived. Their pelts were extremely valuable to trappers who, at that time, knew little about beaver management. By the late 1800's, trapping had virtually eliminated the beaver in the state.

Between 1926 and 1930, the state began a restocking program in central New Hampshire, releasing six beavers. In 1940, 48 more were released. By 1955, the entire State was populated to its carrying capacity.

Like all wildlife beaver have both positive and negative wildlife values. Their unique ability to construct dams and create substantial water impoundments can drastically change the ecology of wooded areas and natural marshes. Beavers are credited with creating some of the finest waterfowl habitat in the state. Black ducks, mallards, and wood ducks thrive in these areas, and moose may feed on aquatic plants growing along the edges.

These same abilities create potential problems for humans, where flooding can damage roads, forests and farmland. In addition beaver will fell ornamental shrubbery, fruit, and shade trees for food when they have been planted near potential beaver habitat.

Beavers may exhaust the food supply along the immediate edge of the water and move to a new location. The abandoned pond will eventually return to the early succession stage of brook and meadow. These meadows are ideal areas for grouse to rear their broods. In addition, deer and other animals use these areas in summer because of the edge which is created between woods and meadow. Beaver impoundments also create good fish habitat. In some cases, trout habitat is improved, while in others the water is warmed so pickerel and horned pout thrive.

### Life History and Habits

The beaver is the world's second largest rodent. The largest known beaver weighed more than 100 pounds; however, today a 50-pound beaver is considered large.

Both sexes look exactly alike from external appearances, except when the female is nursing. Breeding takes place in winter and pregnancy lasts about 90 days, with the young arriving in April or May. Beaver do not breed until the second or third year, and give birth to an average of four young per litter.

Beaver are equipped with four opposing chisel-like teeth set in powerful jaws, and they are capable of felling some very large deciduous trees, which they use in dam building and for winter food. They seldom cut evergreen trees, and rarely travel more than 100 yards from the edge of the pond in search of food or building material.

Dam construction is a specialized art for beaver. Dams may be made from almost any tree species; but, in New Hampshire, alder seems to be a favorite material. Beavers use relatively small brush which is placed with the butts downstream, and a thick coating of mud and rock is applied to the face of the dam. They



*Beavers fell deciduous trees for their winter food of bark and branches and store it underwater near their houses.*

haul the brush in their mouths, utilizing the water to float it. The mud and stones are scooped up in their forepaws, much as we carry wood to the wood box, and transported to the construction site by swimming.

The primary purpose of their dam building is to provide them mobility and food storage. Once their lodge is built within the pond, they begin transporting branches of varying sizes to stock up for their winter needs, usually caching them near the entrance to the lodge. Their favorite food is aspen or "popple;" but they also utilize willow, birch, ash, and occasionally oak. With food storage accomplished, a beaver can live through the entire winter without entering the outside world above the ice and snow. In the summer months, beaver feed primarily on aquatic vegetation.

Beaver pay particular attention to the process of maintaining the dam and a constant water level. In fact, most colonies will rebuild a dam faster than most people can attempt to destroy it.

## State Beaver Management Policy

The New Hampshire Fish and Game Department manages beaver in the state and attempts to maintain populations wherever the animal's presence is beneficial. This policy is supported by the far-reaching benefits to other species of wildlife, including those to waterfowl, moose, deer, otter, mink, and muskrats.

Beaver populations are controlled by an annual open trapping season which is geared to harvest surplus beaver to minimize detrimental effects of over abundance while ensuring sufficient numbers to maintain good wildlife habitat. Beaver are also taken out of season by licensed "trouble" trappers. These "nuisance" beaver were once live trapped and moved by Conservation Officers in NH. This form of control is no longer practiced due to factors such as: extreme labor intensity, required permits, cost, damage liability, lack of relocation sites, and unsound biological management. Beavers are protected in New Hampshire by RSA 210:9.

## Beaver Control Techniques

The most effective means of controlling beaver damage is by avoidance of potential



*This beaver lodge is built within a pond with its underwater entrance giving the beavers access to stored bark and branches under ice in winter.*

**Beaver pipe development is carried out under Federal Aid Project W11D (Pittman-Robertson).**

beaver habitat areas during the planning of human activities that may be effected by beaver cutting or flooding. Simple avoidance may not always be possible, and the use of other control methods may become necessary.

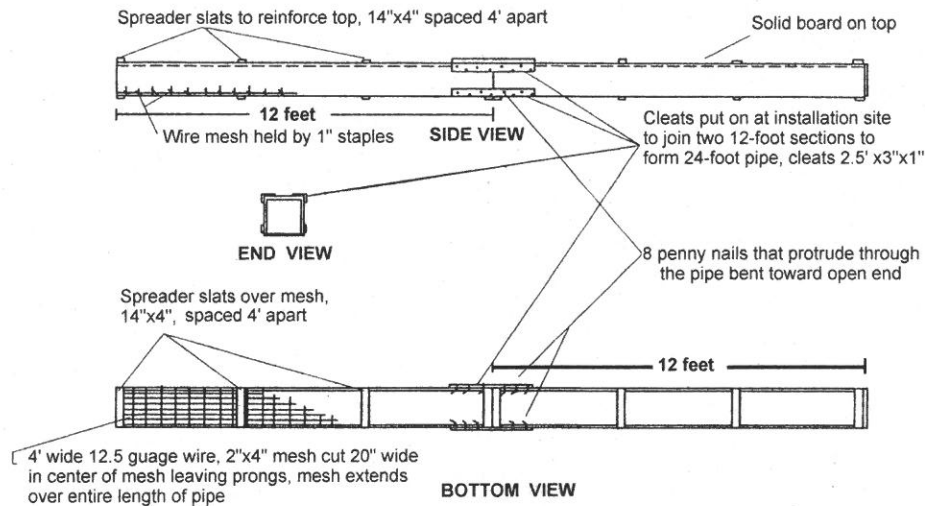
Trapping of beaver is directly related to the market value of the pelts. When market conditions are such that trapping can't address the increase in beaver populations, control of damage caused by beaver can be accomplished by the following means: exclusion, cultural control, water level management by use of "beaver pipes", and lethal control.

**Exclusion:** Individual trees can be protected by wrapping them with hardware cloth. Ornamental plots, culverts, and small ponds can be fenced with small mesh woven wire fences.

**Cultural Control:** Eliminating potential food supplies and habitat by clearing trees and shrubs near ponds, and keeping crops at least 100 yards from streams and ponds may persuade beaver to not occupy, or leave an area.

**Water Control with Beaver Pipes:** Flooding which has been caused by beavers has been successfully controlled in New Hampshire by the use of "beaver pipes" which are constructed with boards on three sides and coarse wire on the bottom. The pipe is then inserted in the dam to control the water level. The height of the outlet and the length of the pipe are both factors in producing the desired water level. Beaver pipes are most useful in watersheds of less than 10 square miles.

## Plans for the Construction of Beaver Pipe Made of Pine or Other Softwood



**Lethal Control:** Control of this type may be resorted to, however, before attempting any form of lethal control contact your local Conservation Officer or your nearest NH Fish and Game Regional Office.

### Beaver Pipe Construction

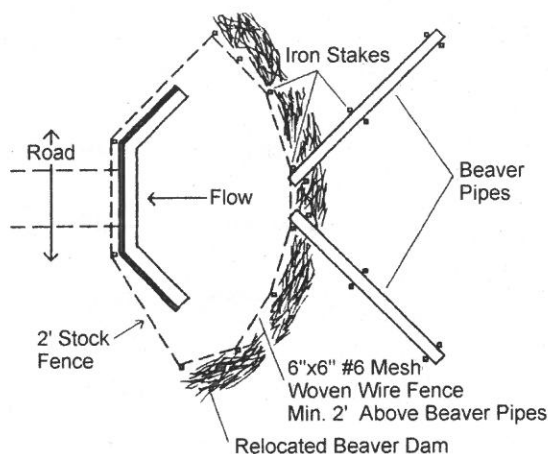
Beaver pipes are about 12 inches square and 24 feet long. They are constructed of 1-inch white pine stock and in two 12-foot sections. The entire length of one side of this tube is made of 2-inch by 4-inch 12 gauge galvanized, woven wire which comes in 48-inch wide rolls. The wire is cut in the center of the ninth mesh or 20 inches wide. Three 48-inch long panels are stapled end to end along the bottom of each 12 foot section of pipe. Slats one inch by four inches by 14 inches are nailed on top of the mesh across the bottom of the pipe. The extra mesh, along with the wire prongs remaining where the wire was cut, is wrapped around the edge of the pipe and attached with 1 inch wire staples to prevent chewing. The upstream end of the 24-foot pipe is boarded over to prevent beavers from plugging the pipe. (See Figure 1.)

### Installation

The usual procedure on receiving a request to stabilize a beaver impoundment is to first check a contour map to determine the location

and approximate drainage of the problem area. One person can then complete the entire installation in one trip. Under New Hampshire conditions, one pipe is used for each three square miles of drainage area. The number of pipes required to accomplish the flow are assembled on location. The total length of each pipe is determined mostly through experience, with the exception that a minimum of 24 feet should be used in usual situations. The distance from the bottom of the pipe to the bottom of the pond and the amount of free-floating material which might plug up the entrance holes constitute important considerations in determining length. The closer the pipe is to the pond bottom and the more free-floating material present, the greater the length of pipe needed to ensure trouble-free operation. The minimum distance between the bottom of the pipe and the pond bottom should be one foot.

The pipes are placed through the dam where the depth of upstream water is greatest. If two or more pipes are required, they should be located as far apart as possible. When separate placement is not practical, such as where outlets must flow into a culvert or narrow ditch, the pipes should be placed in a fan shape with the outlets together as shown in Figure 2. Separated pipes are more difficult for the beaver to bury and plug.



**Figure 2- Two or more beaver pipes installed in a dam are placed in a fan shape to conduct water into a culvert or narrow ditch.**

## Maintenance

Beaver pipe installations require regular maintenance for proper functioning. Maintenance requirements vary greatly with the individual installation and with the season. All pipes should be checked a few days after installation and at least once a month thereafter. Unless it is possible to check them at monthly intervals, more than half of them will fail. Routine maintenance is not as costly as it might appear since this can be done by the landowner or other interested local people.

After the beavers have rebuilt the dam, they will usually extend it back along the pipe for only a short distance. In this situation, the pipes need only be cleaned occasionally along the underside with a potato hoe or by hand. In some instances, the beavers build a dike under the entire length of the pipe. If such a dike is built, it is usually easier to change the location of the pipes than to remove the dike. Install the pipes so they slope down into the pond, thus keeping the upstream end under water to discourage diking. The beavers will also try to plug the outlet end of the pipe by piling brush on it. This

is usually unsuccessful and, to date, has not seriously interfered with the functioning of any pipes.

## Materials

1. Lumber for six 12-inch by 24-foot wooden sections
2. 24 feet of 2-inch by 4-inch 12.5 gauge galvanized woven wire
3. Eight 1"x4"x14" wooden slats
4. Six iron fence posts
5. Six feet of 1/4-inch iron rod
6. Miscellaneous nails and tools

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