NORTHERN NEW ENGLAND ANIMAL DAMAGE CONTROL PROGRAM
EDUCATIONAL LEAFLET SERIES

BEAVER (Castor canadensis)

BIOLOGY AND BEHAVIOR

Beavers are chunky, yellowish-brown to brownish-black aquatic mammals. They have short legs, dexterous forefeet, large webbed hind feet, and a spatulate (broad and flattened), leathery tail. Bright yellow-orange incisors (front teeth used for gnawing) protrude from the mouth and are readily visible. The beaver is the largest North American rodent and attains an overall length, including tail, of **34-40** in. (86-102 **cm.)** and a weight of 27-67 lb. (12-30 kg.): Beavers have lived for up to 20 years in captivity, however, they rarely survive beyond 10 years in the wild.

Although beavers are native to New England, by the late-1800's they were nearly extirpated from this region by commercial overharvest. With the implementation of protective regulations and the help of successful beaver reestablishment programs by federal, state and private conservation agencies or organizations, these animals reoccupied most of the original range by the mid-19003, and their numbers continue to increase locally throughout much of New England. Beavers occupy a variety of aquatic habitats, including streams and rivers bordered by woods, lake shores, impoundments, and marshes. They prefer water courses with low gradient and abundant, high quality foods.

Beavers are true vegetarians, consuming leaves, bark, small **twigs,** sprouts, fruits, and buds of shrubs and trees as well as aquatic plants (e.g., sedges, rushes). Woody plants preferred by beavers include alder, aspen, birch, **gum,** maple, poplar, and willow. A beaver may consume up to 20-30 oz. (567-850 g.) of food per day (approximately the amount of bark and smaller branches of a 1-3 in. (2.5-7.6 cm.] diameter tree every 2 days).

Beavers are usually nocturnal (active at night) but they may be observed during daylight hours as they make repairs to their structures or gather food. Their ability to build dams and lodges is well known. When beavers establish a new territory in suitable, unoccupied habitat, they build a dam before any other construction activity begins (usually April-June or August-October). Beaver dams range from 2-10 ft. (0.6-3.0 m.) in height and can extend more than 100 ft. (30 m.) in length. Lodge building, or bank den excavation, and creation of a food cache (a pile of freshly-cut branches placed in the pond next to the lodge that will remain accessible as a food supply beneath winter ice) begin in August or September, after the dam is completed and the level of water in the pond stabilizes. Lodges often exceed 5 ft. (1.5 m.) in height and 20-40 ft. (6-12 m.) in diameter. After establishing a territory, beavers construct scent mounds (piles of mud and secretions of castoreum from the beaver's scent gland) about its boundary. It is believed this form of chemical communication warns beavers from outside the colony not to intrude.

Beavers are monogamous and, unless a mate dies, they pair for life. They breed in late January and February and produce a litter of 3-5 kits during May or June. A typical beaver colony consists of the adults, their kits, and the previous generation of yearlings and may include up to 12 individuals. Two-year olds leave, or are driven away from, the colony to establish new colonies of their own; when dispersing, these offspring travel an average distance of 4 mi. (7.4 km.) from their natal colony.

ECONOMIC STATUS AND IMPORTANCE

The value of the beaver as a fur animal contributed significantly to the exploration of and western expansion of civilization in North America. Today, beavers are an important recreational and economic resource because of the value of their pelt and the role they play in modifying habitat. Beaver dams create or enhance wetland wildlife habitats, stabilize water flow, reduce siltation, and conserve water. Impacts on fisheries depend upon the type and location of that resource; cold-water species may suffer as water temperature rises in new beaver impoundments whereas warm-water species may benefit from more available habitat and food sources. Beavers can cause consider-

able damage to property by: flooding roads, septic systems, fields, and pastures; flooding or cutting timber or ornamental plants; and destroying water retention devices. Although many other potential hosts and vectors of transport exist, beavers often are blamed for contaminating public water supplies with ***Giardia*** cysts. For all these reasons and many more, the beaver is one of the most intensively managed wildlife species in North America and presents a great challenge to wildlife managers.

CONTROL TECHNIQUES

In New England, there are no federal regulations protecting beavers, however, each state has laws governing their capture, taking, and disposition. Consult local wildlife authorities before beginning any damage management program.

Preventive Measures

There are no known techniques to discourage beavers from occupying suitable habitat. Reports of deterring beavers through harassment with loud noise or bright lights are usually unfounded. Modification of habitat (removal of food and construction materials) has been suggested but remains untried and suspect.

Non-Lethal Controls

To protect ornamental plants or trees of high value from beavers, hardware cloth or wire mesh screening about 3 ft. (1 m.) in height can be wrapped around the base of the trunks and secured with wire twists. Exclusion fencing also maybe used to restrict beavers' access to plants. Because both techniques are labor intensive and somewhat costly, they should be used only where the area of damage is small or the value of the plants involved is high. Chemosterilants (i.e., birth control) have reduced the productivity of captive beavers but an effective delivery method has not yet been devised to introduce these compounds to wild beaver populations. Partial or complete removal of dams or lodges usually is ineffective in reducing damage caused by an active beaver colony because they can repair or replace dams in less than 24 hours. Also, removal of structures associated with an active colony may be a violation of state wildlife laws as well as conflict with wetland protection regulations. Even where a colony has abandoned its pond, permits may be necessary to remove a beaver dam. Although used extensively in the past, livetrapping and relocation of individuals is discouraged because the practice is labor intensive, costly, and, in most cases, simply transfers problem beaver to another site. And, most habitat suitable for beavers already is occupied by active colonies. Installation of a water control device (e.g., 3-log drain, T-culvert, wooden box pipe) is useful in manipulating the level of water in a pond where maintenance of beavers' presence is desired.

Lethal Controls

Because beaver populations ***can*** increase substantially in a short period of time, the most effective way to minimize the potential for problems with beavers is to hold their numbers in check. Research indicates that the incidence of beaver damage is inversely proportional to the worldwide demand for and value of their pelts (i.e., when pelt prices and beaver harvest decline, reports of beaver damage increase). When properly conducted, trapping ***can be*** an effective technique for managing beaver populations. Consult your state wildlife agency regarding specific regulations or prohibitions on the use of traps and snares before placing any sets. Shooting at night with spotlights may be effective in eliminating problem individuals, but special authorization is needed to do this. There presently are no toxicants or fumigants registered for use in the control of beavers.

REFERENCES

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PARTICIPATING AGENCIES

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- **Maine Department of Inland Fisheries and Wildlife**
- **University of Maine Cooperative Extension**
- **Massachusetts Division of Fisheries and Wildlife**
- **University of Massachusetts Cooperative Extension**
- **University of Massachusetts, Department of Forestry and Wildlife Management**
- **New Hampshire Fish and Game Department**
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- **Vermont Fish and Wildlife Department**
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