Relevant Excerpts from Nuisance Beaver Control Techniques Manual

(New York State Department of Environmental Conservation)

Biology and Behavior of Beaver

The beaver is the largest rodent in North America with adults ranging from 35 to 46 inches long (including a flattened 12-18 inch tail) and weighing from 45 to 60 pounds. Beaver weighing over 100 pounds have been recorded. The hind feet are very large with 5 long webbed toes. Front feet are small and dexterous, which allows the beaver to carry dam construction material such as stones and sticks.

Both sexes of beavers breed at 21 months of age from December through February. Females ovulate 2 to 4 times at 7 to 15 day intervals during each mid-winter breeding season. There are no records of beavers breeding as first year kits. Development of the fetuses requires 120 days with the young being born between April and July. Litter sizes range from 1 to 9 with an average litter size of 4. The heavier the female, the larger her litter, also the number of young a female bears is inversely related to her family size at the time of breeding. Adult females will breed every year regardless of the habitat quality.

The occupants of a beaver pond or group of ponds is a family consisting of two adults and their offspring of two breeding seasons. Beavers mate for life; however, if one of the adult breeding pair is removed from the population, the remaining member will readily accept a new mate. The kits remain with the parents until they are two years old and then are driven off to find their own territories. This dispersal of juveniles can contribute greatly to the total number of property damage complaints.

As a food source, beavers prefer aspens and willows but will eat the leaves, twigs and bark of most species of woody plants found along the water's edge. During the growing season beavers will also consume large quantities of non-woody plants such as grasses and cattails. During the fall, they will stockpile their woody food supply in the water near their house for use during the winter months. The presence of these fresh cut feed piles is an important indicator of an active beaver lodge. During the ice covered winter months beavers are generally inactive with regard to tree cutting and dam building.

Beavers construct dams which result in the formation of ponds within which the lodge and winter food cache are located. It is believed to be a combination of water flow sensation and

the sound associated with running water that stimulates this dam building activity. Within and around the pond the beavers construct canals for security and for the transport of food and building materials. Beavers are primarily active at night with regard to their dam building and tree cutting activity.

The beaver's dam and lodge are constructed of sticks and mud, with some beavers utilizing bank burrows along streams or ponds. Lodges consist of one or more compartments with each compartment having two underwater openings for exit or entry. These are also important for escape from potential predators. Their aquatic habitat and instinctive behavior minimizes the adult beaver's susceptibility to predators. Domestic dogs, coyotes, bears and bobcats are among the larger predators in New York State that prey on beavers if the opportunity arises. However, since beavers rarely travel far from water, they are relatively safe from most predators. Young beavers are more susceptible, with predatory mammals such as otter and mink occasionally preying on kits. Overall, natural predation probably has little effect on beaver populations in New York State.

Status of Beaver Under the Environmental Conservation Law

Article 11 of the New York State Environmental Conservation Law is commonly referred to as the "Fish and Wildlife Law." Sections 11-0505 and 11-0521 of Article 11 address legal issues pertaining to managing beaver-related damage.

Section 11-0505 states that no person is allowed at any time to disturb a beaver's dam, house or den without written permission from the DEC. This permit will be issued to the person or organization which is being damaged or affected or may potentially be affected. If the permittee (affected party) does not own or legally control the site where the beaver's dam is located, it is the permittee's responsibility to obtain permission to go on lands he/she does not own or legally control to carry out the permitted actions.

Section 11-0521 authorizes the DEC to issue permits for the removal of nuisance beavers. This permit will be issued to the landowner upon whose land the problem is occurring, an adjacent landowner upon whose land the beaver resides or either landowner's agent. The permittee may designate in writing an agent who will kill the beaver.

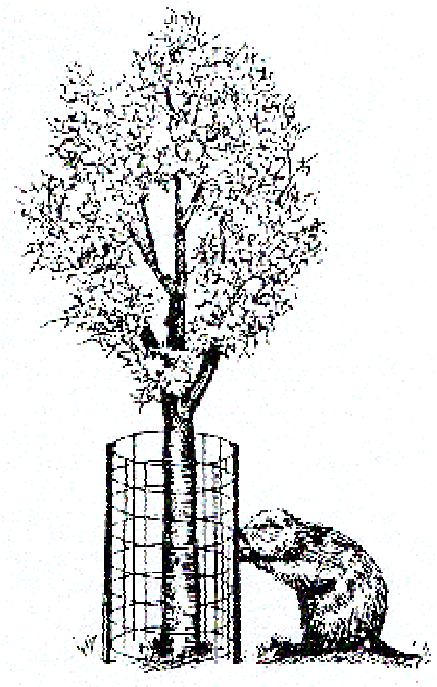
The Definition of Beaver Damage

Problem beaver situations may include an impoundment threatening downstream property, upstream flooding of land, trees or crops killed or damaged by flooding, flooding of homes,

flooding of highways or railroads, contamination of water supplies, impairment of drainage systems, damage to wildlife habitat or landowner distress.

Preventing Beaver Damage

Protect Trees and Shrubs

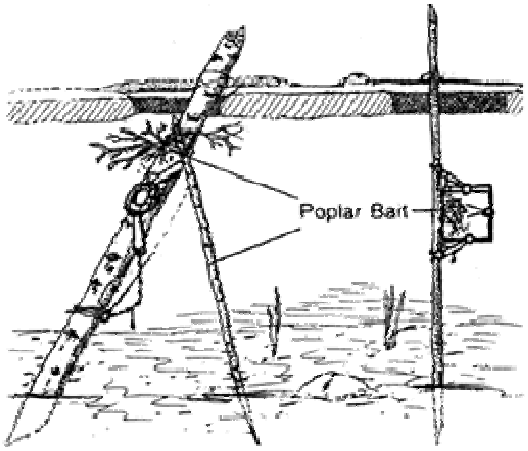


(Note. No permit is required.) Individual shrubs and trees can be protected by loosely wrapping to a minimum height of 36 inches with welded wire fencing, zinc or plastic coated, or roofing felt held in place with string or wire.)

Groups of shrubs or trees can be protected with 36 inch high fences made of welded wire, woven wire or 12 inch high tensile electrified wire with a minimum of 3 strands of wire spaced at 4 inch intervals.

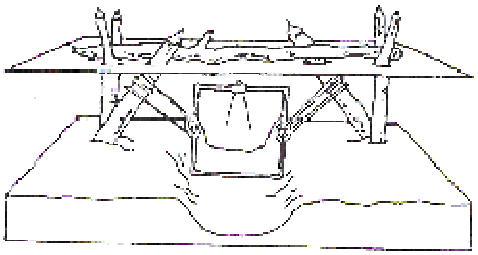
(Note: Fencing may not be effective in late spring where deep late snow persists.)

Removing Beaver



Open Season--The trapper/landowner partnership is undoubtedly the best long-term solution for minimizing beaver damage. A trapper can solve a landowner's problem by trapping beavers during the open season. Beaver pelts are at their prime during these winter seasons. The Bureau of Wildlife maintains a list of active beaver trappers in your region. Trapping methods include the use of foot-hold and body-gripping traps.

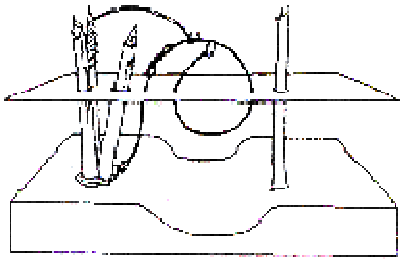
Closed Season--Complainants must obtain an Article 11 permit from the Bureau of Wildlife to destroy beavers and/or their structures. Fees may be incurred to have trappers remove beavers during the closed season. Pelts are of no value at this time of year.



Methods of Take During the Closed Season--(Note: Complainants or their agents land owned or leased by the complainant, do not require trapping or hunting licenses).

Foothold Traps--Catch target animals by one foot. Drowning sets are recommended.

Body Gripping Traps--Strike and hold target animals on the neck or chest.



Cables--(Note: These methods are lawful ONLY under authority of an Article 11 permit.) Loops of light cable are suspended in channels or in front of burrows to catch beavers swimming through.

Cable clusters of four or more small loops of wire are extended from a pole which can serve as bait and anchor. Beavers attracted to a freshly cut aspen pole become entangled in the loops.

Shooting--Bullets or shot discharged over water are likely to ricochet beyond the target. Firearms may not be lawfully discharged within 500 feet of a farm, building, or dwelling, without the consent of the owner, or within 500 feet of any school or playground, over any public highway or in a municipality with a law forbidding it.

A nuisance beaver can usually be attracted to a breach in its dam, where shooting will be safe. A shotgun with number four buck is recommended. Beavers are more likely to inspect a breach early in the morning or late in the evening. If the shooter misses, the beaver seldom provides another chance.

Relocation of Problem Beaver--DEC will not authorize relocation of problem beaver except under extraordinary circumstances and then only after there has been careful consideration of all other options. This decision to relocate will be made by the Regional Wildlife Manager. If a permit is issued to live trap, transfer and release beaver, DEC will provide the release site location as a special permit condition.

Removing Beaver Dams

Except under authority of an ECL Title II Permit, it is unlawful to disturb any structure made by a beaver. A complainant or agent who breaches a beaver's dam under such permit authority is personally liable for any flooding damage done to downstream property.

If the beaver is not killed, dam removal is a very short-term solution. Beavers usually rebuild dams quickly and sometimes in larger volume. Beavers are most active at night, therefore, dams should be breached in the morning to allow water to flow all day.

The draining of beaver ponds is more successful during the dry summer months when there is less available water to resupply ponds that are being drained. Ponds that are supplied by seasonal runoff can sometimes be drained during dry periods so as to discourage beavers and cause them to relocate.

After beavers are removed and the water has been drained from the pond, it is advantageous to remove as much of the dam as possible. A narrow notch in the dam of an abandoned pond is very easily plugged by wandering beavers.

Hoeing by hand--Potato hoes or stone hooks are the best tools. Shovels and spading forks are ineffective. Good water control is possible if the breach is kept shallow and broad so that the water level falls slowly. In the case of a large blocked culvert (2' diameter or greater) it is very unsafe to stand in the water in front of it or crawl into it from the other end.

Power Excavating--Tractor *or* truck mounted excavators are often used by town, county or state highway employees to remove large amounts of material from beavers' dams and can inadvertently cause down-stream flooding.

Blasting--like hand tools, explosives are easily carried to inaccessible sites (Caution: Users of explosives must be licensed). Using explosives to breach a beaver pond is, unfortunately, almost certain to cause down-stream flooding and excessive siltation and is seldom justified. Neighbors should be told where, when, and why this is going to be done. If this method must be used, it is best to do it in mid-summer when the water is low.

Removing Beaver Lodges

This is sometimes done in the hope of driving beavers out or to discourage other beavers from occupying the pond site in future years. (Note: It is unlawful to disturb a structure made by a beaver, EXCEPT under a permit which clearly gives authority for this action.) Destroying an occupied lodge seldom causes a beaver family to leave. However, after the beaver have been removed and the pond drained, it may be advantageous to destroy the lodge so that the site is less of an attractant.

Beaver and Giardiasis

What is Giardiasis?

Giardiasis is a gastrointestinal infection caused by a microscopic parasite called Giardia lamblia. This is a common parasite causing gastrointestinal illness in the United States. Giardiasis can be a problem in areas where sanitation is poor, or when unfiltered water supplies are contaminated with the organism.

How is Giardiasis Spread?

A Giardia infection can be acquired when you ingest food or water which has been contaminated with the parasite. The parasite multiplies in the small intestine and is passed out with a bowel movement. Any food or drink which has become contaminated with an infected stool can transmit the parasite. The infection can also be spread person-to-person when hands, which are contaminated with an infected person's stool, are brought in contact with the mouth. Swallowing as few as ten parasites can cause the infection. Person-to-person transmission is the main way that giardiasis is spread, such as in day-care centers and institutions, where personal hygiene may be poor due to age (infancy, elderly) or disability. Giardiasis can also be spread in this manner in a household setting.

Are Animals Involved in the Spread of Giardiasis?

Giardia parasites have been found in the stools of many animals, including rodents, dogs, cats, cattle, and wild animals. Animals living near water supplies, such as beavers and muskrats, have been found to be infected with Giardia. The extent of direct animal-to-human transmission of Giardia is minimal; there is greater evidence of indirect transmission such as through contamination of water supplies.

What are the Symptoms of Giardiasis?

Symptoms of Giardiasis usually appear 7 to 10 days (and sometimes as long as 4 weeks) after ingesting the parasite. The most common symptoms are diarrhea, foul, greasy stools, abdominal cramps, bloating, increased gas, weakness and weight loss.

Do all People Who are Infected With Giardia Get Sick?

No. Some people who are infected with the parasite may only have minor symptoms and some people may not have any symptoms at all. However, these people can still pass Giardia parasites in their stool and become a source of infection for others.

How is Giardiasis Diagnosed?

Giardiasis is usually diagnosed through a laboratory examination of a stool sample. Your physician will forward the stool sample to a laboratory which will use a microscope to look for the parasite. Several stool samples may need to be examined to detect the parasite. The disease can also be diagnosed through a sample of fluid or a biopsy from the small intestine.

What is the Treatment for Giardiasis?

There are several medications which are effective in treating the infection. They are only available by prescription from your physician. Other treatments for diarrhea, such as increased fluid intake, may also be recommended by your physician.

How Can Giardiasis Be Prevented?

Giardiasis can be prevented by practicing good hygiene and using caution before drinking water from an unknown source.

Some general guidelines are:

1. Always thoroughly wash your hands with soap and water before meals, before preparing food, after having a bowel movement, after changing diapers, and after playing with your pets.

2. Do not drink untreated water from a surface water supply such as a pond, lake, or stream. Although the water may appear to be clean, it may contain Giardia parasites which cannot be seen without a microscope. If only untreated water is available, boil the water before drinking it.

3. If you are taking care of a person with Giardiasis, use extra precautions after contact with the person's stool (for example, after changing diapers). Promptly and carefully dispose of any material which has been contaminated with stool and always wash your hands after such contact.

4. If your source of drinking water is from a well or another surface water supply, do not allow humans or animals to defecate (have bowel movements) near the water. In addition, appropriate water filtration systems can be effective in removing Giardia parasites from contaminated water.