

AGRI-FACTS

Practical Information for Alberta's Agriculture Industry

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Control of Beaver Damage

This publication is meant to assist people to manage with beaver problems by presenting techniques that will minimize the negative aspects of beaver-caused damage.

Biology

The beaver is a semi-aquatic mammal and the largest native North American rodent. Mature males weigh 19 to 25 kg (40 - 60 lb), but can weigh over 40 kg (100 lbs). Only one litter of 4 to 6 kits is produced each year from April to June, following a 100 to 105 day gestation. At two years of age, beaver leave the home colony to search for winter quarters, which may take them up to 10 km away.

The life span of beaver is 5 to 10 years, with some living up to 20 years. Because of their size, behavior and habitat, beaver have few enemies. Mortality is highest during the first year; coyotes, wolves, bears and other large carnivores are the main predators.

Apart from occasional sickness, trapping is the only major unnatural cause of death. Research shows that beavers can maintain or increase their numbers with an annual trapping rate of 30 to 40 per cent. It is no surprise then, that beaver numbers never seem to decline significantly, even in problem areas where removal is the major method of control.

Beaver ponds play a valuable and significant role in the formation of Alberta's plant and animal communities. Their dams create ponds that contribute to the stabilization of water tables and help reduce rapid rain runoff. Dams also help reduce soil erosion and improve soil quality, since runoff deposits in quiet pools near beaver dams. As a result, beaver habitat is often rich in plant and animal life, making beaver ponds excellent sites for observing nature.

Beaver ponds also provide recreation such as fishing and hunting, and they have great

aesthetic value. Furthermore, beaver ponds create habitat for other fur-bearing animals with good harvest value.

Harvesting of beaver is a major source of income to Alberta's fur trade industry and annually represents about 30 per cent of gross fur sale revenues (over \$5 million in 2001).

Giardiasis (inaccurately called "beaver fever") is a disease caused by a microscopic parasite found in the excrement of infected birds and mammals, including beaver. Beaver often get the blame for the spread of the disease because they are the most obvious carrier in water contaminated with the parasite.

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Damage

In Alberta, beaver problems occur wherever there are trees and water. Most conflicts with beaver, however, occur in the aspen parkland region, which covers more than half the province's farmland. In these areas, beaver cause problems by flooding cultivated land, hay fields, pasture land, roadways and often detour or restrict water flow in streamways.

Damage in urban areas is generally minor. However, beaver problems can be severe where beaver girdle or cut down valuable ornamental trees and shrubs or undermine yards, walks and roadways with their burrowing.

Beaver damage control

Before beginning any beaver control action, assess the beaver problem fairly and objectively. Are beaver really causing damage or creating hardship requiring control action? The very presence of beaver is often seen as a problem when, in fact, the beaver are causing no harm. You should also determine the type of damage or problem the animals are causing, then match the most appropriate and cost effective controls to the situation.

Once you have decided to control beaver damage, you have three control options:

- prevention – treat the area to prevent or reduce the damage
- live trap and relocate the problem beaver
- destroy the problem beaver and remove the dam

Since live trapping and relocating beaver are often cost prohibitive, their use is limited and often not practical. Also, research has shown that these methods of control are of questionable value because translocated beaver either return to the problem area or seldom survive relocation.

However, in urban areas where lethal trapping may be illegal or unsafe, live capture and translocating may be the only alternative.

Prevention

Tree protection

Beavers can be fenced out of a treed area or individual trees can be wrapped with galvanized metal or chicken wire to a height of at least 1 m. Valuable broad-leaved trees can be protected by a galvanized metal fence at least 1 m (3 ft) high and 0.5 m (18 in) below ground; however, this protection method can be expensive.

Repellents

Thiram, the only repellent known to reduce beaver damage, is applied directly to trees and shrubs. However, this method will usually work only where beaver have alternate sources of food, i.e. other trees they can cut for food. No license or permit is required to purchase or use this product.

Water level control without beaver removal

Where flooding is the major problem, the use of a “beaver drain pipe” is the best solution. Make a “drain pipe” or water level stabilization device by fitting two plastic sewer pipes together and perforating one of them. The diameter of the pipes can be 10, 15, 20 or 25 cm (4, 6, 8 or 10 in.), depending on volume of water in the stream.

Dig a hole through the beaver dam in line with the original stream channel. Set three-quarters of the pipe at almost any level in the dam, extending the perforated end out into the pond (Figure 1). A weight should be placed on the end of the pipe. Allow about one quarter of the pipe to extend on the downstream side of the dam. Beaver pipes work best where the flooded area is more than 1 acre and the minimum water depth at the pond is 0.5 m (18 in.) or deeper. Be sure to add a 30 cm (12 in.) elbow or turndown to the end of the pipe to discourage plugging of the upstream end of the pipe.

In the case of a plugged culvert, the dam should be removed and a heavy wire mesh cover or fence (No. 6 concrete reinforcing wire) should be installed around the mouth of the culvert and secured with steel posts. When the beaver build a dam on the fence, a “beaver pipe” can be placed through the fence to keep the water at a desired level (see Figure 2).

A single “beaver pipe” can handle the normal runoff from an 800 hec. (2,000 acre) drainage area; some installations use up to three pipes. It is not feasible to manage streams with flows from drainage areas exceeding 10 to 11 square km with beaver pipes.

A pipe installation usually provides a long-term water level control at a nuisance site. However, it can also provide control until beaver are removed from the site through a regular fur trapping season.

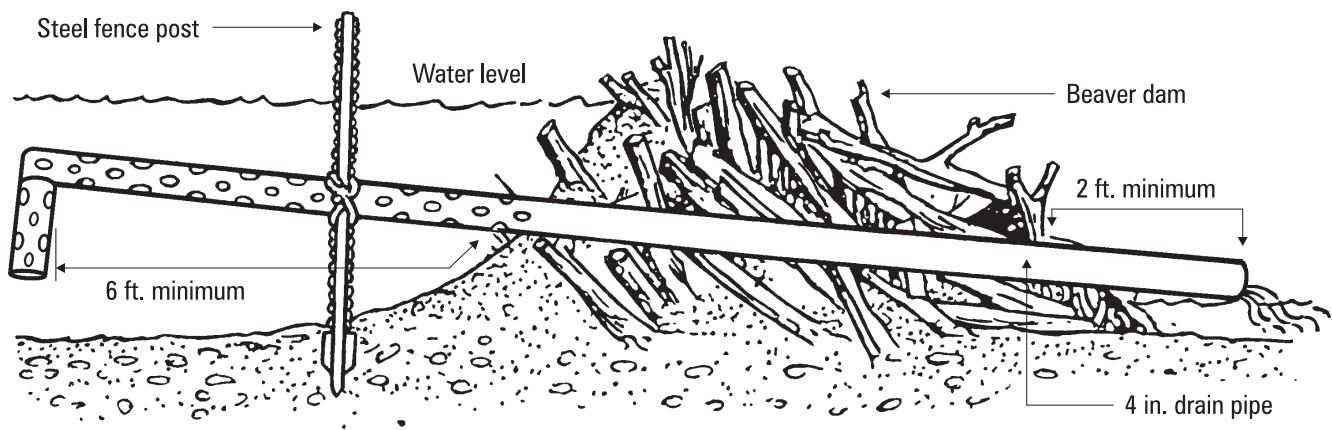


Figure 1. Drain pipe

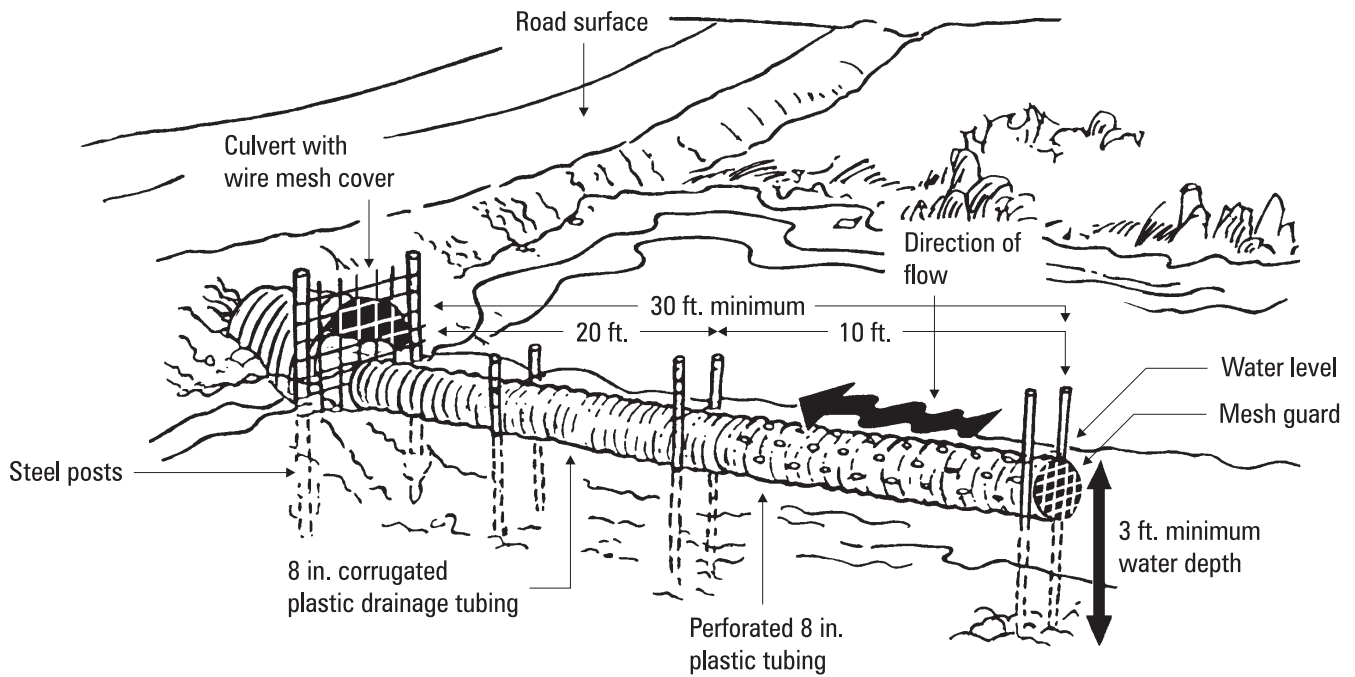


Figure 2. Beaver pipe installation

The benefits of a pipe installation include the elimination or reduction of beaver damage as well as the conservation of a beaver colony and a steady supply of stock water. In problem areas where emigrating beaver continually re-occupy the site, trapping would be necessary on a yearly basis. If trapping is required five or more years out of fifteen, a pipe installation is a more effective and less costly method of controlling the problem.

Three important requirements need to be considered when using beaver pipes:

- water depth and area must be adequate to install pipes properly
- the normal flow of the stream during the control period must not exceed the flow capacity of the pipe
- you must accept short periods of high water levels

Beaver guards

A wire mesh cylinder of 10 x 10 cm (4 in. x 4 in.) welded wire mesh (0.4 gauge or 0.25 in. diameter) will protect culverts from beaver. The diameter of the cylinder should be the same as the culvert, and the cylinder may be in a horizontal or vertical position (Figure 3).

The length of the cylinder may vary, but as a general rule, the length should be twice the diameter (i.e. if the culvert diameter is .75 m, then the cylinder length should be 1.5 m). Secure the cylinder with heavy metal stakes and fasten it to the culvert.

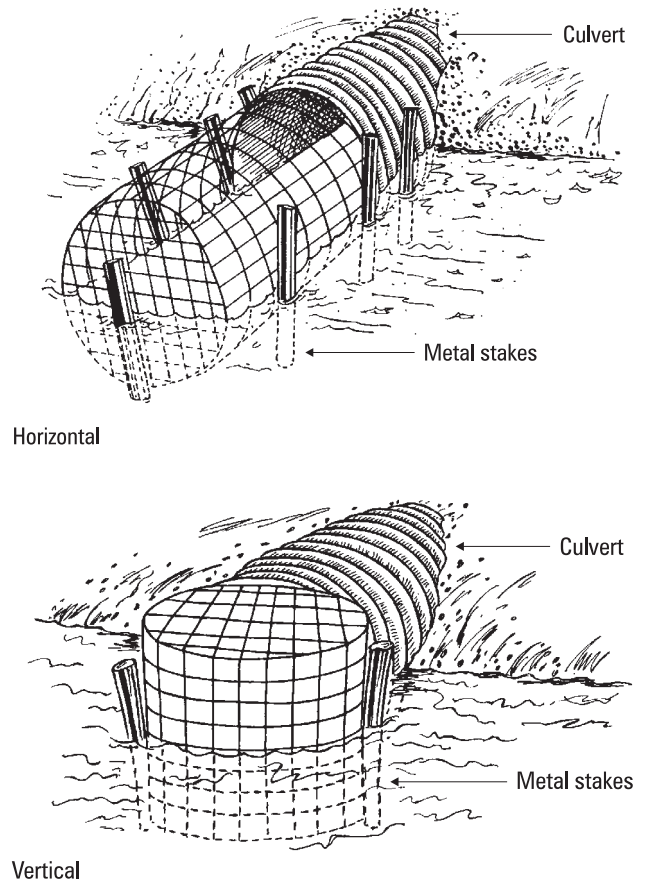


Figure 3. Beaver guards

Shooting and trapping

Landowners may shoot and trap beaver without a license, year-round, on their own land. On private land, hunters may trap or shoot beaver, year-round, with written landowner permission.

Shooting – Shooting beaver can be an effective control technique. Shooting is best done at dusk or early dawn when beaver are active. They should be shot only when they are out of the water; too many are seriously injured when shot in the water, only to die a slow and painful death. Keep hidden and patiently stalk or wait for beaver near their dams. A medium-sized calibre rifle such as .22 Hornet, 233 or .22 high power or larger calibre is recommended; smaller calibre or shotgun calibres are often underpowered for an animal the size of a beaver.

Trapping – In agricultural areas, beaver damage usually occurs when fur values are low and beaver numbers high. The solution is a combination of preventive control and timely beaver harvest. To achieve this end, beaver numbers need to be regularly and continually monitored to observe population shifts and to avert potential problems. Contact your agricultural service board or Fish and Wildlife officer for the name of a local trapper if you do not want to remove the beaver yourself.

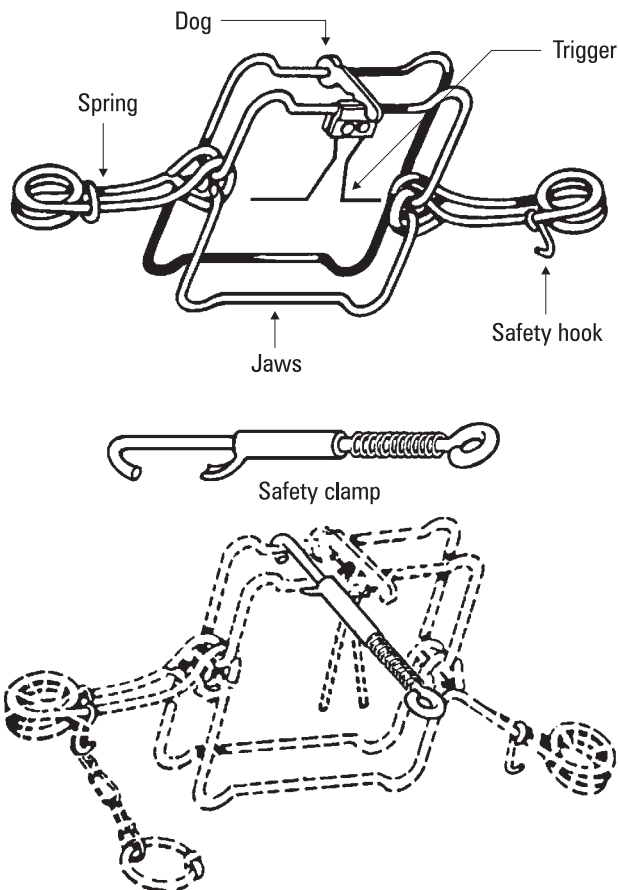


Figure 4. Conibear trap and setting equipment

You can resolve many beaver problems by trapping. The type of trap and set used depends on the type of problem, location and time of year. Beaver are generally easy to trap; however, they can quickly become “trap-wise” from poorly placed traps or inferior equipment.

Equipment

The most effective trap for beaver is the body-grip trap called a “conibear.” The proper size of conibear trap for beaver is 280 through 330.

Set and handle conibear traps with great care. To set them, you will need a safety clamp and a seven-foot nylon rope to ensure your own safety (Figure 4). You should also always carry a hacksaw blade with you. A hacksaw blade is your back-up safety if you get caught in a trap and cannot escape. Most professional trappers sew a hacksaw blade into their trapping coat, so they will always have a saw with them.

Conibear traps are equipped with safety catches on each spring, but the safety clamp should always be used when setting and placing them.

The springs of the conibear trap can also be set with the nylon rope by typing the rope to one spring coil and running it through both coils two or three times. This method will allow you to easily pull the spring coils together and secure them with the safety catches.

Canal set

One of the easiest and most successful conibear trap sets is the canal set. Place a heavy pole through each spring coil of the trap. Use baling wire to attach this pole to two anchor stakes, and drive the anchor stakes into the canal banks. When set, the pole should touch the water surface to cause the beaver to dive under it into the trap (Figure 5).

If the canal is wider than 40 to 45 cm (16 - 18 in.), place a short pole on either side of the trap to encourage the beaver to enter the trap. **Note:** Bend the trigger wires to the sides, as shown in Figure 5, so the approaching beaver does not sense the trap.

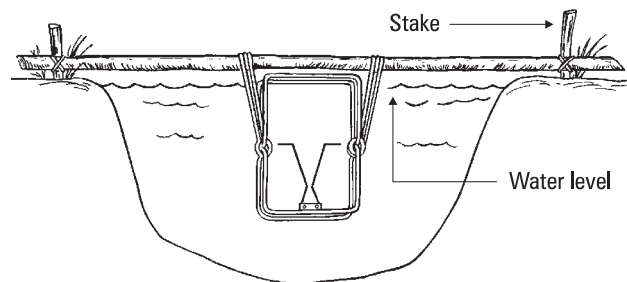


Figure 5. Canal set

Bank den set

Place the trap at the bank den entrance and put a stake through each spring coil. Drive the two stakes into the mud to secure this underwater set (Figure 6). The bank den set may also be used at the entrance to the beaver lodge.

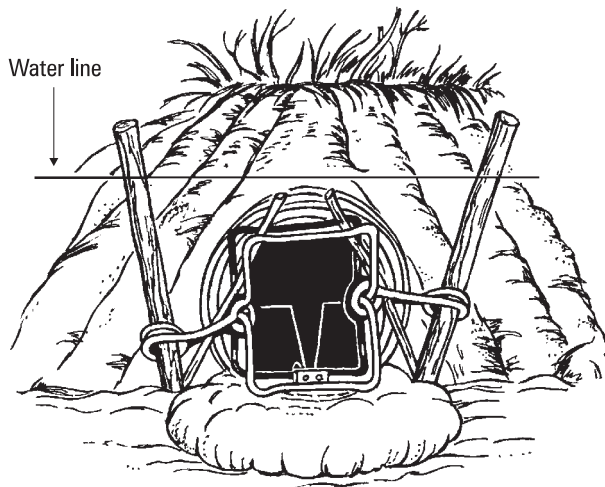


Figure 6. Bank den set

Dam set

Locate the travel path on top of the dam and set a conibear trap as shown in Figure 7. The trap may be camouflaged with grass, twigs or leaves to break the trap outline. Scent lure may be placed on the trail about two feet from the trap.

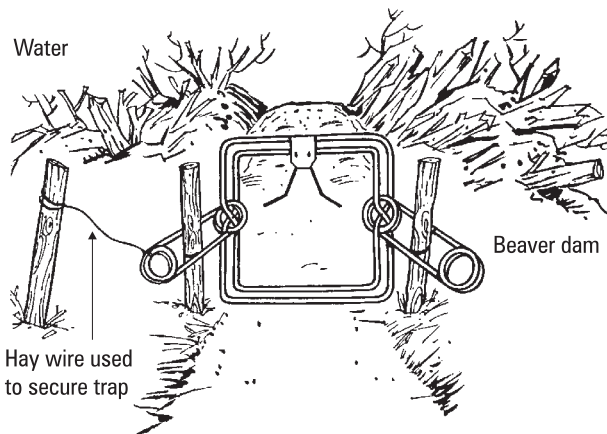


Figure 7. Conibear set at dam

Water edge set

Another set for unwary beaver is to secure a conibear trap in the water about 30 to 40 cm (12 - 18 in.) from bait or lure placed at the water's edge. The trap should never be more than half submerged in the water. Use grass or leafy branches to camouflage the trap outline. Do not place camouflage material within the trap's jaws (Figure 8).

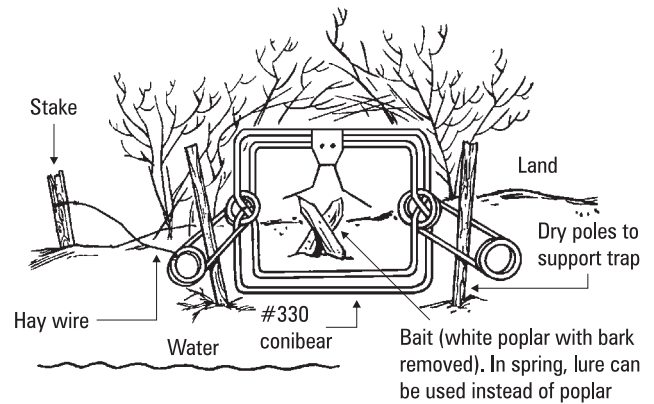


Figure 8. Conibear set at water's edge

Explosives

Federal law restricts the use of explosives to only authorized people who are specially trained and certified, including landowners who may obtain special permission to use dynamite. Most rural municipalities have beaver control officers who remove beavers and/or their dams at the request of landholders. For more information, contact your local municipal office.

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