UofA UNIVERSITY OF ARKANSAS
DIVISION OF AGRICULTURE
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Agriculture and Natural Resources

# Beaver Damage Prevention and Control Methods

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Figure 1. Beaver

The beaver (*Castor canadensis*), our largest North American rodent, is nature's equivalent of a habitat engineer. Beaver create ponds and wetlands used by waterfowl, shorebirds, muskrats, otters, fish, amphibians, aquatic plants and other living species. Beaver ponds generally slow the water flow from drainage areas and alter silt deposition, thus creating new habitat. During drought conditions, beaver ponds create water holes for livestock and wildlife, particularly waterfowl. However, their engineering feats cause problems when they (1) flood homes, roads, croplands and timberlands, (2) dam canals, drainages and pipes, which inhibits water control, or (3) girdle and fell or flood valuable trees, thus causing them to die after prolonged flooding.

In many chronicles, the beaver is lauded as one of the resources that contributed to the settling of our Great Northwest Territory. Explorers such as Lewis and Clark depended greatly on beaver hides for revenue as well as barter. Beaver pelts were avidly sought by trappers until, in many areas, beaver were virtually trapped out. Arkansas was practically devoid of beaver soon after 1900, due to unregulated trapping and hunting for fur. Any beaver that remained were in the most inaccessible areas. Fur prices began to decline for various reasons, and trappers became fewer. Timber was cleared and land drained for farms, thus beaver populations were slow to increase. Subsequently, 77 beaver were restocked in Arkansas from 1926 through 1957. Changing land use provided increased aquatic habitat, and regulated harvest allowed the population to thrive. Today, beaver are back, and occupy watersheds throughout the entire state.

## Description and Life History

The beaver is a large, stocky-appearing rodent, generally 35 to 40 inches long from head to tail (Figure 1). It has a broad, flat, paddle-shaped tail, short ears and generally brown fur. Its webbed hind feet have a

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double second claw on the fourth digit for grooming themselves. Beaver weigh between 30 and 40 pounds at maturity, but they keep growing slowly their whole lives and may reach 70 to 80 pounds or more. Beaver can live as long as 11 to 12 years in the wild. Otters prey on beaver kittens, and occasional predation on young beaver occurs from coyote, bobcat, bear and alligators where ranges overlap. The beaver's tail is used as a rudder while swimming and is slapped against the water as a danger signal. The beaver's four large front teeth enable it to girdle or cut down large trees or other vegetation used as foods or dam and lodge construction materials.

Beaver are primarily nocturnal, both feeding and working during the night. Beaver are true vegetarians, eating only plant material. Their diet in Arkansas consists primarily of bark, twigs and leaves of trees such as sweetgum, cottonwood and willow, but they may feed on any available tree species, including pine and cedar. Beaver also eat the roots, stems and leaves of aquatic plants, as well as feed on agricultural crops such as corn, soybeans and fruit trees. They will often store food in the den or lodge or under ice to eat during severe weather.

Beaver breed in winter and have a gestation period of four months. The young are usually born in April, May and June and stay with their parents until they are driven from the den at about two years of age. The female normally reaches sexual maturity during her third year and will breed once each year thereafter. On average, a beaver colony consists of two parents, two or three juveniles and four kits, with only one litter produced yearly.

## Nature's Engineers

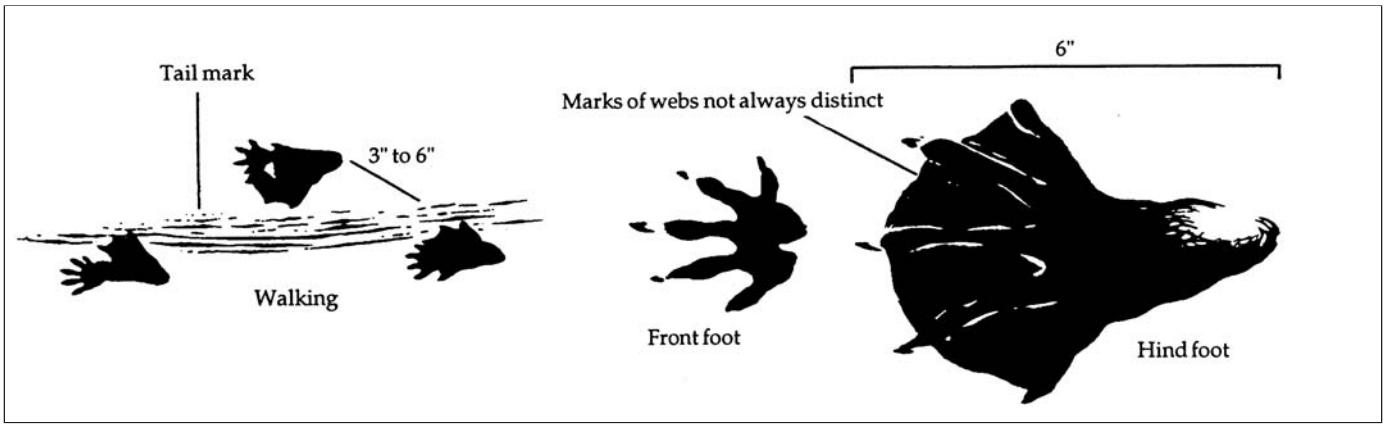
Beaver sign is usually quite evident. If there are beaver in the area, you can spot their tree cutting and girdling activity (Figure 2). Usually, closer examination will reveal slides, "mud dobs," a lodge or den, tracks (Figure 3) and the dam.


Figure 2. Chewed tree

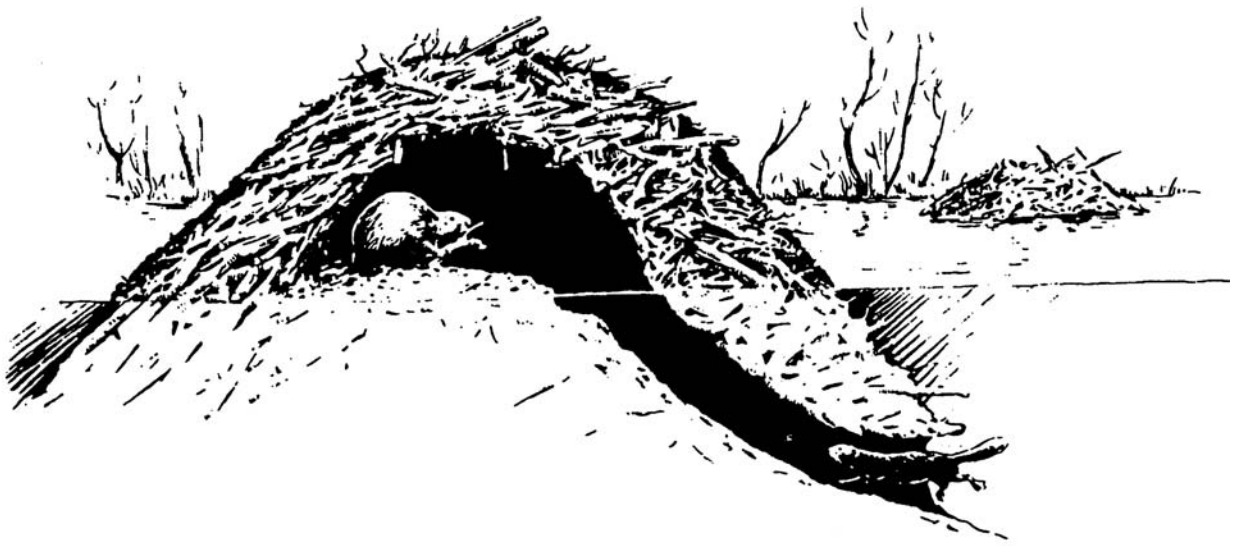
After building a dam, beaver normally build bank dens or lodges out of sticks and mud. By damming a stream, beaver flood the bushes and trees which serve as their primary food source. Ponds also serve as a place to escape, since a beaver can remain under water for a long period of time. They usually use bank dens in streams or where water levels fluctuate often, or lodges made of sticks and mud in shallow-water areas formed by their dams (Figure 4). Beaver enter their dens below the water level, but their living quarters are high and dry above the water level. Active lodges are easily recognized by fresh cuttings and mud on the lodge. There may be more than one colony of beaver in a large beaver pond or lake, but each colony defends its own territory.

## Economics and Legislation

The return of beaver, although beneficial from a wildlife standpoint, has created problems for many landowners. Damage caused by beaver usually consists of flooded timber and agricultural land, girdling and cutting valuable trees and interference with drainage systems. A 1975 survey of beaver damage by county Extension agents indicated beaver were responsible for about $3 million in damage statewide. Ten years later, Wigley and Garner's 1985 landowner survey at the University of Arkansas,



Figure



Monticello, estimated beaver damage cost as much as $23 million. Most respondents (88%) agreed that government agencies should provide some services to landowners experiencing problems with beaver. In 2000, a statewide survey of county Extension agents (63% response rate) indicated that about one-third (30%) of the agents received some inquiries and almost half (45%) received only a few inquiries about problems with beaver in their county. Only three agents (6%) reported receiving many inquiries about beaver.

In 1993, the Arkansas State Legislature passed Act 630, called the Beaver Eradication Program, which was amended to Act 1358 in 1997 and renamed the Conservation District Beaver Control Program. These acts set up a system whereby individual counties can elect to pay bounties for beaver tails. An annual state appropriation of $150,000 pays $5 per beaver, thereby subsidizing removal of 30,000 beaver per year. Several counties budgeted additional funds or landowners paid an additional amount (as much as $20 per beaver tail). Presently, 58 counties participate in this beaver bounty program.

In 1999, the Arkansas Legislature passed Arkansas House Concurrent Resolution 1002 in which the Arkansas Game and Fish Commission was asked to study beaver damage and its extent, and to develop and implement a control program. Progress is being made toward a beaver control program. A telephone survey to assess beaver-related damage in Arkansas was conducted in 2000. Statewide estimates of costs associated with beaver damage was $35 million with the Delta region suffering the most loss at $13.1 million. A majority of respondents (53%) stated that they would not be willing to pay for beaver removal on their land.

## Beaver Control Methods

Currently, landowners wishing to remove beaver from their property have two or three options: contacting a county bounty trapper if their county participates in the bounty program, hiring a private wildlife control specialist or doing it themselves. Following are descriptions of methods and their potential for success.

(1) **Destruction of dam and lodge.** When confronted with beaver problems, many people immediately think that destroying the dam will cause the beaver to leave. In practice, this seldom works. Even a small colony can quickly rebuild a completely destroyed dam in less than 24 hours. Sometimes, beaver inhabiting a fairly new dam will move, but only to the next strategic dam location up or down the stream or ditch. Depending on conditions, stream flow and length of residence by the beaver, they will often build several dams. It is not uncommon to find three or four dams along one-half mile of drainage ditch or stream. Occasionally, new beaver colonies can be moved by burning, dynamiting or otherwise destroying the lodge and the dam. However, another colony may move into the area if desirable habitat is available. Therefore, solely removing dams to reduce beaver populations is not recommended.

(2) **Habitat alternation.** Altering beaver habitat can be quite effective for resettling problem beaver. On many drainage ditches or canals where beaver become a problem, they can be moved simply by cleaning up the food and construction material. This is particularly true where only willow and cottonwood trees are present. These trees are fast growing and are favorite foods of the beaver.

Trees can be removed, thereby eliminating the basic food and construction material for beaver.

Another alternative is installing a Clemson Beaver Pond Leveler (See "Flood Water Management With a Beaver Pond Leveler," FSA9068). This device works on the principle that the detection of water currents stimulates beaver to quickly plug the source of water drainage. The leveler consists of a perforated PVC pipe that is encased in heavy-gauge hog wire. This is placed upstream of a dam or blocked culvert in the deepest part of the stream or water flow. It is connected to nonperforated sections of PVC pipe which are run through the dam or culvert to a water control structure downstream. Because beaver do not detect flowing water as it drains, they do not block the pipe. The leveler works best in relatively flat terrain with short-term flooding. The leveler will not work where water volumes exceed the capacity of the pipe, such as periods of unusually high rainfall, or where steep terrain may cause excessive flooding.

(3) **Exclusion.** Fencing may be an option for small areas such as culverts or drains, but can also promote more damage by providing beaver with materials for dam construction. Encircle important trees with metal barriers, hardware cloth or woven wire. Fences should be at least 3 feet high and constructed of 1/2-inch mesh hardware cloth or 2- by 4-inch welded wire. Install the fence so that it is 8 to 10 inches from the plant and completely surrounds it. Bury the fence 3 or 4 inches in the ground, and drive metal rods into the ground inside the fence.

An alternative for protecting small areas is installing an electric fence. One or two strands of 1/2-inch wide electric polytape will suffice, with the lower strand no more than 4 inches above the ground. The polytape should run on nonconductive or insulated posts which are spaced 20 to 30 feet apart on flat ground or as close as 6 to 10 feet on rougher terrain to maintain the 4-inch height. In areas up to 10 acres, a 12-volt battery will be adequate, but areas over 10 acres may require a solar charger. Keep weeds from grounding the electric fence by clipping frequently or applying herbicide two or three times a year.

(4) **Toxicants, fumigants and repellents.** There have been many attempts to find a practical, effective and selective toxic agent or repellent. However, at the time of this publication, there are no registered toxicants, fumigants or repellents that are effective, practical and species-selective for beaver control.

(5) **Trapping.** Where beaver are causing damage, trapping is the most effective and practical method of control. Leg-hold traps, body-gripper traps and snares are all legal in Arkansas. Trapping beaver generally is not as easy or productive as for other mammals, such as raccoon or muskrat. However, with a good knowledge of beaver habits, ability to read sign and armed with the proper trap, most anyone with some outdoor savvy can effectively trap beaver.

Beaver can be trapped at any time of the year by the landowner to protect his or her property from damage. Although trapping nuisance or pest beaver is of primary concern, beaver can be trapped during the fur season as established by the Arkansas Game and Fish Commission. Pelts can be sold if the trapper has a valid license. Fur prices vary due to beaver size and season, and generally furs from Arkansas and other southern states bring lower prices than those from the northern states.

Beaver may not return to a particular food source, but they are creatures of habit in their routes of travel. They repeatedly use the same runs, slides, trails, lodge and burrow entrances. Therefore, these are the best places to set traps. Look for strategic locations for trap placement in relatively shallow water by simply putting on hip boots or waders and feeling out the runs and burrow entrances. Active runs and burrow entrances will be beaten down from 2 to 18 inches deeper than the surrounding bottom. The bottom of these runs will be hard packed, much like a cow trail in a pasture.

Many people not familiar with beaver habits attempt to catch beaver with the trap placed above water. This type of set is difficult to make properly and may catch other animals or be prematurely thrown. The trap should be placed at the base of a slide, where the beaver is going beneath a log or where beaver cross a levee between two ponds. Traps set at lodge or den entrances should be set on the bottom, since that is where the beaver enters its home. However, trails crossing dams may require the trap to be placed only partly submerged, since the beaver will be swimming on the surface as it approaches a dam crossover.

Of the various beaver traps, the body-gripper, or Conibear trap, is one of the most effective and widely used. These traps must be at least one-half submerged in water, but can be set in deep or shallow water with equal effectiveness (Figure 5). Conibear traps can be set in the dam, burrow or lodge entrance, in runs, in front of drain pipes or

**Figure 5. Trapper placing Conibear trap**

beneath slides. When setting a trap in runs or trails, always set the trap so that it is on the bottom of the run or trail. Otherwise, the beaver will swim under the trap. When properly set, the beaver must swim through the trap to get to its destination. When the trap trigger is thrown, the beaver is killed almost instantly.

When initially purchased, the Conibear trap size 330 may come with round wire coils; these are unnecessary and can be dangerous if improperly used. Ignore these coils. Because these traps exert tremendous pressure and impact when tripped, extreme care should be taken when setting and placing traps. For safety, set the trap on dry land and put the safety hooks in place before carrying into the water.

The easiest way to set a Conibear trap (Figure 6) is to run a rope through spring eyes on one side of the trap, then around and back and through the other spring eyes. The rope can be pulled tight to depress the trap spring. Place the safety catch across the two spring wires. The other side of the trap is set the same way. With both springs depressed and safety hooks in place, place the trigger catch over the groove at the top of the two wires, which the beaver will trip. Enter the water, set the trap at the site you've previously located, and stake it down securely through the back part of each spring eye. You may position a row of stakes on either side of the trap to guide the beaver into the trap. On a dive set, place a stake between the spring arms on each side to support the dive stick and guide the beaver into the trap. Remove the two safety catches, keeping hands and feet clear of the jaws. The trap is now ready to catch a beaver.

Using snares can be a safer and more cost-effective method for capturing beaver, since snares cost much less than body-gripper traps and are more convenient to use in many situations. Snares can be placed in runways, much like traps, but unlike body-grippers, do not have to be placed in the water to be legal. Other types of traps, such as suitcase-type live traps and foot-hold traps, also can be used in Arkansas to catch beaver. Suitcase-type traps are rarely used, since they are rather expensive (in the hundreds of dollars) and not very efficient. Large foot-hold traps (No. 3 or larger) used as a drown set may catch beaver in slides, runs or between dam crossovers or feeding areas.

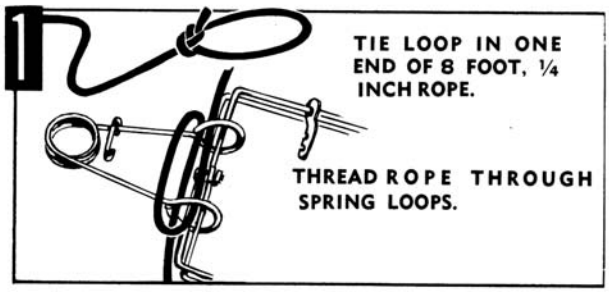
(6) **Shooting.** In Arkansas, shooting beaver is allowed year-round during daylight hours on your own land, but shooting beaver at night requires that the landowner obtain a depredation permit from the local wildlife officer or wildlife biologist. Shooting beaver with a shotgun requires large shot size at close ranges. Rifle shooting requires a steady hand and should not be done where ricochets would be a problem. Shooting is generally not effective in eliminating all beaver, but can be used, along with trapping, to quickly reduce a beaver population.

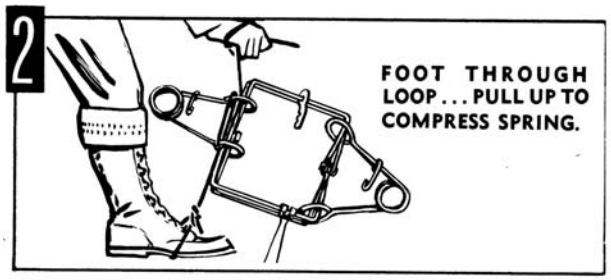
## Summary

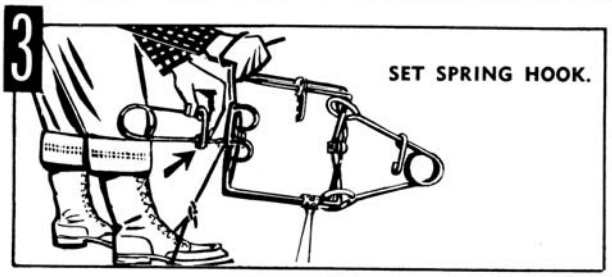
Beaver are of historical importance to Arkansans and exemplify the successful return of wildlife to "The Natural State." However, increasing numbers of beaver have caused serious property damage for some landowners and county governments which maintain roadways and culverts. In these areas, beaver must be controlled. Knowing about the beaver, its habits and management methods will assist landowners and government officials with selecting options for its control.

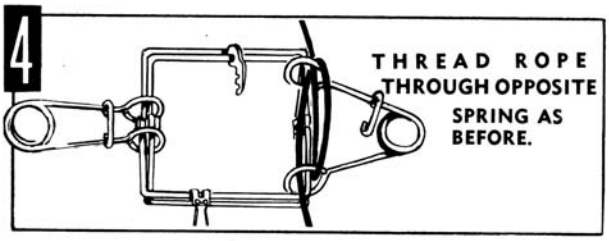
Figure 6.

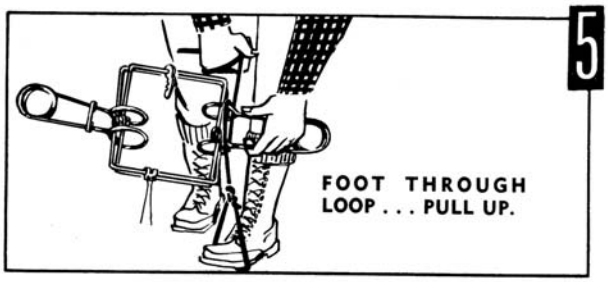
# Conibear Trap Set

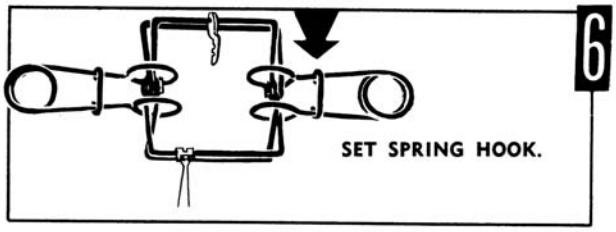


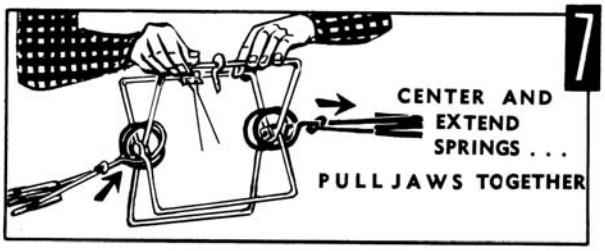



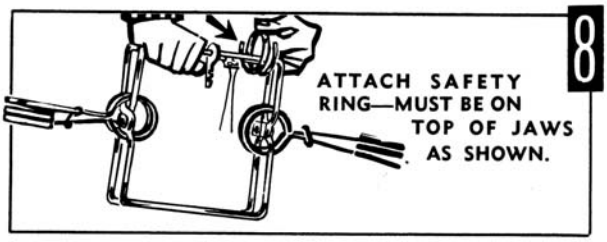



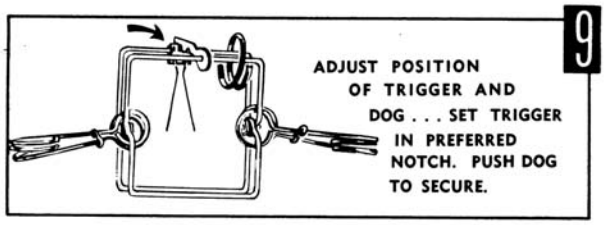



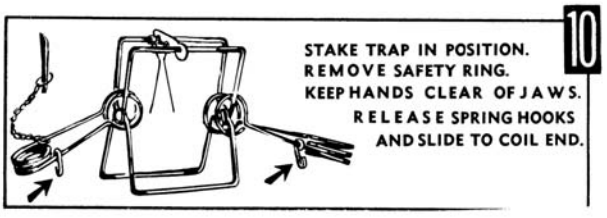

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