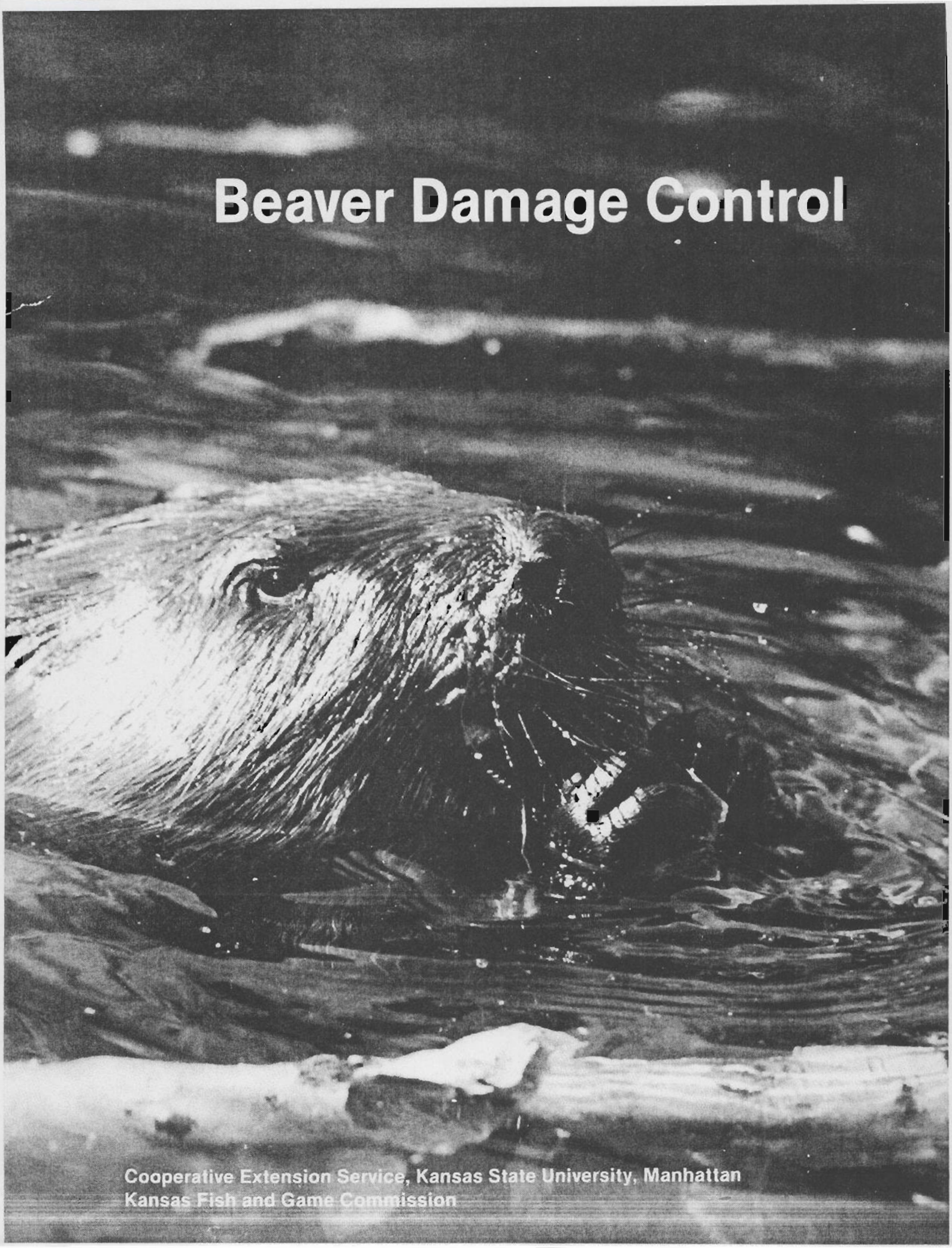
Beaver Damage Control



Cooperative Extension Service, Kansas State University, Manhattan
Kansas Fish and Game Commission

Acknowledgements

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We thank the people and agencies named above for permission to reproduce this material. We have drawn on our own combined experience of 50 years of beaver trapping and helping people reduce conflicts with beaver.

Introduction

Among mammals, the beaver *(Figure 1)* is second only to man in ability to alter the environment for their own needs. Mention the name beaver and the imagination conjures up visions of mountainmen exploring the vast wilderness in search of valuable fur. The name also brings forth a positive attribute, industrious; the busy beaver constructing dams, digging canals, building lodges, and felling trees. To many people a beaver pond is synonymous with conservation. The sight of a placid beaver pond with signs of activity, such as peeled branches, slides, freshly cut trees and the odor of a beaver scent mound, produces a tranquil feeling of a peaceful wilderness for many harried urban dwelling humans.

Figure 1. The beaver is the largest native rodent in North America.

History of Beaver in Kansas

Beaver can be found today on all streams in Kansas that have a year round water supply. Beaver populations have not been static in the state. The history of beaver in Kansas is a classic story in the history of wildlife management. Beaver abounded in the pristine streams in Kansas. During the period from 1775 until 1900 they were heavily exploited. Management of the species was not considered and no seasons or regulations governed the harvest. By the end of the 19th century beaver populations in Kansas had nearly vanished. In 1911 the state legislature enacted laws protecting furbearers and specifically closed the state for the harvest of beaver and otter. Live-trapping and transplanting efforts spread the species throughout its former range. Habitat conditions in portions of Kansas improved for beaver as woody vegetation established along the streams.

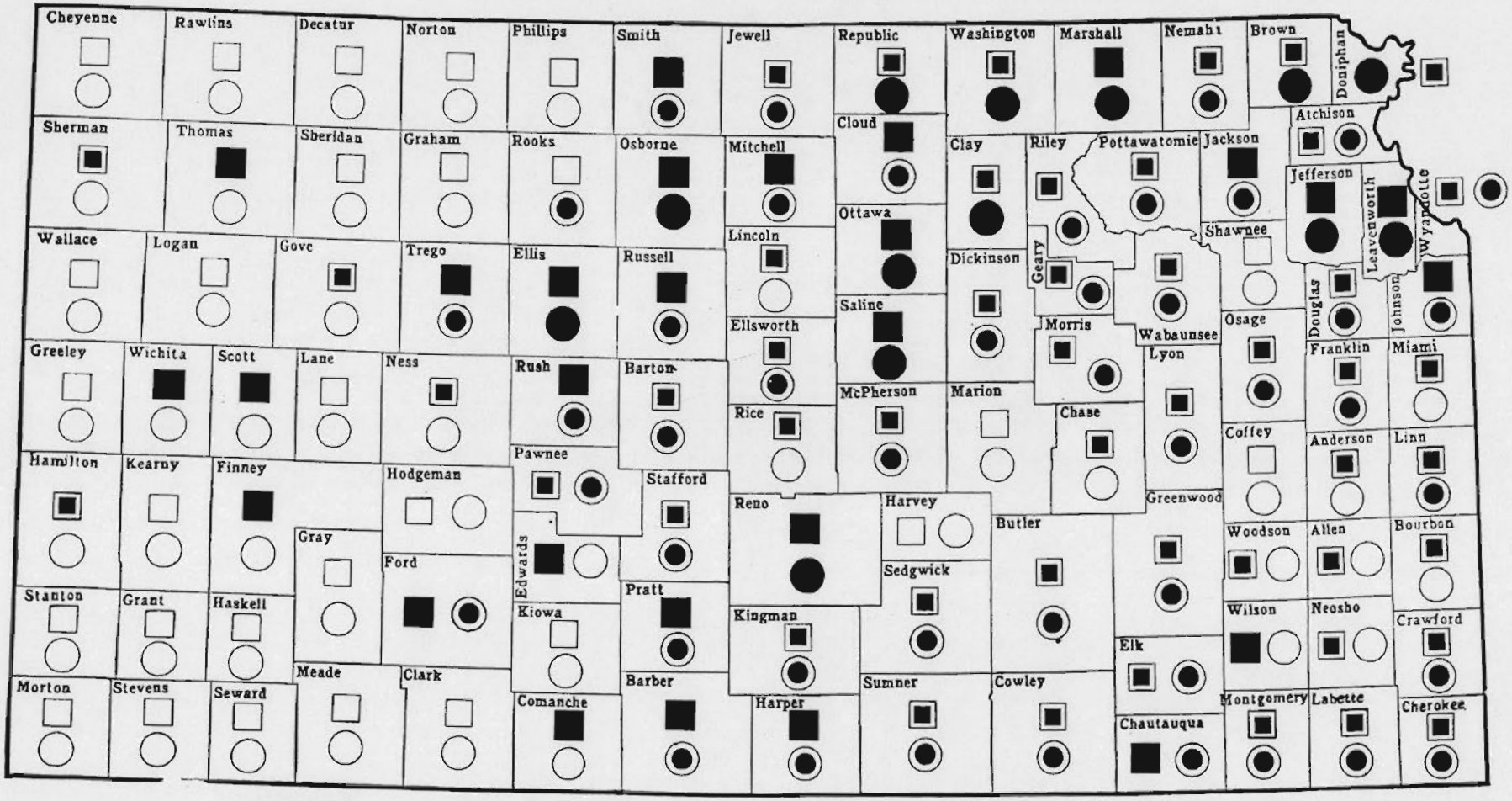
Beaver reintroductions were highly successful when needed.

Beaver populations responded to these conditions. In 1951 a restricted harvest season was initiated. The incentive for trappers to harvest beaver, created by the combination of beaver pelt price and the lure of pursuing a species that has traditionally challenged trappers, insured that beaver populations could be held in check for a few years. In recent years, beaver pelt prices have dropped below the incentive level while pelt prices on species like raccoon, coyote and bobcat have enticed the trappers to pursue them.

As a result, the beaver populations in many parts of eastern Kansas have increased to perhaps greater numbers than prior to settlement of Kansas by non-Indian people. *Figure 2* shows the distribution of the harvest of beaver in the state and the distribution of trapper success rates. Some areas of the state have high beaver numbers but are difficult to trap. During the period from 1977 until 1985 there have been beaver harvested in 101 of the counties in Kansas. Beaver are present in the other 4 counties but our surveys have not detected individuals that trap the species.

Society today is composed of many people that have no strong association with the land and frequently very little knowledge about wild animals. Many people are surprised that beaver live in Kansas. They believe that beaver are only associated with mountains or wilderness areas. Some of these people also believe that the species is endangered and they vigorously oppose harvest or control measures.

Figure 2. Beaver harvest levels and trapper success rates in Kansas counties from 1977 to 1985.

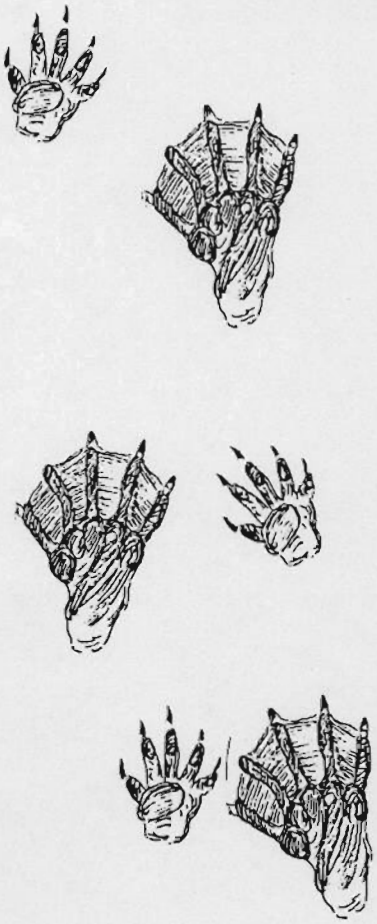


Life History

The beaver is the largest species of all the native rodents in North America, often tipping the scales at 40 to 60 pounds. A beaver found dead in Kansas weighed 110 pounds.

Beaver are surviving members of an ancient family of mammals. There are two species of beaver, one native to North America and the other native to Europe and Asia. As large as the current species of beaver appear to us, they would appear dwarfed in comparison to one of their pre-historic counterparts. That species of beaver inhabited the streams and rivers of Kansas during the Pleistocene and may have weighed over 600 pounds. The giant beaver was extinct long before European explorers arrived in North America, but a skull found around 1900 at a location 3½ miles southwest of Boicourt, Kansas in Linn County and compared with a specimen of the present species in *Figure 3* clearly shows the size difference.

Figure 3. Prehistoric beaver skull in upper right compared to a skull of a present-day beaver.

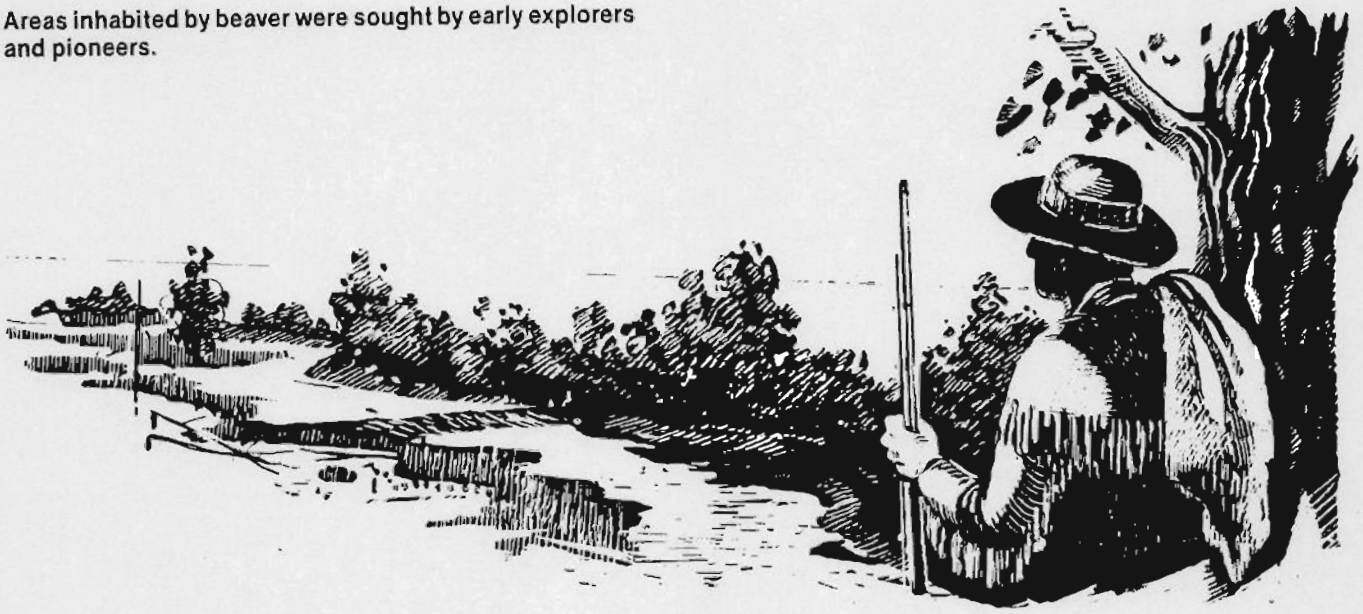


Beaver tracks are easy to identify by the large webbed hind feet.

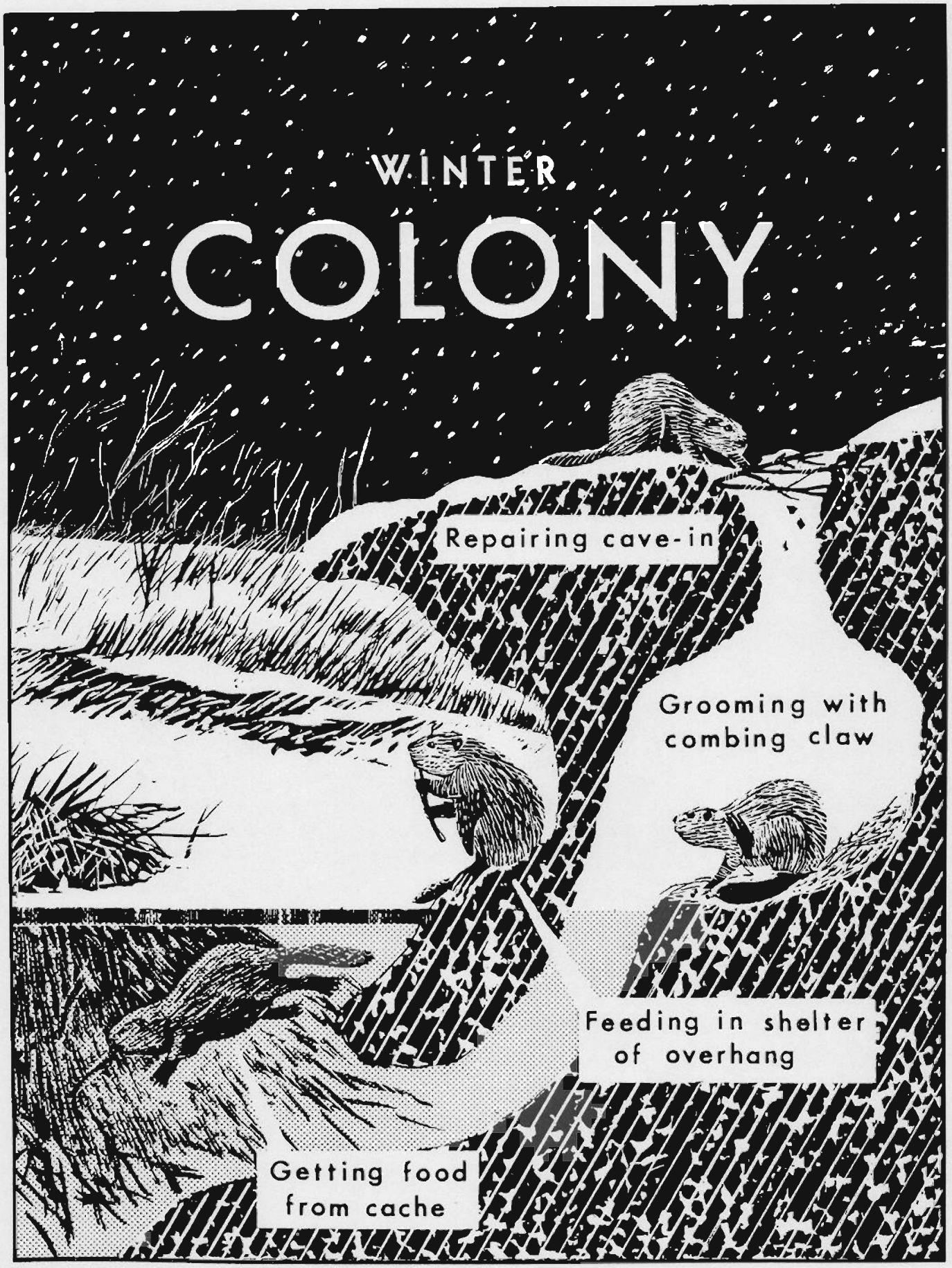
Beaver are highly specialized. Through years of selective pressure they have evolved into a species adapted for life along streams, rivers and lakes. The distinctive flat scaly tail can be used like a rudder or sculling oar to aid the beaver while swimming. It also serves as a prop while the animal is sitting or feeding. The tail can also be used to slap the surface of the water and produce an alarm signal. The hind feet are fully webbed and are used to propel the animal through the water. Beaver are capable of swimming at a speed of five miles per hour. The inner two toes of the hind feet have double or split nails that are movable. These nails are used to groom the fur as they can be used to comb and distribute oil on the fur. These split nails have also been suggested to be used to comb lice out of the peltage and to pick splinters from around the teeth. The beaver has special adaptations that allow it to work under water. These adaptations include closable nostrils, valvular ears, nictitating eye membranes and lips that close behind the incisors. Beaver have a relatively small heart and no specialized oxygen storage capacity; however, they are able to change blood chemistry parameters, heart rate and circulation patterns which allow them to remain submerged for periods up to 15 minutes. This allows a beaver to submerge and swim to safety or food half a mile away. Among rodents, beaver are the most specialized swimmers.

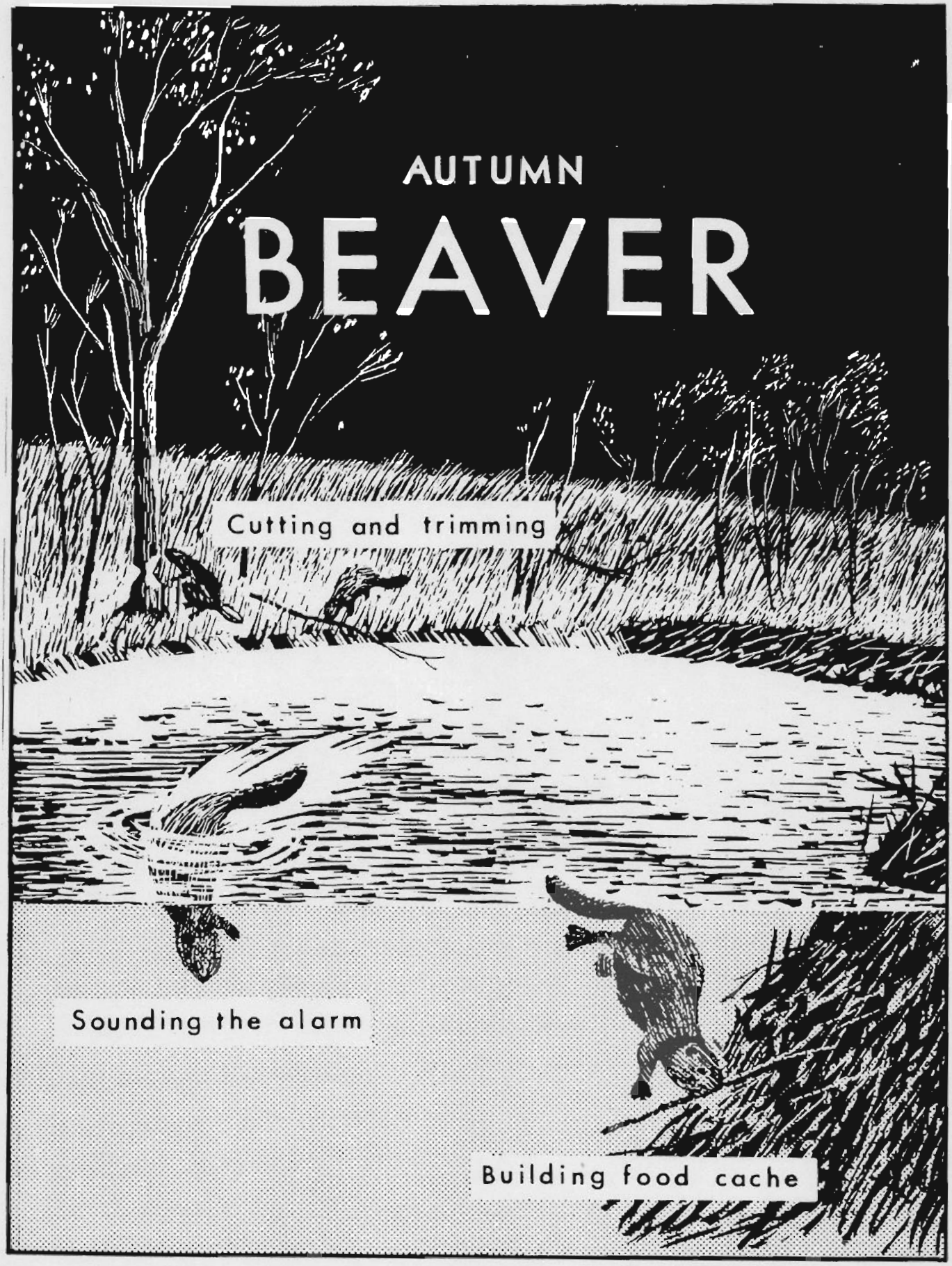
Beaver usually live in colonies or family units. This unit normally consists of an older mated pair, young from the previous year, and young from the current year. Depending upon the habitat, crowding, and general health of the beaver population in the area, colonies vary in numbers of individuals from 2 to 25. Generally an average of 5 seems to be normal for Kansas. Beaver have young born once a year in the springtime. Beaver live to be 10 to 12 years old. Beaver have from 2 to 5 young per year.

Areas inhabited by beaver were sought by early explorers and pioneers.



Beaver live in family units called colonies. The young may remain with the colony for two years. Leonard LaRue photo.

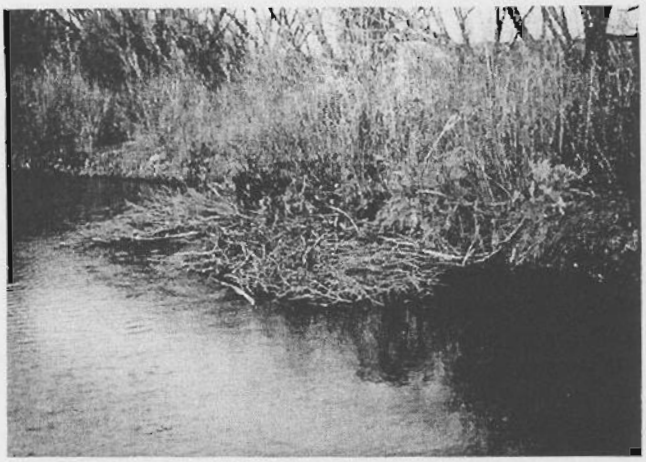

WINTER
COLONY
Repairing cave-in
Grooming with combing claw
Feeding in shelter of overhang
Getting food from cache


AUTUMN
BEAVER
Cutting and trimming
Sounding the alarm
Building food cache

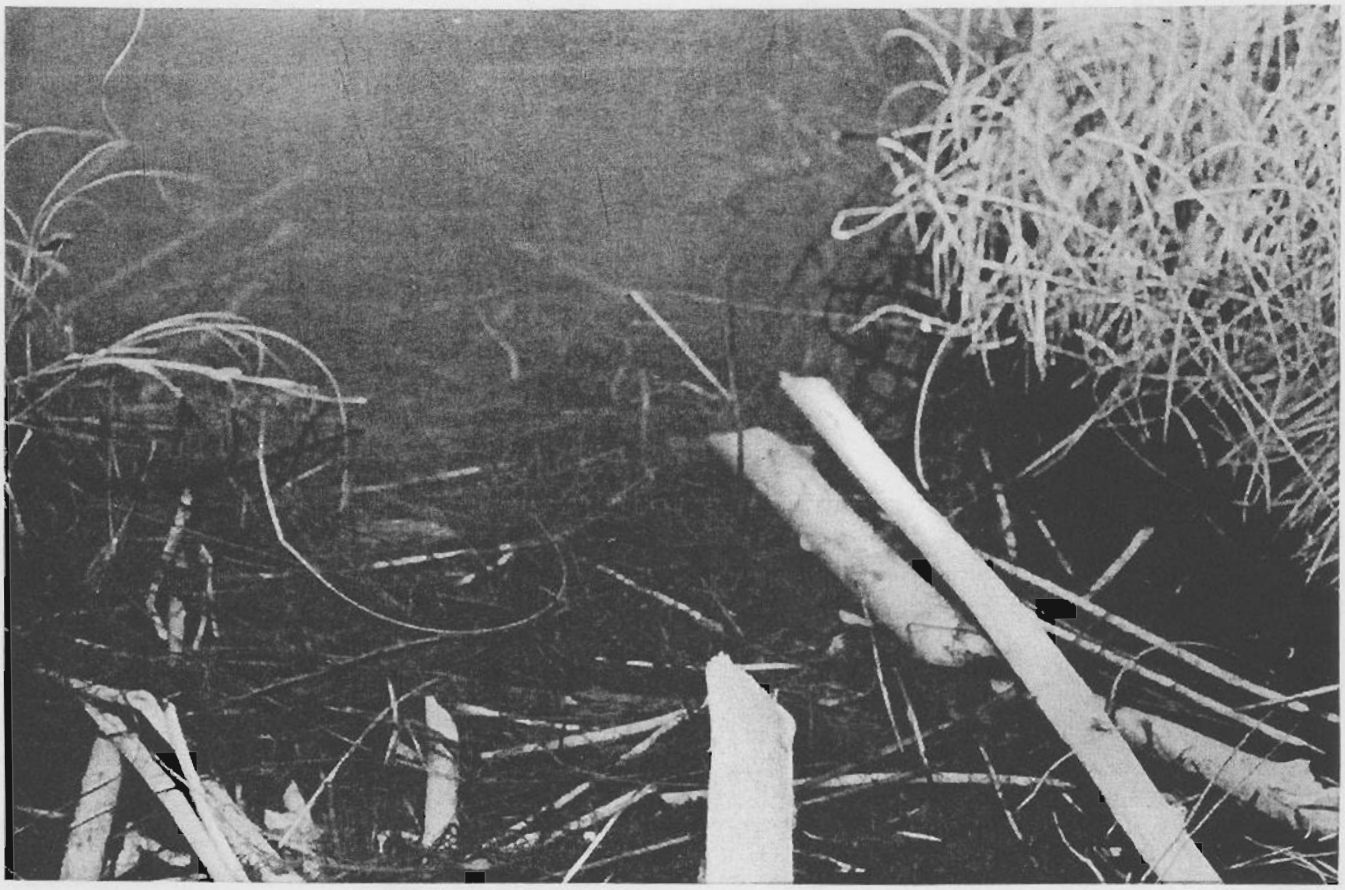
At times, individual beaver will live alone and these beaver are thought to be very old and usually large. These beaver are referred to as "bachelors," but they may be either males or females.

Beaver often wander, in search of new homes. Generally beaver disperse from their parental colony when they are two years old. This movement usually occurs from April to September. Occasionally an entire colony will move to a new location. This frequently happens when local food supplies have been exhausted. Beaver have been known to move up to 150 miles. They generally follow natural waterways but will occasionally travel across dry land and settle in a remote pond or lake.

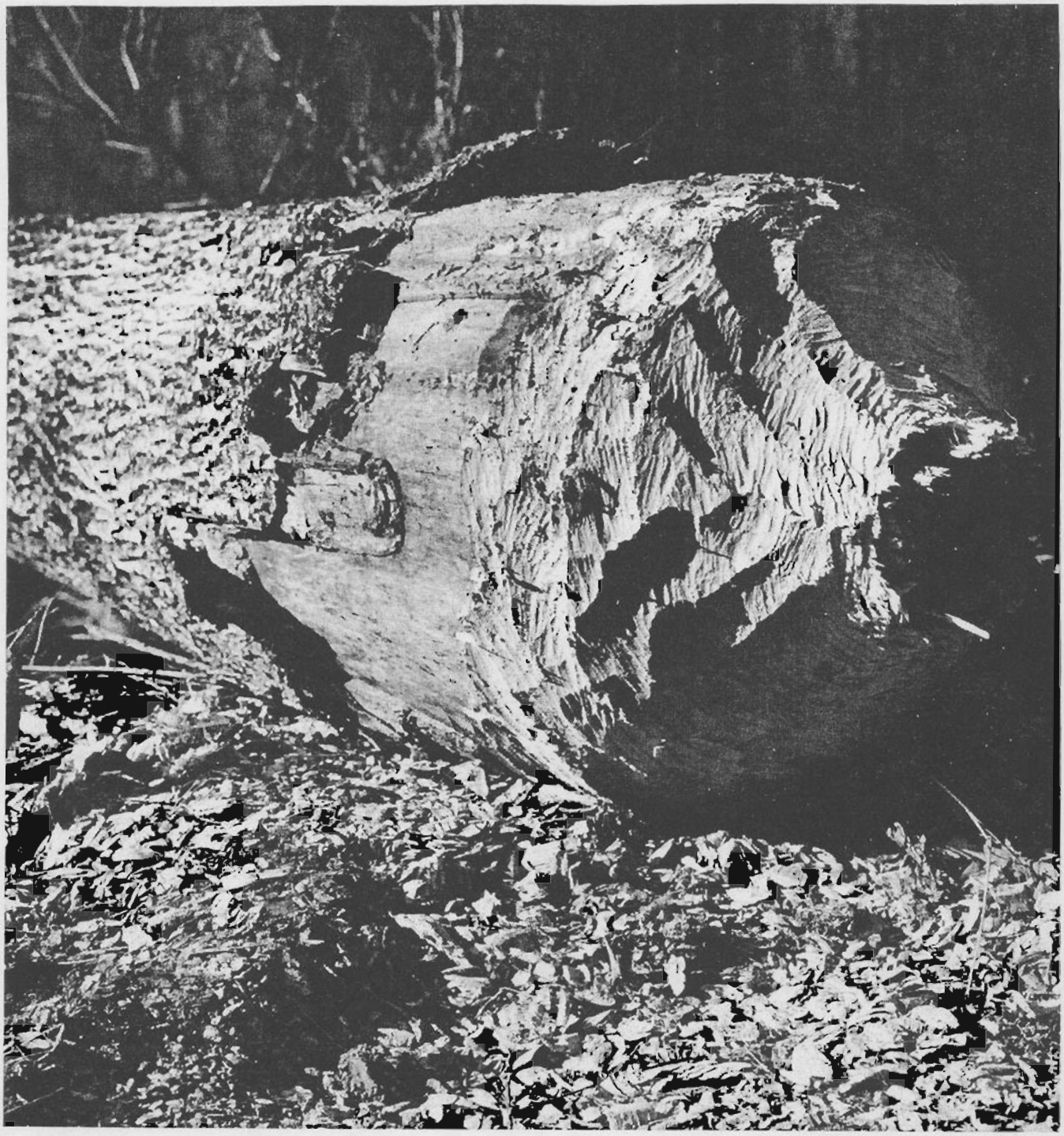
Habitat consisting of low gradient streams through fertile soils with young stands of willow and cottonwood will support high densities of beaver. Beaver are like other species of wildlife; they respond positively to good quality habitat. In these areas the evidence of beaver occupation is usually very easy to see. Signs of their presence consist of dams, felled trees, peeled limbs, with chiseled tooth marks and chips of wood nearby, tracks, trails, slides, and scent mounds along the edge of waterways.



A beaver cache of limbs is usually anchored in front of the main bank den used during winter months.



Beaver feeding sites are often under overhanging banks or trees.



A tree felled by beaver. Leonard LaRue photo.

Beaver prefer deciduous trees with soft wood that is easy to cut and which has palatable inner bark, like cottonwood and willow. Occasionally beaver will develop a fondness for ornamental and fruit trees. They will cut other species of trees including evergreens but this is not the general rule. Beaver will feed on a variety of herbaceous plants. They can become a nuisance in certain row crops, especially corn, soybeans and milo. Beaver have an awkward gait on land and are vulnerable to predators like dogs, coyotes and bobcats when away from water. They generally stay within 25 yards of the water when they are cutting trees.

Each season brings on new construction activities for beaver. Dams are generally built between April and June with a second period of activity occurring during early fall. Lodges are built or refurbished in September and food caches are generally built a short time later. It is during these construction activities that people frequently become concerned about too many beaver.

Beaver normally live in bank dens along shorelines in Kansas. Where adjacent fields are near streams there is the potential for bank dens to cave in when farm machinery or livestock travel on top of the den. Beaver bank dens that cave in on adjacent fields can create water routes for soil erosion to occur, see *Figure 4.*

Figure 4. Lewis Bloom, Clay County farmer, found that beaver dens were carved in his corn field in 1983.

Beaver use their teeth and front feet to force sticks into mud, so as to reinforce a beaver dam. Leonard LaRue photo.

Values of Beaver

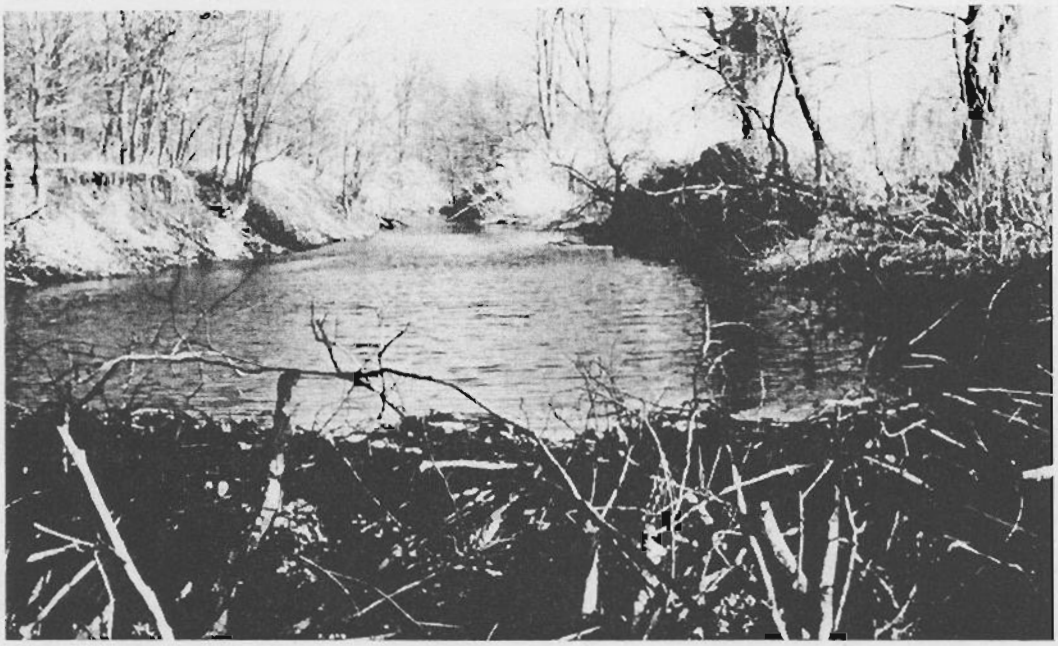
As with most species of wildlife, assessing their value is difficult because we can not fully appreciate the benefits of the interconnections between a species and the environment or between a species and all other species, including humans. These intertwined associations are complex and sometimes well concealed but critical to the health of the total community. Aesthetics is a term we frequently apply to values we enjoy but can not quantify easily in monetary terms. Assessing the damages that beaver can do to our property is, however, relatively easy and can be placed in neat economic terms.

Regulated harvest and utilization of beaver has resulted in an estimated value to trappers of ten million dollars annually. Pelts are used to make coats and fur trimmed garments and castoreum is used as a fixative in perfumes and in trapping lures. Secondary economic benefits associated with processing these raw materials to final products result in substantial numbers of people employed and incomes produced. These are obvious positive values of the beaver resource.

Beaver pelts have traditionally been used to make warm and attractive garments. Colorado Wildlife Division photo.

Beaver dams are beneficial to people because they store and gradually release water which results in a regulated flow rather than rapid runoff. Lateral seepage of this water nourishes trees, grass and crops along the streams. Water stored behind beaver dams has frequently benefitted livestock producers, especially in portions of western Kansas. How ironic it is that the beaver that cut trees along streams and dig bank dens which occasionally cave in and become sites where soil erosion may occur are also the beaver that build dams which promote water conservation and tree growth and which stabilize stream erosion.

Beaver trapping is practiced by nearly 14 percent of the furharvesters in Kansas. An estimated 17,300 days of effort were spent by these trappers during the 1983-84 beaver trapping season in Kansas. This indicates that beaver trapping provides a substantial amount of recreational opportunity.



Beaver dams store valuable water.

Beaver activities that modify the environment often create habitats that are beneficial to a variety of wildlife. A beaver pond seems to attract almost all animals and the pond seems to be a gathering place *(see Figure 5)*. A beaver pond soon becomes a home for other furbearers like mink, muskrat, river otter and raccoon. Waterfowl and shorebirds are attracted to the marsh areas that frequently develop in the upstream reaches of a beaver pond. Numerous other species of wildlife and fish also benefit from the pond. Even when a site is abandoned by beaver the bank dens, lodges and remains of the dams attract and serve a host of wildlife.

Beaver flesh is a choice wild meat that can be barbequed, fried, baked or used in stews. It is nutritionally equivalent to most domestic red meats and the large size of beaver provides a high yield of meat per carcass. Because of the high protein content of beaver meat it is frequently used by furharvesters for dog food for hunting hounds. It has been estimated that the value of this meat is over 6 million dollars annually but that much of this meat is wasted.

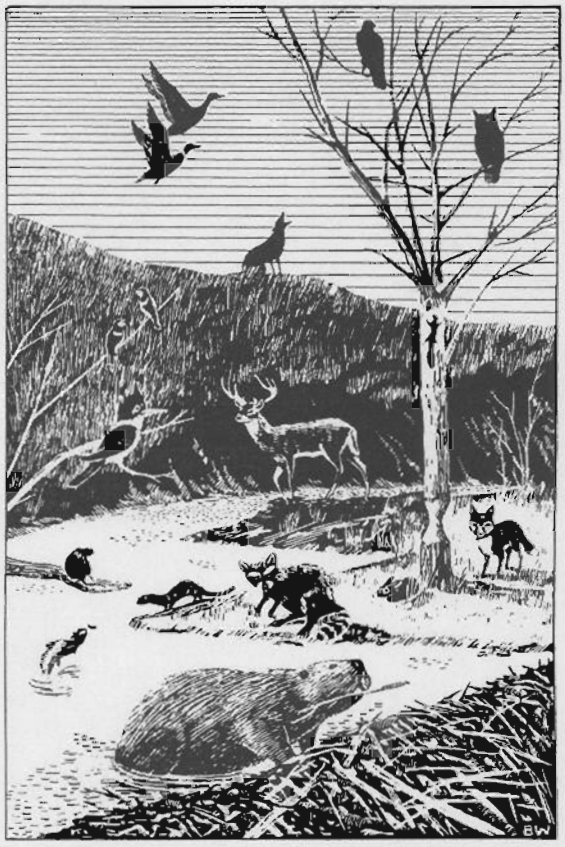
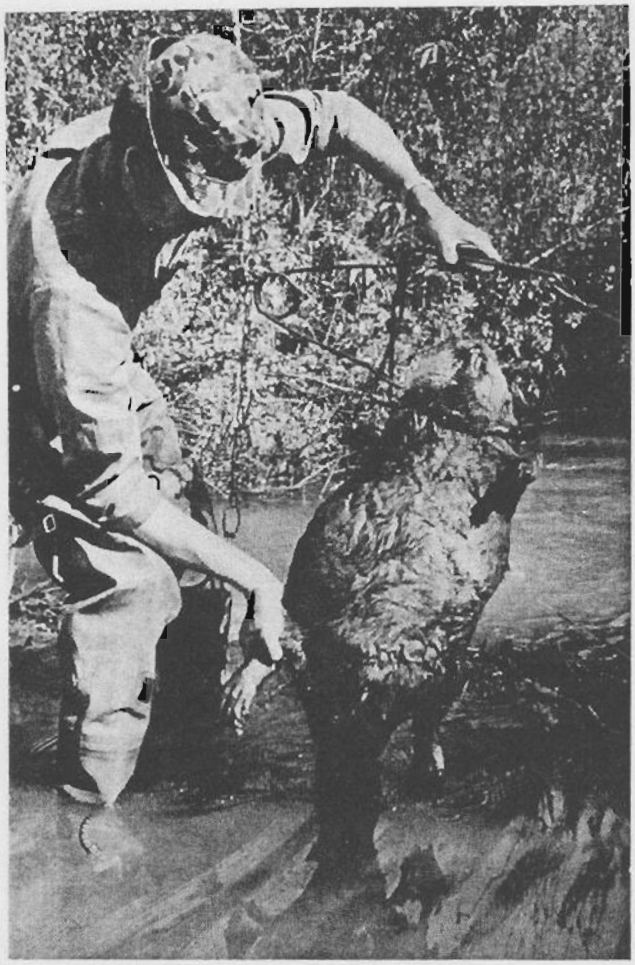


Figure 5. Beaver ponds are used by many species of wildlife.



A large beaver taken in a body-gripping trap.

Beaver Damage Control

A purpose of this booklet is to help people cope with beaver problems and to present techniques that will minimize the negative aspects of beaver-caused damages. First, assess the beaver population fairly. Are beaver really causing damage that presents a problem for you? Often people perceive the mere existence of beaver as a problem when in fact the beaver are not causing harm. *Figures 6 and 7* show the condition of an area in 1955 and in 1985 respectively. Beaver have occupied that site most of those 30 years. New trees have grown from the stumps of trees that beaver have cut. The area is still in good shape. In this case, the presence of beaver is not a problem. Second, determine the nature of the damage. Does this damage require the removal of beaver or can the impact of their activities be reduced or eliminated? Is the damage continual or seasonal? If you are experiencing this problem for the first time, try to determine how long the beaver have been in that area. If the problem is on a river or other major stream, getting rid of the beaver may be very difficult. The colony may be trapped out reasonably easily, but the habitat will remain well-suited and the likelihood of other beaver moving in is good. Finally, will the efforts to control the damage be worth the cost?

First Consideration in Damage Control Options

Generally, the beaver population at a problem area has been ignored for years and then, suddenly, in the mind of the person experiencing the damage, a problem occurs that requires immediate attention. Inadequate harvest is often the real problem. Before the population builds to the problem level, encourage an adequate cropping of the population at the appropriate time of the year for optimal utilization. That means trapping during the legal open season.

Figure 6. Photo taken in 1955 in Pratt County. Beaver are present.

Figure 7. Photo taken in 1985 in the same pasture as in Figure 6. Beaver are still present.

Laws and Regulations

Before you begin a beaver removal program on your land it is a good idea to contact your nearest Wildlife Conservation Officer and learn about the current state regulations pertaining to beaver. Some laws and regulations that normally do not change and that apply to beaver trapping are:

1) All traps must be checked once every 24 hours.
2) The name and address of the trapper must be on each trap.
3) A conibear type trap with jaw span of 8 inches or greater can be used in water sets.
4) Only beaver taken during the regular open season may be sold.
5) A furharvester license is required to sell the pelts of beaver.

Current state laws enable landowners or tenants to destroy beaver that are causing damage on their property.

Damage Control Options

Beaver can cause problems that require immediate attention, and the landowner or tenant can not delay action until beaver trapping opens. When this occurs, there are basically three levels of damage control options. These are to treat the area to reduce the damage, to live trap and translocate problem beaver, and, as a last resort, to destroy problem beaver. If the presence of the beaver is not the real problem, but flooding is the problem, then the use of a pipe through the dam(s) may solve the problem without removal of the beaver population.

Water Level Control Without Beaver Removal

A "beaver pipe" or water level stabilization device can be made by fitting two plastic sewer pipes together. One pipe should be perforated and the other not. The diameter of the pipes can be 4, 6, 8, or 10 inches, depending on volume of water in the stream. Dig a hole through the beaver dam in line with the original stream channel. Set three-fourths of the pipe extending out into the pond *(see Figure 8)*. Put the perforated end of the pipe out into the pond. Put a weight on the end of the pipe extending out into the pond. The pipe can be set at almost any level in the dam. Allow about one-fourth of the pipe to extend on the down stream side of the dam.

In the case of a plugged culvert, the dam should be removed and a heavy wire mesh fence (#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 then be placed through the fence to keep the water at a desired level *(Figure 9)*.

A single "beaver pipe" can handle the normal run-off from a 2,150 acre drainage area and installations have been made utilizing up to 3 pipes. Streams with flows from drainage areas exceeding 10-11 square miles are not feasible to manage using "beaver pipes."

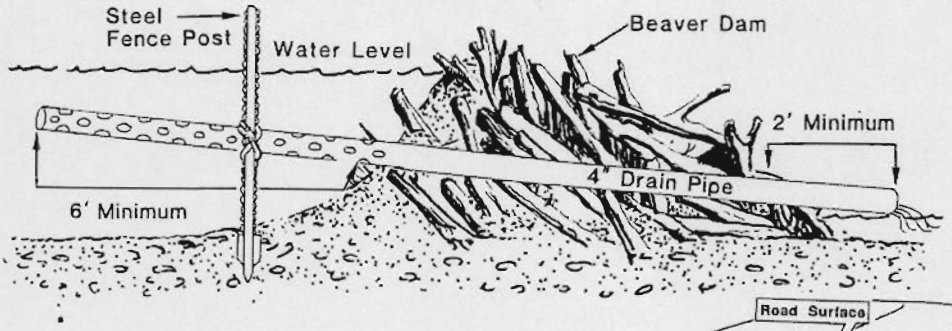


Figure 8.
A drain pipe. The pipe diameter should be determined by normal stream flow capacity

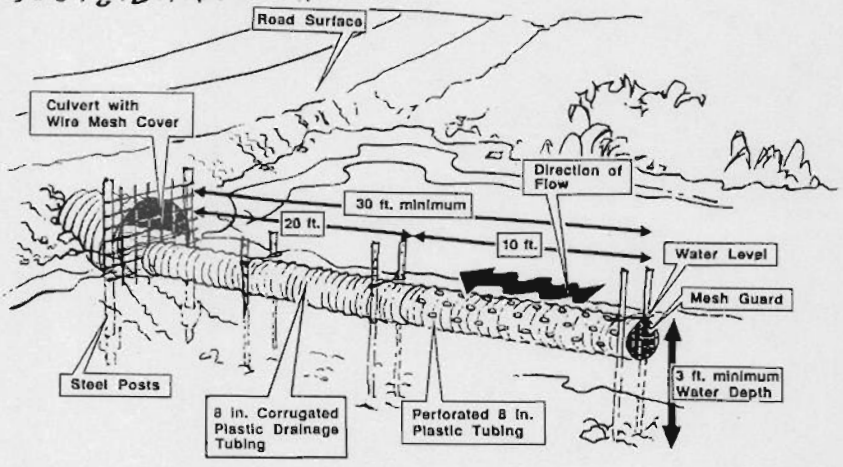


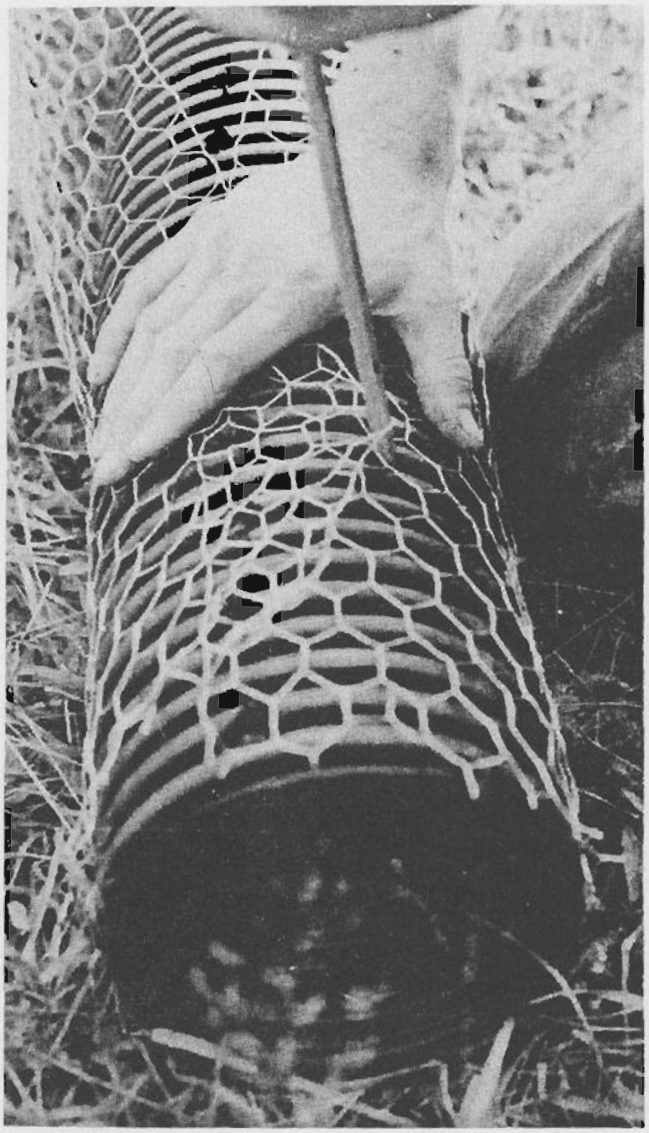
Figure 9.
Culverts are often plugged by beaver. The arrangement shown can reduce damage without the necessity of removing beaver.

People working to help solve beaver problems in New York state found the following requirements to be important in using "beaver pipes." (1) Water depth and area must be adequate to install tubing properly, (2) the normal flow of the stream during the control period must not exceed the flow capacity of the tubing available for use, and (3) short periods of high water levels must be acceptable.

A pipe installation is usually installed to provide a long-term means of water level control at a nuisance site. However, it may be installed to only provide control until beaver can be removed from the site through a regular fur trapping season.

The benefits of a pipe installation include the elimination and reduction of beaver damage as well as the conservation of a colony of beaver. That also means preservation of habitat for many other wildlife species. At nuisance sites where emigrating beaver continually re-occupy the site, trapping would have to be repeated constantly. As a guideline, where trapping is required 5 or more years out of 15, a pipe installation would be a more effective and less costly method of controlling the nuisance or problem.

The use of pipes and/or tubing was first written in wildlife journals by H. J. Laramie in 1964. However, this method has been used very little in Kansas. The techniques for the installation of "beaver pipes" will probably require many variations and refinements as more experience using these methods under Kansas conditions is gained.



Six-inch corrugated plastic drainage tube with numerous ¾-inch to 1-inch holes drilled through tubing, especially in part of tubing extending into beaver pond area. Tubing should be covered with 1" mesh chicken wire.

When the pipe is put in place, it should be secured by stakes or posts.

Beaver Guards on Ponds and Small Lakes

Wire panels have been developed and tested in Texas and Oklahoma. These panels can help protect spillways and inlet and outlet flood control structures from beaver damage. One type of guard that has been effective is the use of .4-gauge or 1/4 inch diameter 4" × 4" mesh galvanized welded wire panels secured to or around a structure, see example in *Figure 10.* Another modified development is shown in the same figure as a corrugated metal culvert with a 90 degree elbow. The open end below the elbow is pointed down into the water, allowing water to enter the opening. Beaver find the vertical inlet difficult to plug.

Water pressure is an effective way of removing small beaver dams, mud ramps, cleaning wire panels of sticks and mud, and opening road culverts. See *Figure 11.*

Use of An Electric Fence

Beaver can be prevented from entering an area by fencing it with woven wire or an electric fence. Woven wire should be installed tightly to the ground while the electric fence wire should be strung about 6 inches above ground.

An electric fence wire can also be used to regulate the flow of water over a beaver dam. After cutting a drain hole in the dam deep enough to lower

Figure 11. Water under pressure can be useful in cleaning away mud.

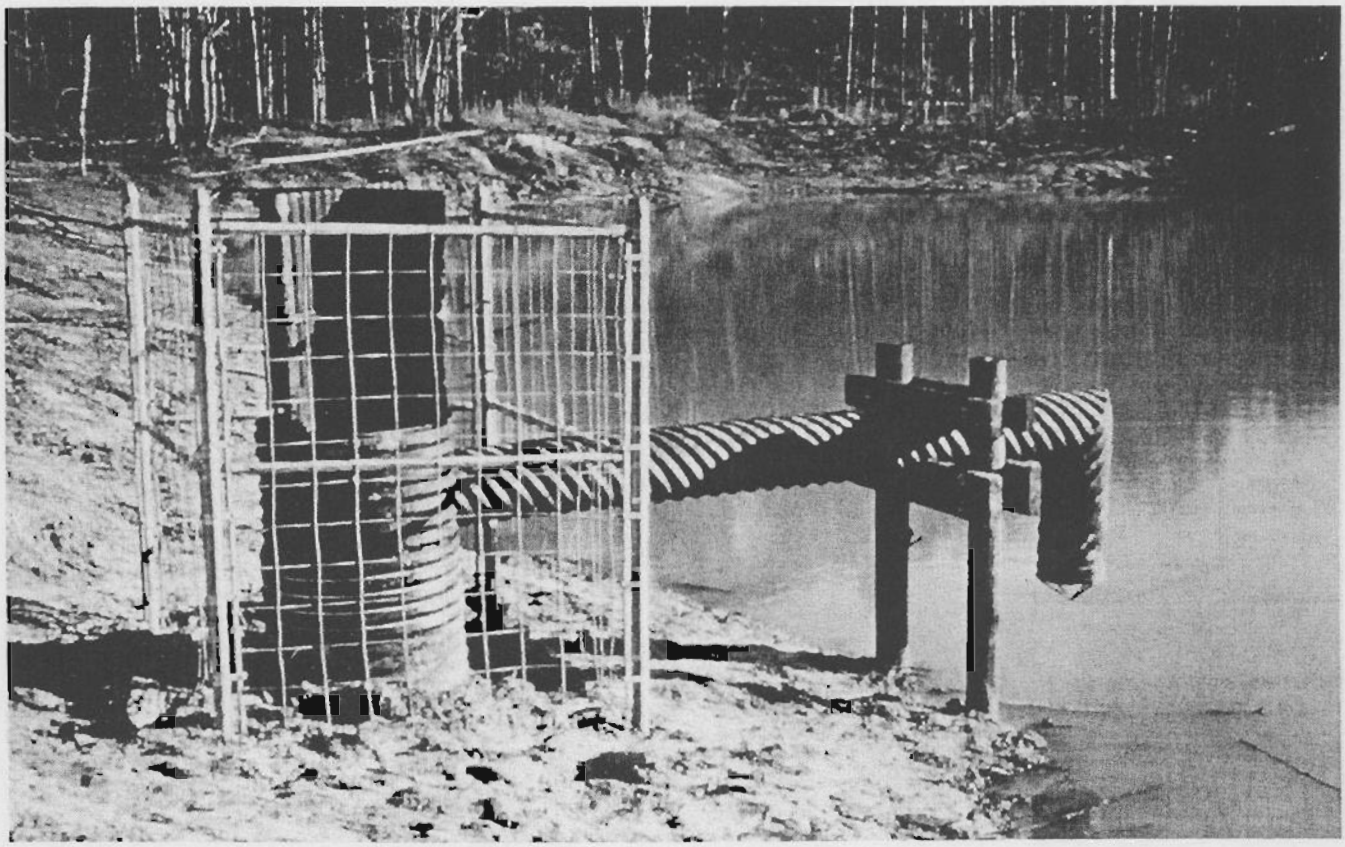


Figure 10. Innovative techniques can reduce beaver damage in flood control structures.

the water to a desired level, guard the hole with an electric wire about 2 inches above the water level and about 12 inches in front of the dam. Remember to keep lowering the wire as the water lowers. This procedure has caused the beaver to vacate the area. BE CAREFUL using this method. THINK about your own safety and others. Electric fences, water and people do not mix.

Tree Guards

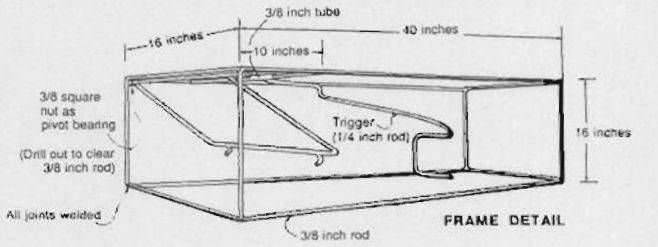
Tree guards can help protect individual trees from beaver damage. Wrap the trunk or base of trees with woven wire, wire screen or sheet metal. These tree guards should be installed to cover the bottom 30 inches of the trunk.

Repellants

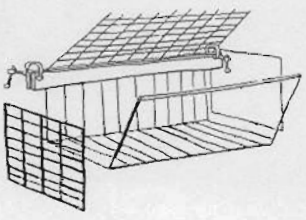
Painting or coating the trunk of a tree with tar, creosote or paint often repels beaver. The bottom 30 inches of the tree trunk should be coated. Reapplication of the coating usually is necessary for long-term success. Chemical repellants are becoming more common. Your extension agent can assist you with the latest information on these products.

Live Removal of Beaver

One consideration in trapping is the kind of traps to be used. In beaver trapping there are two basic methods: live trapping or kill trapping. There is a school of thought which continues to cling to the out-dated philosophy that all problem beaver should be transplanted using live traps. However, beaver investigations in Kansas have proved that nearly all areas where suitable habitat for beaver exists are now occupied by beaver. Most efforts to trap and transplant beaver result in taking unwanted beaver and putting them somewhere else where they are also unwanted. However, each complaint of beaver damage is unique; therefore, some situations require live-trapping. For this reason we are going to include types of live trap sets and recommend three alternative kinds of beaver live traps.



BEAVER LIVE TRAP



MESH BENDING METHOD

Use 2 x 4 inch mesh.
Tie securely to frame using wire ties.

NOTE: Construct trap door with plenty of clearance to allow free door swing with wire attached.

Box Trap

Box traps are not effective in capturing all species of furbearers, but they can be used to capture some beaver. These devices are bulky and difficult to transport, especially in brushy areas. Appropriate size and designed box traps are not commercially available at this time; however, the homemade device shown in *Figure 12* can be easily constructed in any farm shop using 2 × 4 welded wire fastened to a welded bar frame. The trigger, see *Figure 13*, drops the door when a beaver swims into the trap. The back of a beaver pushes the trigger upward, causing the door to drop.

This trap can be set in trails and canals used by the beaver. If the beaver is wanted alive then the trap is set so that part of the trap is out of the water. This will allow the trapped beaver to breathe. If the beaver is to be pelted, then set in a location where the trap is completely under water.

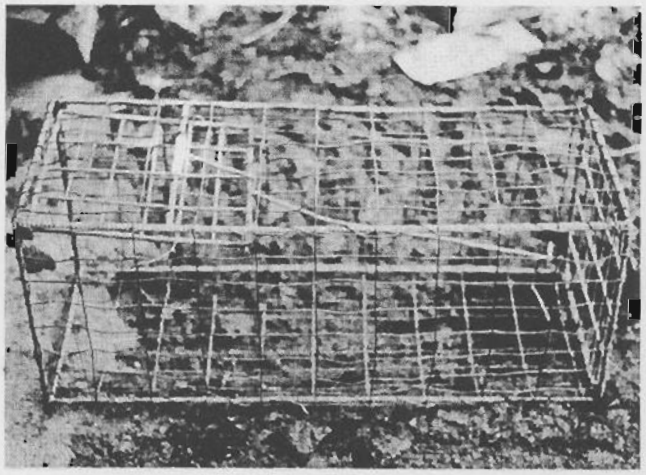


Figure 12. A homemade beaver trap can be used as a live trap or a kill trap.

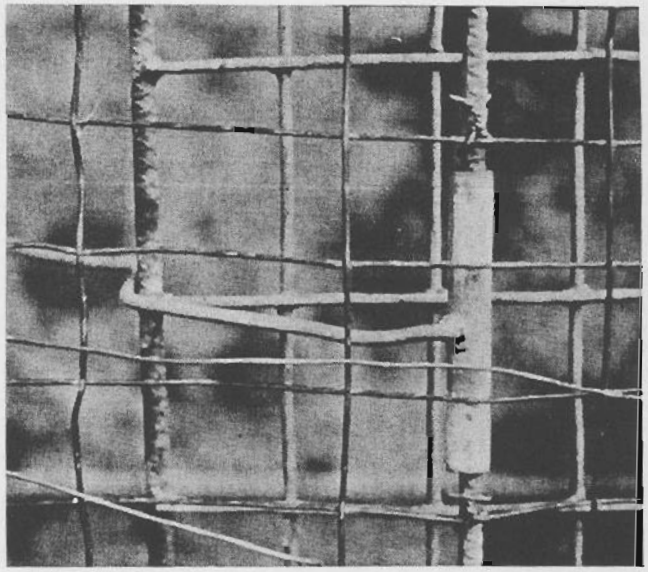


Figure 13. Top view of trigger arrangement on homemade trap.

Suitcase Live Trap

A second type of live trap is called a "suitcase" beaver live trap, as shown in *Figure 14*. Care must be taken to avoid catching domestic dogs as they are likely to use the area. This trap is set in about one foot of water along the shoreline and baited with tender twigs from cottonwood or willow. When the beaver swims into the trap to get the twigs it swims against the trigger, springing the trap which closes around the beaver (just as if you closed a suitcase with the beaver inside). A captured beaver can be put in a gunny sack by slipping the sack over its head and body while the animal is still in the trap. Care must be taken not to excite the trapped beaver. All movements should be slow and quiet. Beaver will bite, but as they get over being frightened, they are easily handled.

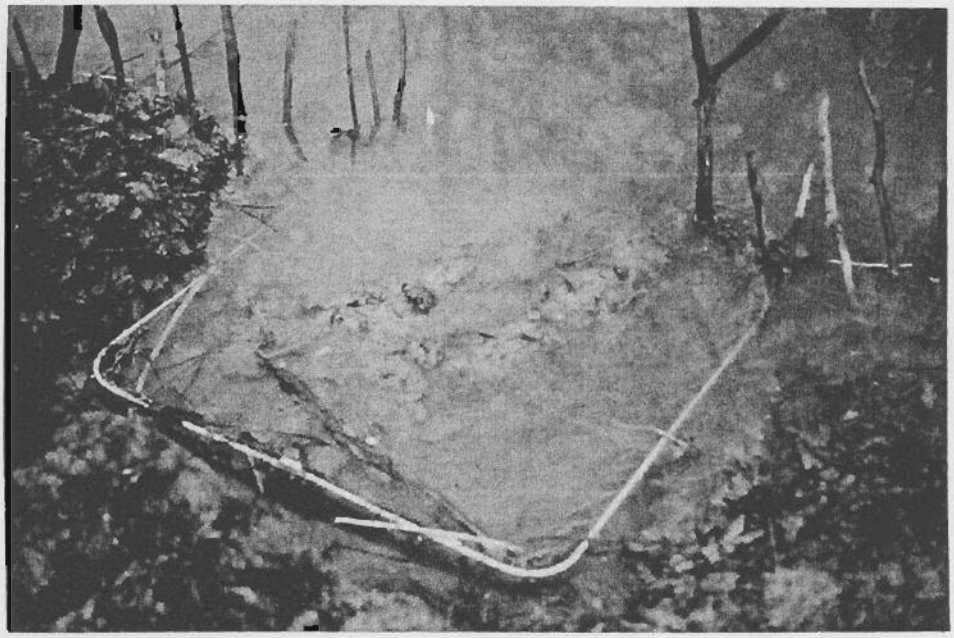


Figure 14, above. A suitcase-type live trap can be used to capture beaver.

Left, a suitcase type live trap in place, set to capture beaver.

Snaring Beaver as a Means of Live Trapping

Snaring beaver is the third method that might be considered when trying to determine a method to use to capture beaver alive. The snare offers several advantages, including low cost, light weight, compact size, trapper safety, and simple function. Many individuals involved in beaver capture have been reluctant to use snares, because they are unfamiliar with them and lack confidence in their performance. In August 1985, Weaver, et al., reported on a study about using snares to capture beaver. This study indicated that snares were nearly as effective as No. 330 Conibear traps in capturing beavers. The snares captured significantly fewer non-target species than No. 330 Conibears. Also, people with no previous trapping experience required twice the amount of instructional guidance in setting No. 330 Conibear traps as they did in making the snare sets.

Consideration should be given to the fact that other animals might be caught in a snare set for beaver. Domestic dogs, livestock or deer using the area are potential non-target catches.

A snare is a steel cable with a sliding lock that will not open as long as an animal is caught. A snare is shown in *Figure 15*. The snare cable used for beaver trapping should be of a diameter large enough not to enable the beaver to chew through the cable. A small diameter snare cable will damage the fur and cut the skin. The best place to set a snare for a beaver is in a trail being used regularly by beaver to leave the water and go onto the land, and shown in *Figure 16*.

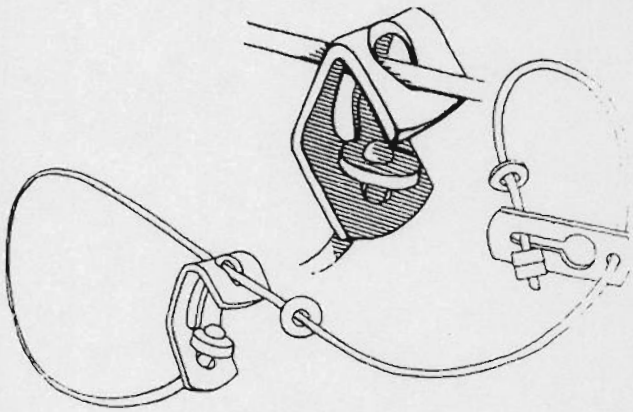


Figure 15. A snare and locking device used on snare.

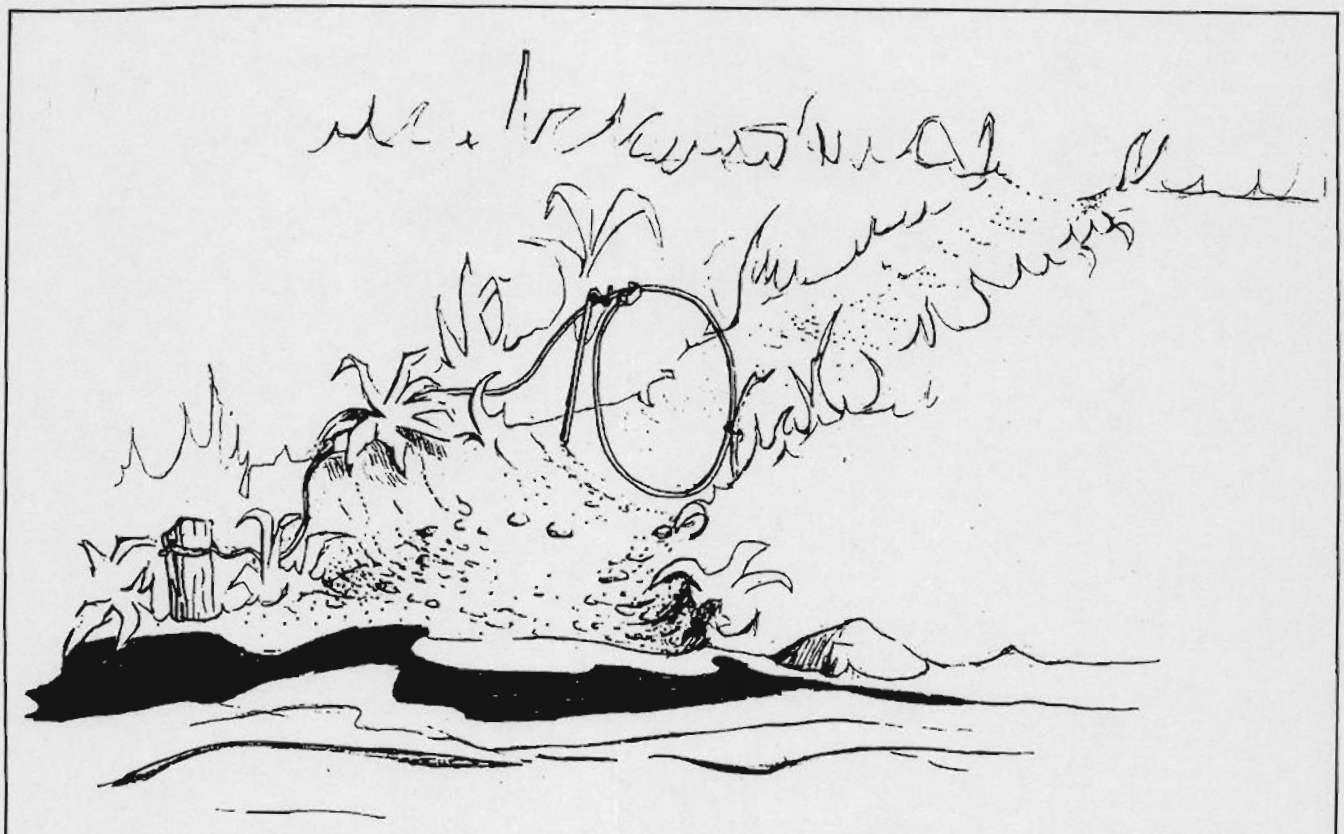


Figure 16. A snare set for beaver in a trail. The snare can either be staked or tied to a large dead limb.

Multiple Dive Sets:

If the width of the channel permits, multiple dive sets can be made underneath the same dive stick. Space the snares evenly across the stream or channel and block off the areas in between the snares with guide sticks *(Figure 20)*. If the channel is too wide to permit easy positioning of a dive stick from bank to bank, or if the set is made in open water, simply anchor the dive stick with two vertical stakes driven into the mud and wired to either end of the dive stick. The tie-down stake can be used for one of these anchors.

If you use a snare at a den entrance use a short snare so you are not faced with pulling the beaver out of a burrow. If you decide to use snares, PLEASE BE CAREFUL. Pick up all the snares you set and do not set snares where cattle, horses, pigs, sheep, deer or dogs might get into the snares.

Relocating Beaver

Live trapping of beaver should not be conducted during the spring and summer as the disruption of pair bonds and potential separation of the females from their young would negate the purpose of live trapping. The release site should be at least 25 miles from the capture site, and it is frequently a good idea to release them in a different drainage as the purpose of this technique is to keep them from returning to the problem area.

Shooting

Shooting beaver can be an effective method of control. After darkness has set in, by using artificial lights and a red lens, a skilled hunter can stalk beaver with a great deal of success. Skilled marksmen, schooled in safe gun handling practices, should be the only ones to attempt this method. It should be attempted only after documentation of damage has been thoroughly established, and proper authorities have issued a permit in writing. Otherwise this method is not a legal means of taking beaver.

A suitcase-type live trap with beaver ready for relocation.

Harvest Techniques

Harvest techniques using traps are designed to kill the beaver in a humane manner. This is generally accomplished with special devices like the powerful body gripping traps or by using special procedures such as the sliding lock drowner.

The Use of Foot-Hold Traps

Now let's consider trapping beaver with foothold traps, see *Figure 17*. There are two conditions often referred to in beaver trapping: (1) open water trapping and (2) trapping under the ice. Open water

Bubbles under the ice indicate travel lanes used by beaver.

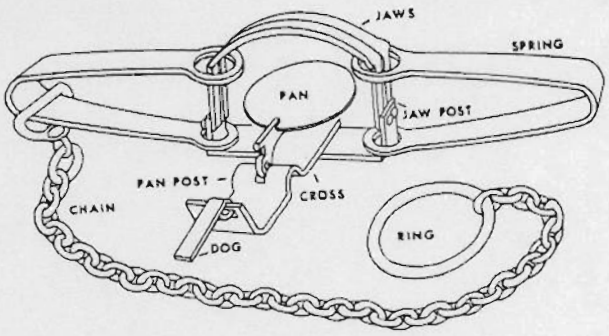


Figure 17. Foot-hold trap and its parts.

trapping for beaver will be discussed in greater detail than under ice trapping, as it is easier for inexperienced trappers and generally damage occurs during warm weather.

Beaver pelts tend to become prime late in the winter. Trapping beaver is less work in open water than under the ice. The weather in Kansas is unpredictable, but ice generally forms by early December.

Some equipment a beaver trapper normally uses in beaver trapping includes: hand axe, hip boots or chest waders, coil of #14 wire, pliers, warm change of clothes, rubber gloves, long steel stakes, stake driver, .22 pistol, ice chisel, extra set of vehicle keys, 14 foot flat bottom boat, scent pack-basket or five gallon plastic bucket, knife, 330 trap setters, 330 safety clamp, 7 foot of nylon rope and a hacksaw blade sewn into your trapping coat liner.

Beaver are not difficult to catch using foot-hold traps. To get them in a trap is one thing, but to hold them is another. So you want to use the proper size trap. Using the wrong size trap will only cause problems and teach beaver what traps are and cause the beaver to become difficult to recapture. One or two traps may be used at each trap site. The best size and kind of foot-hold trap for beaver trapping in Kansas is the number 3 or 4 double long spring trap. Other traps that are used include number 3 or 4 jump traps, double long springs with numbers 48, 44 and 4½ and the number 14 jump trap.

Beaver will usually get out of traps if they do not drown soon after they are caught. Each trap set for beaver should be equipped with a slide lock shown in *Figure 18.* This device is attached to the trap chain close to where the chain of the trap is fastened to the trap. The other end of the lock is placed on a wire, *see insert in Figure 18.* One end of the wire is tied to the bank near where the trap is to be set and the other end is tied to a stake driven into the pond bottom in three feet or deeper water.

In the event that you cannot get out into the water to drive a stake, then you can throw a weight out into the water. A weight of at least 20 pounds should be used. The wire should be taut from the bank to deep water. It is a habit of beaver to dive towards deep water as soon as they get caught. The lock will slide down the wire and lock, causing the beaver to drown in the deep water.

Beaver are large animals and their feet are spaced quite a ways apart. Therefore, place the trap

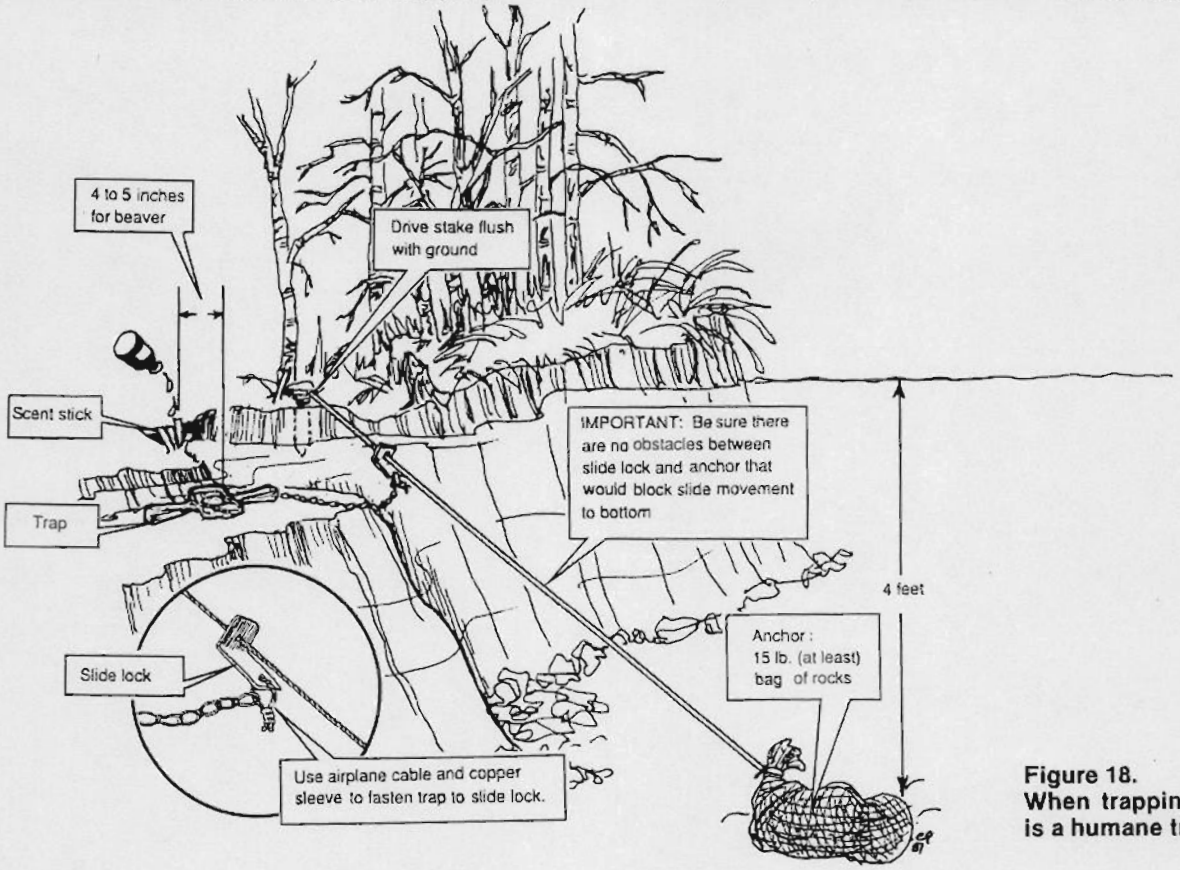


Figure 18.
When trapping beaver, this is a humane treatment.

to one side of the trail, rather than in the center of the trail, see *Figure 19*. The trap should be placed on solid footing or bedded so that it will not move. The trap can be covered with dead, water soaked leaves, when the trap is set under the water.

The jaws of the trap should be parallel to the line of travel of the beaver. When using double long spring traps, the springs should be bent back toward the trigger. When traps are placed in deep water, they should be 6 to 8 inches out from the bank. Traps may be placed in very shallow water. The beaver will be walking as they cross the trap.

Beaver swim with their front feet held against their chest. When their chest hits the bank or a stick, the beaver drops its front feet. With that in mind, remember to set the trap about 4 inches under the surface of the water. *See Figure 20.*

Figure 19. Slide set at water's edge.

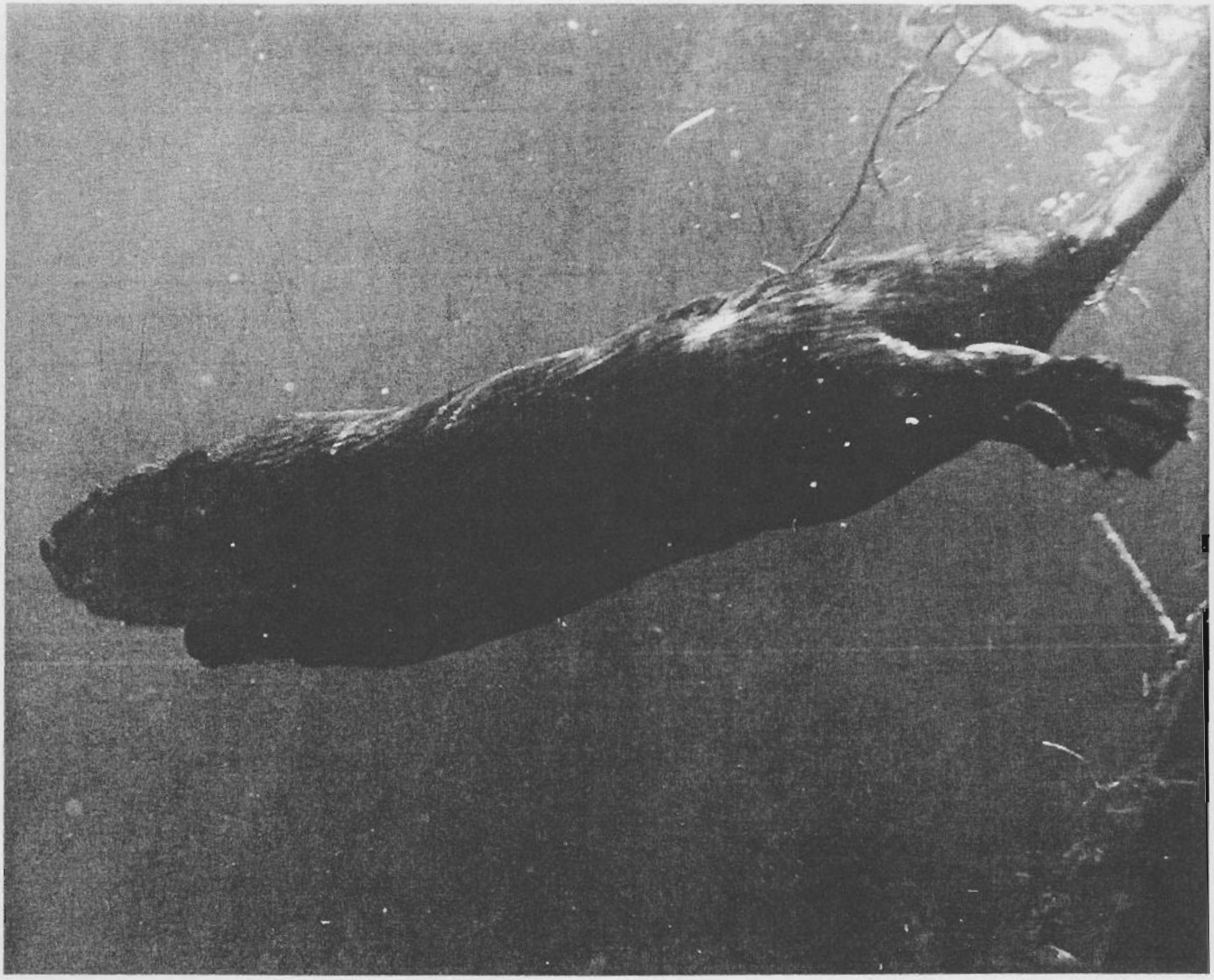


Figure 20. Beaver can swim under water for long periods of time. They have valves in their ears and behind their teeth. Leonard LaRue photo.

Traps are generally set at: dam crossings, feeding beds, den entrances, slides, and in canals, channels or narrow places in water trails. All stakes used to anchor traps should either be made of steel or dead sticks should be used. Never anchor your traps to green or fresh wood as a beaver can chew through this material and escape with the traps.

Another method to drown a trapped beaver is to use a tangle stake. This method can be used when the trapper lacks the materials to rig a slide lock drowning wire; however, it is less efficient than that method. An extension chain or wire is added to the trap and the end of this extension is staked to the bottom in deep water. At least one tangle stake is placed further out in the water, *see Figure 21*, so that when the trapped beaver dives into deep water, it will become entangled and drown.

An advantage of late winter beaver trapping is that the beaver are hungry for fresh green cottonwood bark. After eating stored water-soaked bark for a couple of months, beaver can easily be trapped using fresh, tender green cottonwood branches. The trapper can obtain these by cutting the upper limbs of young cottonwood trees. A few branches stuck in the bank at the water's edge with a trap placed in the water in front of them makes an excellent late winter set.

Good places to set beaver traps: (a) bank dens, (b) points, and (c) slides.

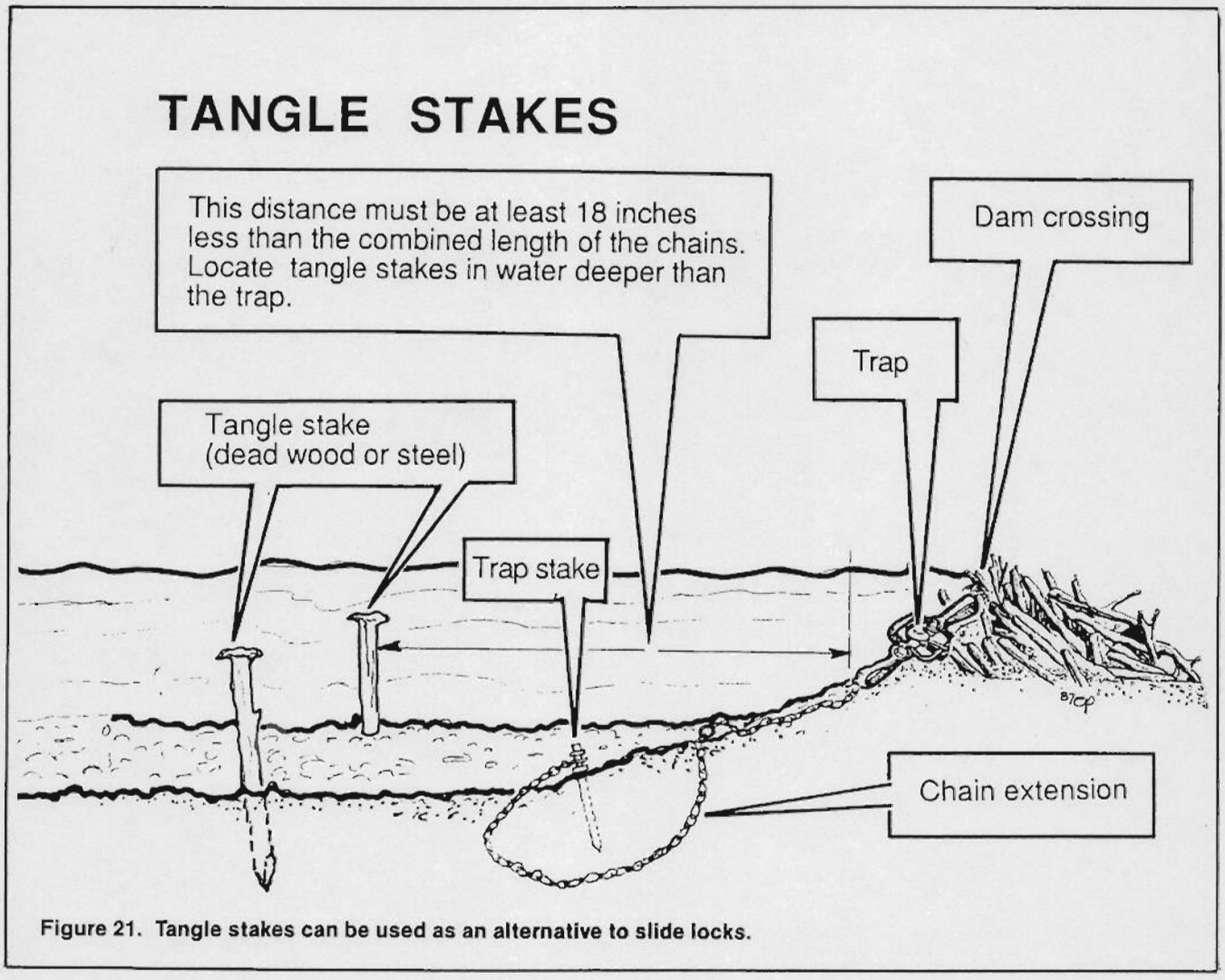


Figure 21. Tangle stakes can be used as an alternative to slide locks.

Two types of bait sets for under the ice beaver trapping using foot-hold traps are shown in *Figure 22*.

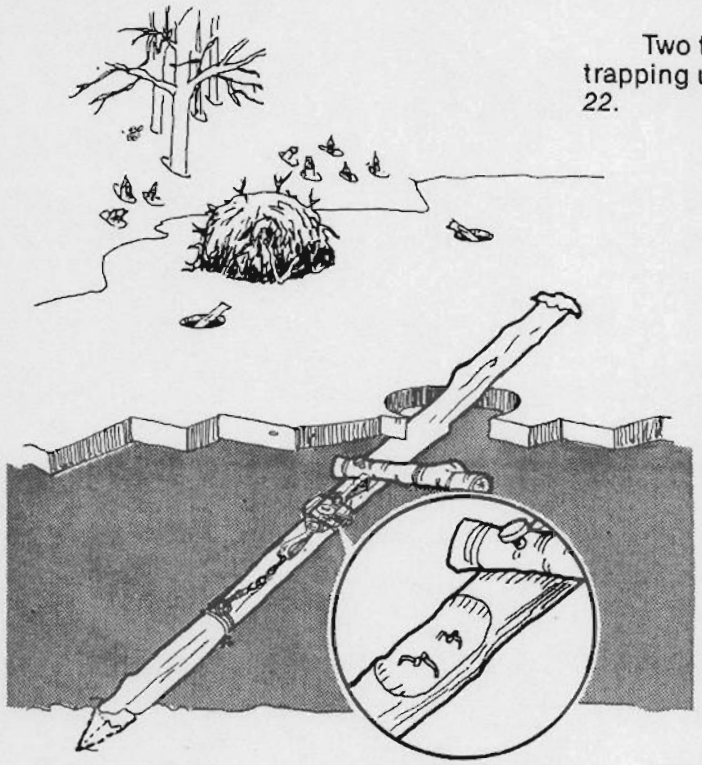
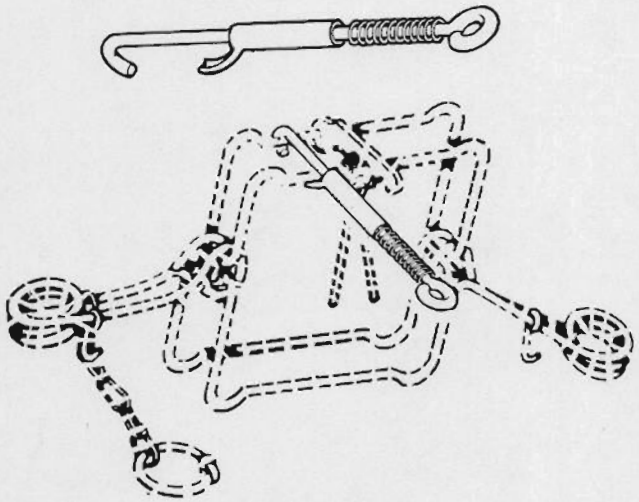


Figure 22.
Use dead logs and limbs to attach traps to; use fresh green limbs for bait.

Use of Body Gripping Traps

Body gripping traps are efficient and humane devices for taking beaver. Body gripping traps designed like the conibear shown in *Figure 23* are among the best traps for taking beaver on the market today. The proper size of body gripping trap for beaver trapping is the 280 to 330 conibear or their equivalent. These traps should be set and handled with great care. They can be used with or without bait, and either under the ice or in open water. As already mentioned, there is a need for a trap setter, a safety clamp, a 7 foot nylon rope and a hacksaw blade sewn into the lining of your trapping coat when you use these devices. The bar type 330 trap setter is our favorite tool for setting these devices.

You should always use the safety clamp when placing these traps. Large bodygripping traps come equipped with safety catches on each spring



Safety clamps are important equipment when using body gripping traps.

(be sure to release them when the set is completed). These should also be used in addition to the safety clamp. These devices can be set with the rope. The newer model devices have cotter pins in the springs so a person could release the springs if they accidently got caught. A hacksaw blade could come in handy if you are caught in a trap and other attempts to escape fail.

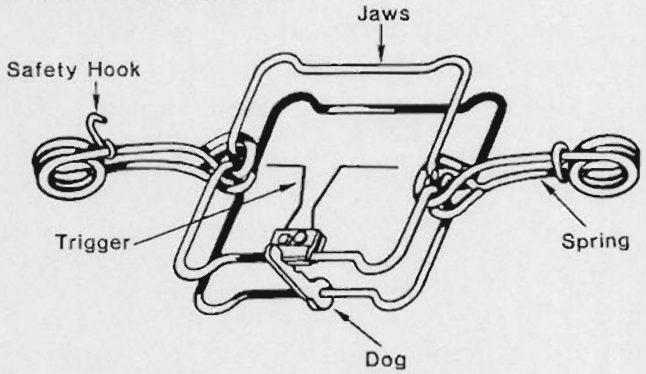


Figure 23. Conibear trap and its parts.

When trapping beaver with body gripping traps, it is important to place the trigger so that it is facing the approaching beaver and at the bottom of the trap. Trigger wires bent as shown in *Figure 24* will reduce the chances of a beaver sensing the trap and avoiding the set.

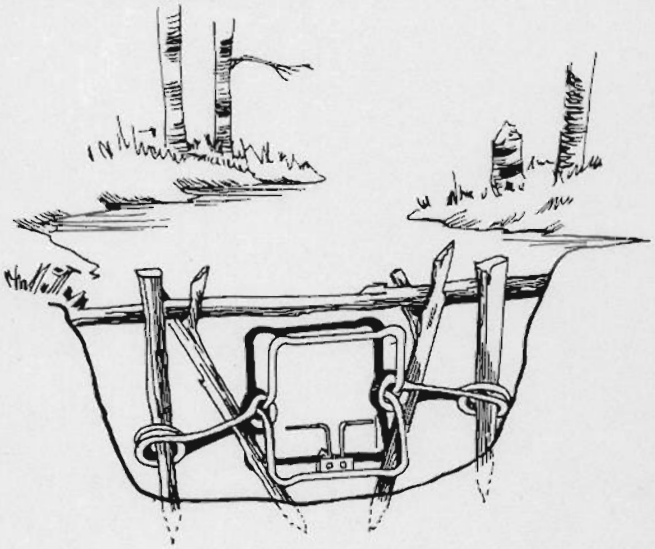


Figure 24. Canal set.

A scent mound set can be made using either a foot-hold trap or a conibear, see *Figure 25*. Make sure that the trigger is at least 1 inch below the surface. If the beaver feels the wire trigger with its whiskers, it may avoid the trap. Place a mud pie behind the trap. Place scent made from beaver castor or use beaver lure on the mud pie. This set can be very effective in taking the larger beaver in a colony if placed as far away from the main den as the fresh beaver sign indicates the beaver travel. The adult beaver travel the farthest from the den. Generally, the young stay close to the den, especially in the winter.

Figure 25. Mound set.

A channel or canal set as shown in *Figure 24* is an excellent set when using a body gripping trap. Place a stake through each spring coil of the trap and drive the stakes firmly into the bottom. Place a pole across the top of the trap at the water surface. Block the beaver from going around the trap set. The pole on the surface will cause a swimming beaver to dive into the set trap.

Body gripping devices large enough to kill a beaver are very powerful. Kansas regulations state that these devices can only be used in the water.

A bait set using a 330 conibear is shown in *Figure 26.* A green limb of a cottonwood is placed in-

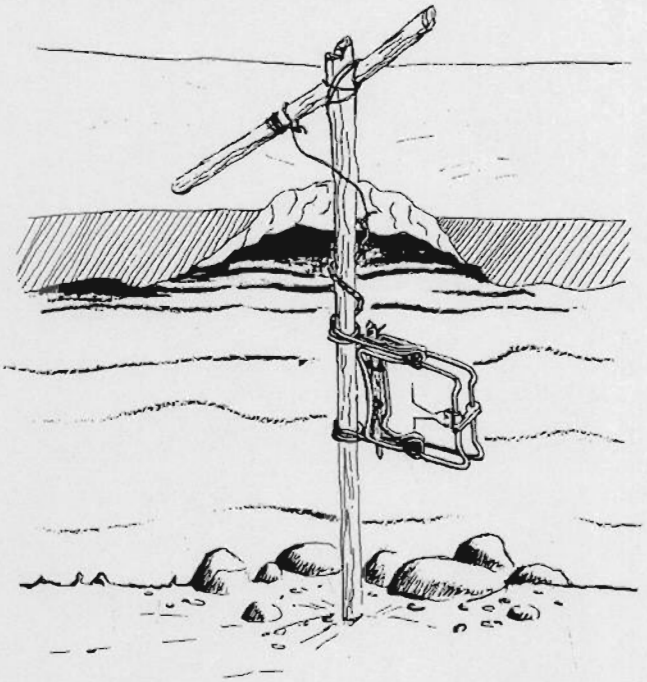


Figure 26. Under-the-ice set using body gripping type trap.

side the jaws of the trap. The springs are bent back and a dry dead pole is placed through the spring coils. Wedges should be used between the coils of the trap and the pole to keep the device rigid. This is as important as bedding a foot-hold trap. In general, a trapping device that flops around will miss more animals than one which is firmly placed. Drive the pole into the bottom in 3 to 6 feet of water along an underwater path used by beaver. This type of set can be made between the den and the food cache.

One problem beaver trappers have in Kansas is trying to trap at deep den entrances. One way to do this is to construct a beaver ladder as shown in *Figure 27.* This ladder should have the 330 set very near the bottom of the ladder and the trap should be rigid. Beaver dive to the very bottom of the plunge hole and reach the entrance at the bottom. A final comment on using body-gripping traps. Always fasten them securely to a pole or stake. (See *Figure 28.*) this will make retieval of a trapped beaver an easy task.

This set is made of dry poles nailed or wired together. It is designed to be used in the doorway of the lodge or in runways.

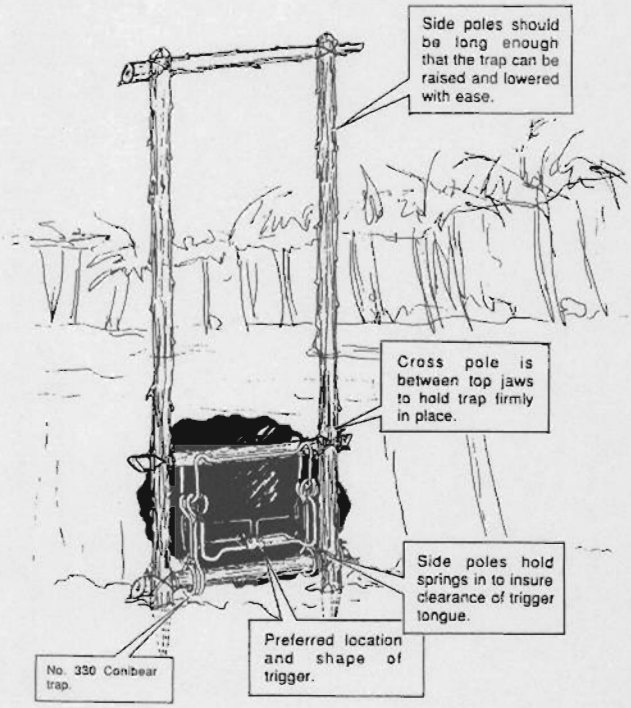


Figure 27. Ladder used to place and hold body gripping trap in place.

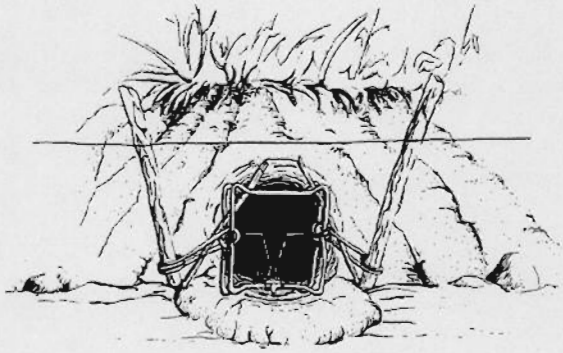


Figure 28. Bank den set.

An ice chisel is a very handy tool to have while beaver trapping in the winter. An inexpensive one can be constructed using a vehicle axle rod and part of a leaf spring. The leaf spring should be notched as shown in *Figure 29* and welded to the rod. A leather safety strap is very useful as the rod can easily slip from your hand and sink to the bottom.

Figure 29.

Skinning Beaver

The equipment needed to skin a beaver depends on the method of skinning chosen. You will need at least one sharp knife and a sharpening device. Other items that may be useful include: paper towels, skinning table or trough, first aid kit, hand lotion, and skinning gloves. Tight fitting, surgical type gloves, see *Figure 30*, are cheap and convenient. They provide both protection against possible infection, and they keep your hands clean. A warm, clean and well lit work area will make the skinning job much easier.

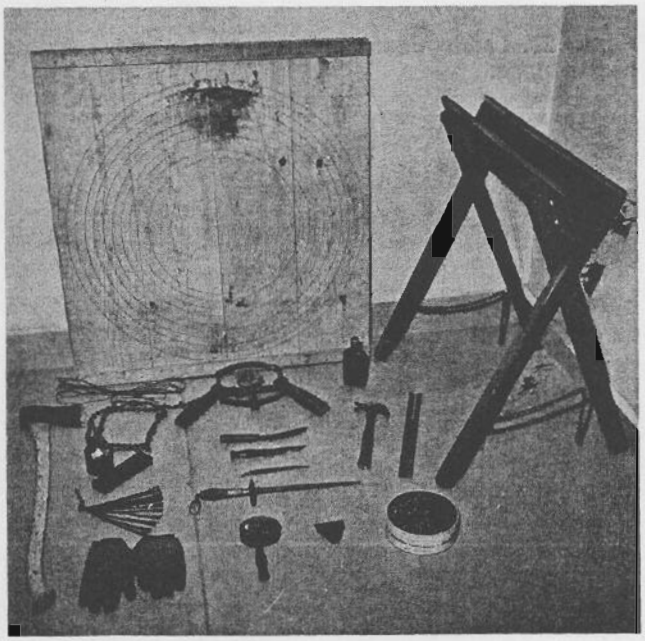


Figure 30. Equipment useful in beaver trapping and caring for pelts.

The first step in skinning a beaver is to wash pelt, remove all burrs and comb fur. Next, remove all four feet at the point where the hair begins. The second step is to make a cut completely around the tail at the point where the hair begins. Then make a straight line cut in the skin of the belly from the base of the tail to the center of the lower lip, see *Figure 31*. You can now grab with your thumb and forefinger the skin along this cut and skin back two or three inches towards the side of the beaver, see *Figure 32*.

Figure 31. First and only cuts in skinning.

Figure 32. Use sharp knife carefully.

From this point on, beaver can be skinned one of two ways: (1) rough skinned, which means fat and meat attached to the skin; or (2) clean skinned, which means removing all fat and meat as the pelt is removed. Beaver are the only furbearer in Kansas that the flesh and fat must be cut from the skin; you can not pull them from the skin. Nearly every inch of the skin has to be separated with a knife. If you remove the pelt by the rough skinning method, you will need to cut the fat and flesh off during the fleshing operation. It is your choice, clean skin or rough skin and flesh, whichever is easiest for you.

After you have clean skinned the first two inches of the pelt, (it is very important that the edge of the pelt is free of fat grease at all times), then begin to peel back the skin, shaving the fat and muscle from the skin. With the feet removed, it is easier to skin around the stump ends by pushing them up with the last three fingers while rolling downward the skin held between the thumb and index finger. (See *Figure 33.*)

Figure 33. Skin cannot be pulled off carcass.

The beaver can be rolled on its side and the pelt cut away to the center of the back from the neck to the tail. The skinned half of the pelt is then laid back over the carcass and the beaver turned end for end. The other half of the pelt from the neck down is skinned around to the back in the same manner, working around the leg stumps in the same manner previously described. The carcass is then rolled over on the belly and the pelt lifted and separated away from the base of the tail toward the head (*Figure 34*).

You do not want to cut through the hide as you are skinning. Pulling the pelt away from the carcass will aid you in avoiding this problem; however, special care needs to be taken while skinning around the legs as there are folds of skin that are difficult to pull tight. On the back near the tail, it is difficult to skin as the hide is very tight and close to the bones. Another area that frequently gives people a problem is skinning the head. The ears are connected to a bony tube at the base of the skull by cartilage. You should carefully cut at the base of the cartilage. The skin is thin around the head and cuts are frequently made as the pelt is skinned towards the eyes. The eyelids should stay attached to hide. The final step in skinning a beaver is to remove the hide from the carcass around the muzzle of the animal and cut the cartilage just under the nose. You are now ready to flesh the pelt if it was rough skinned or stretch it if you have clean skinned the pelt.

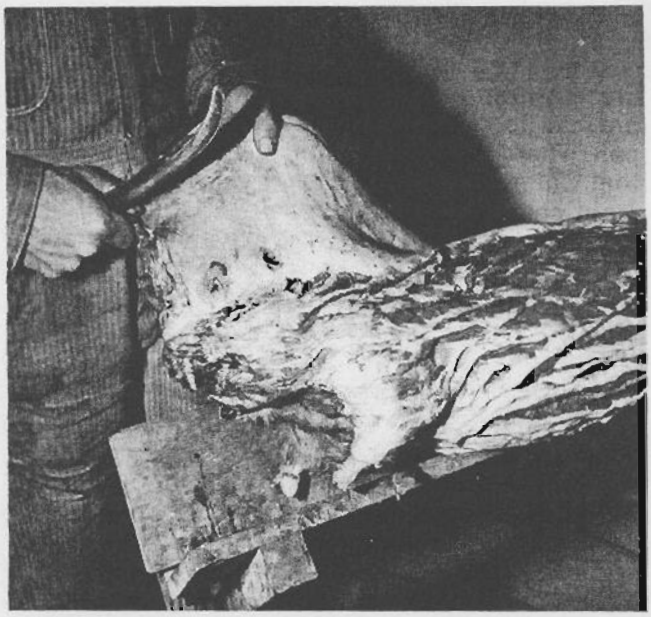
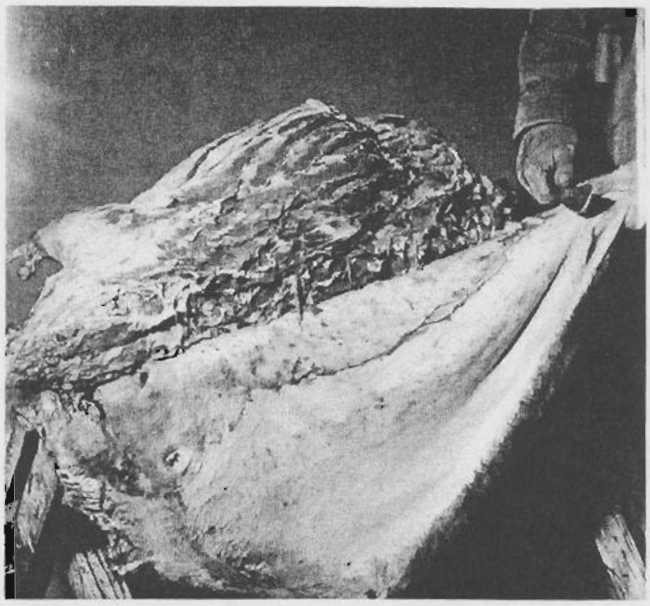


Figure 34. The ears, eyelids and nose are left on the pelt.



Especially difficult places to skin are on the back and in shoulder area.

Fleshing the Pelt

Fleshing is the procedure of removing fat and muscle from the skinned pelt of an animal. This process is essential for a rough skinned beaver pelt. There are several specialized fleshing tools that will make this job easier. Some of this equipment can be purchased; some commercial items are probably too expensive for the average trapper to justify. A fleshing beam or a smooth flat table will be needed. It is essential that the surface be smooth. Any nail or bump will result in nicks or cuts being made in the pelt. There are a variety of fleshing knives or tools to scrape or cut the fat and muscle. You will also find a fur comb or grooming brush useful as it is essential to remove burrs, mud, etc., from the fur before you begin. Failure to do so will cause a bump on the fur side of the pelt as you are fleshing and that may result in a cut in the pelt.

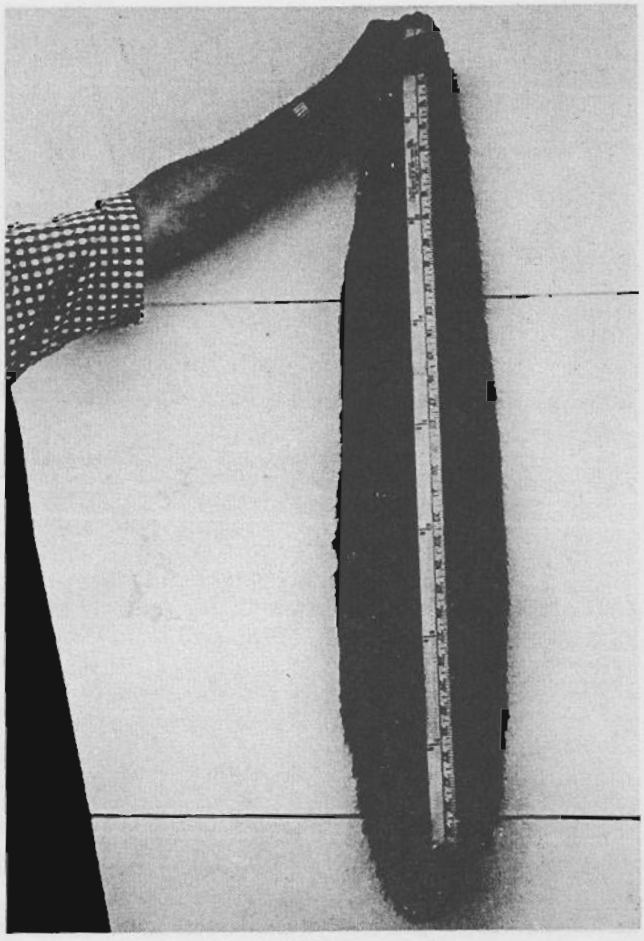
It is best to allow the pelt to cool and the fat to harden before you begin. You should start at the edge of the pelt and work towards the center. Finally, a word of caution about using a razor-sharp knife. You can easily shave the leather side so thin that you expose the root hairs and damage the pelt, thus reducing its value.

Fleshing beam, cloth, and knife.

Work excess fat off each quarter.

Stretching Beaver Pelts

Boards for stretching the pelts of beavers should be 45 inches square and made of smooth plywood 3/4 inch thick. Draw circular rings about one inch apart, starting at a 40 inch circle and going down to a 20 inch circle. This will serve as a guide for stretching any size pelt in the proper circular shape. A claw hammer and a supply of six- to eight-penny box nails can be used to stretch the pelts for drying. Drawing on page 29 shows the stages of stretching the pelt.



Hang beaver pelt by nose to measure pelt.

It will help to estimate the circular size of the beaver pelt before you start nailing the pelt down. Pelts should not be stretched drum tight; this separates the fur and makes the pelt look bad, and the drying may cause the nails to pull out or the pelt to rip. Hang the pelt up by the nose and measure it from top to bottom. Adding this distance plus half this distance plus 2 inches totaled and divided by 2 will give you approximately the diameter of the circle into which the pelt should be stretched.

As an example, if the pelt measures 30 inches, we add 30 plus 15 plus 2 which is 47, which divided by 2 is 23½ inches, the approximate diameter into which the pelt should be stretched.

Start stretching by putting a nail at the nose and one at the center of the tail. Then put nails at the 3 o'clock position and at the 9 o'clock position. Alternately put nails in each side of the pelt so that they are eventually about one inch apart. Nail or sew the leg holes closed. To nail the back leg holes shut, bring the edges together to form a straight line parallel to the side of the beaver. Fold under and nail, using 3 to 4 nails in a straight line. For closing the front leg holes, draw the skin together, fold under and fasten with a single nail.

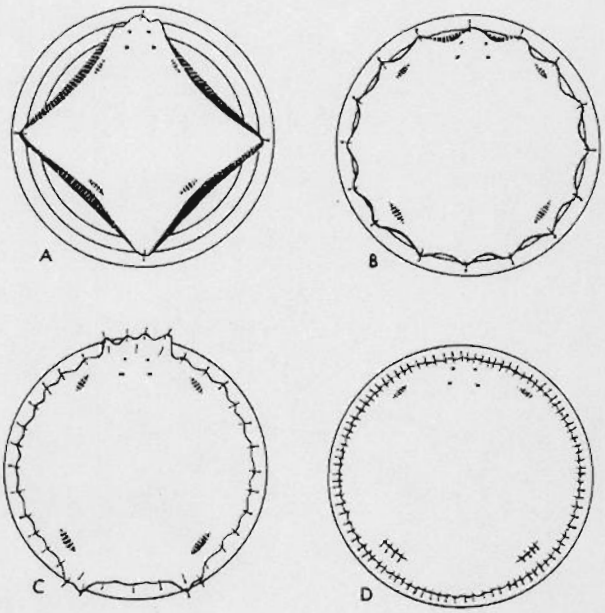
It is a good idea to raise the pelt up on the nails, so there is about an inch or more between the pelt and the board. This will keep the finished fur from having a flat or smashed down appearance.

No salt or any other material should be applied to the pelt. Allow the pelt to dry on the board for at least three or four days in a well ventilated room where the temperature is between 55 to 60 degrees F. You may want to wipe the grease off the leather once or twice during the drying process.

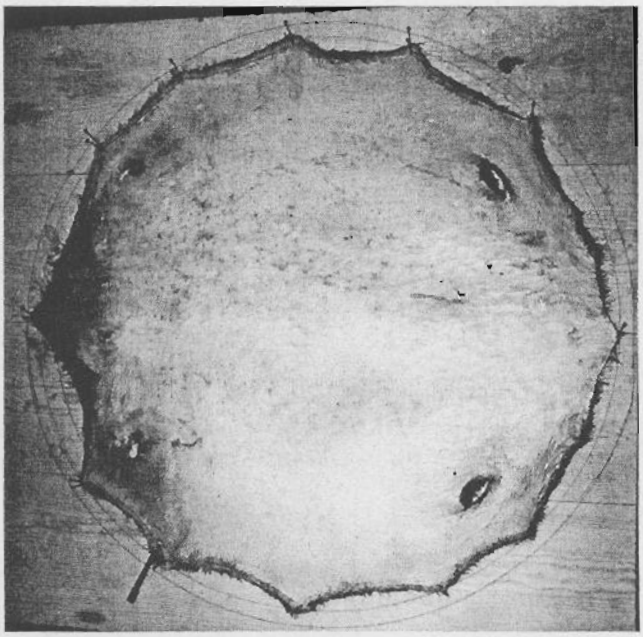
DESCRIPTION OF PELT SIZES

XXXL	Super blanket	over 72
XXL	Blanket	over 65
XL	Extra Large	over 60
L	Large	over 55
LM	Large medium	over 52
M	Medium	over 48
S	Small	over 45
	Cub	under 45

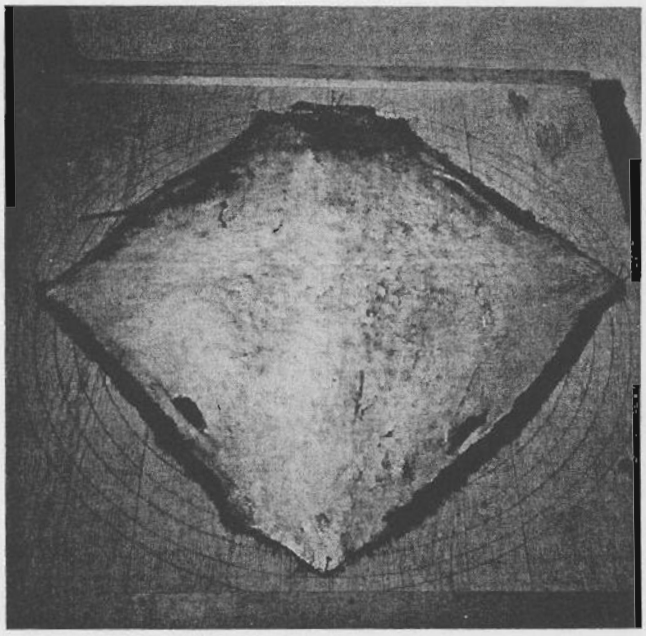
Pelt sizes are determined by adding together the length and the width.



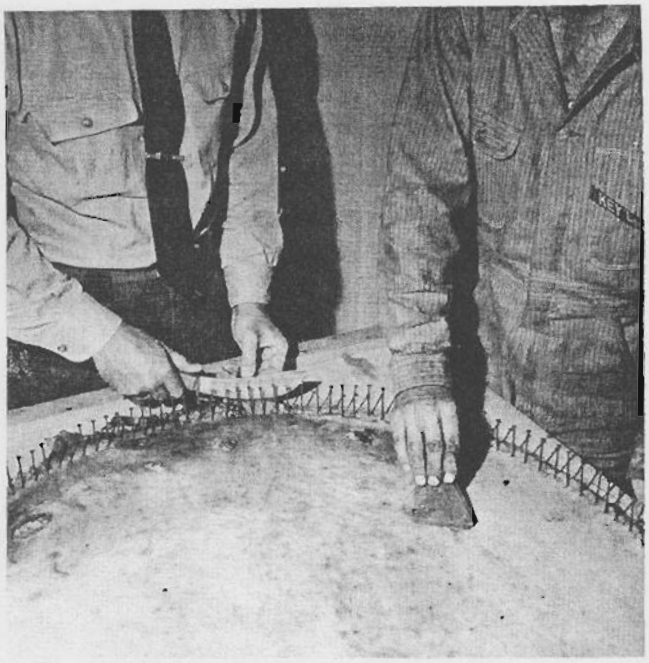
Stages of stretching the pelt.



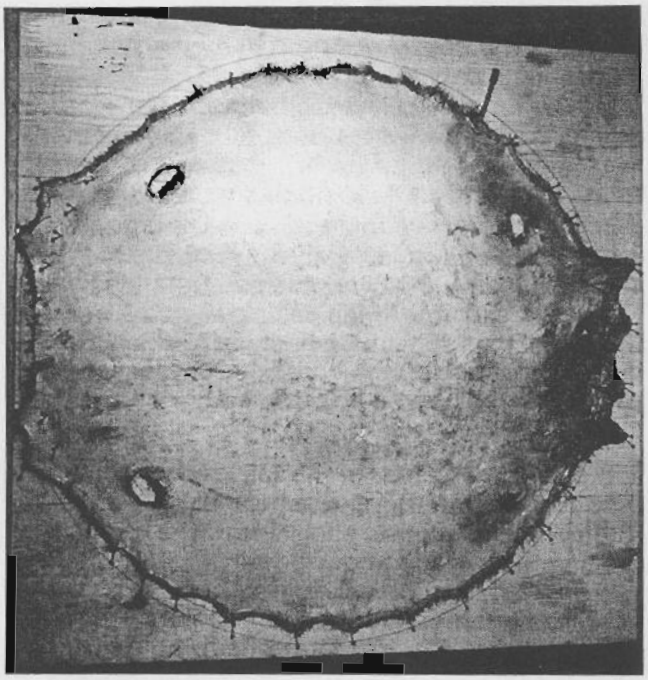
Start the stretching process by placing four nails in the pelt around the edge at the nose, tail, left and right center.



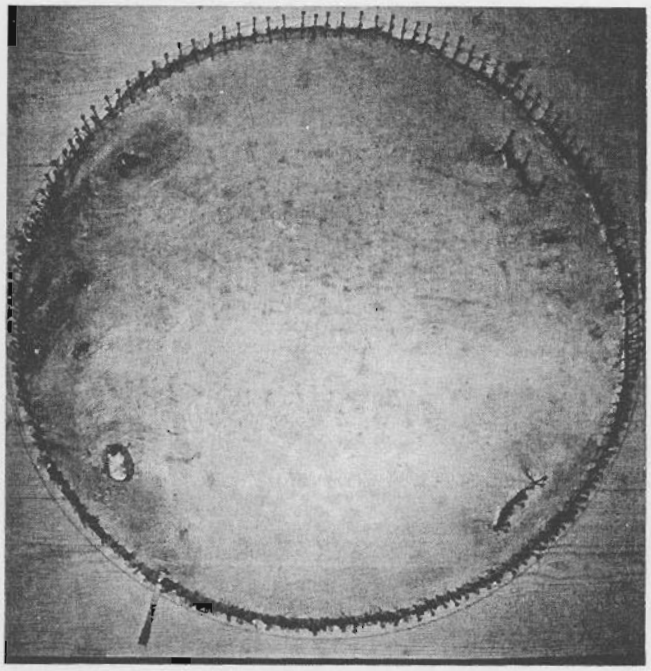
Do not stretch pelt taut.



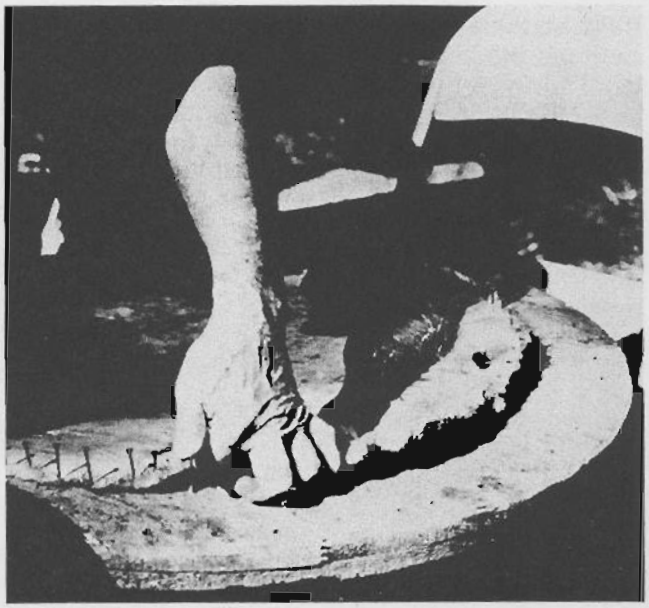
Use hand scraper to remove fat if necessary.



Trim excess pelt sparely around nose and tail if need be, outside the circle.



Nails should be one inch apart.



Lift pelt up on nails so fur can hang down.

Do not store pelts where mice or other animals can reach them. After taking the pelt off the board, store the pelt with other beaver pelts, fur side to fur side, and leather side to leather side. Put a heavy piece of plywood on top of the pelts to keep them from curling. Check the pelts for dampness and mildew every 24 hours. If this occurs, allow the pelts to dry individually.

Another method of stretching beaver pelts is sewing or hooking them to wooden or wire hoops. This method was used during the frontier days and is regaining popularity, especially using wire hoops.

Preparation for the Table

Beaver meat was relished by early fur trappers, and the tail was considered a delicacy by the American Indians. An average, healthy beaver, in good shape, will yield 8–10 pounds of meat. When properly handled, it will provide an excellent meal.

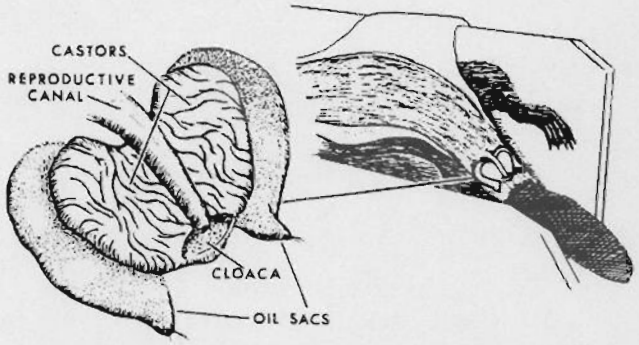
It is important to skin, clean and cool the beaver carcass as soon as possible after it has been caught. A healthy beaver has large quantities of body fat. Remove as much of this fat as possible but avoid cutting the castor glands during this process. Wash the meat in cold water and soak overnight in salty water in the refrigerator. The meat should be boiled for 10 to 40 minutes in a baking soda solution of one tablespoon baking soda per gallon of water. The larger the animal the longer it should be boiled. Remove the meat from the soda water solution and place on top of potatoes, onions, celery, and carrots in a roaster. Salt and pepper to your taste. Some people also add a bay leaf and celery. Lay strips of bacon over the meat. Place roaster in a 350 degree F oven and bake until tender (generally 30 minutes per pound).

Another method of preparing the meat that works well on larger beaver is to pressure cook and debone them. This method serves as the starting point for using beaver in stews, soups, barbecues or for reducing the volume to freeze. Clean the beaver the same as explained above. Cover the meat with a solution of two tablespoons baking soda per gallon of water and boil for five minutes. This will set the fat and allow you to scrape it away. Add fresh water and cook in a pressure cooker for 20 minutes at 15 pounds pressure. You can now remove the meat from the bones.

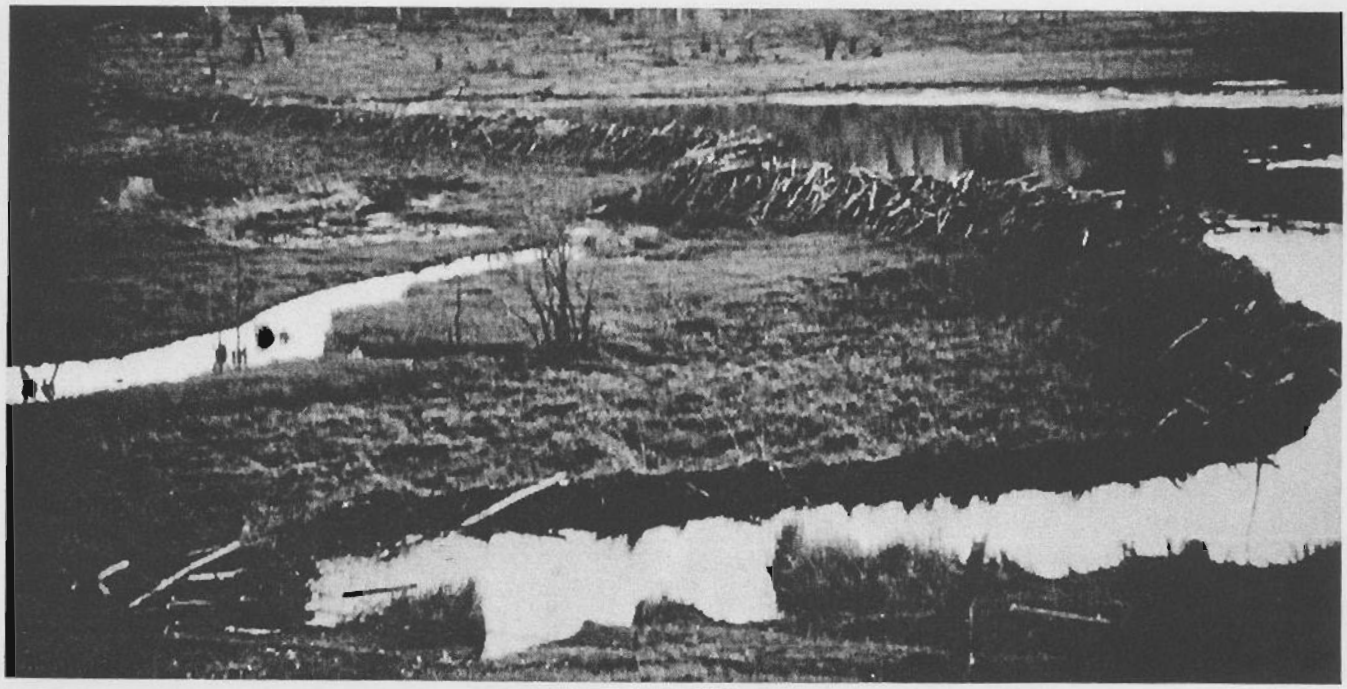
Marketing Beaver

Kansas laws require that a person must have a furharvester license to sell or ship the pelts of furbearers. It also states that in Kansas a person must have a fur dealer's license to buy pelts. You can obtain a list of the current fur dealers from the Kansas Fish and Game Commission office in Pratt. It is a good idea to talk with a few fur dealers before selling your pelts. Some dealers have better markets for beaver pelts than others, and they can therefore offer you higher prices.

Finished pelts, ones that have been properly skinned, fleshed and stretched, usually bring the highest prices. However, some trappers prefer to sell beaver "in the round," which means unskinned or "in the grease," which means rough skinned only and generally frozen.



Beaver castors and oil sacs can frequently be sold to fur dealers at the time you sell the pelts. These scent glands can be air dried and stored for a considerable period of time. The ones that you do not sell can be used to make lures for beaver and other furbearers.



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Special photos by Leonard Rue

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