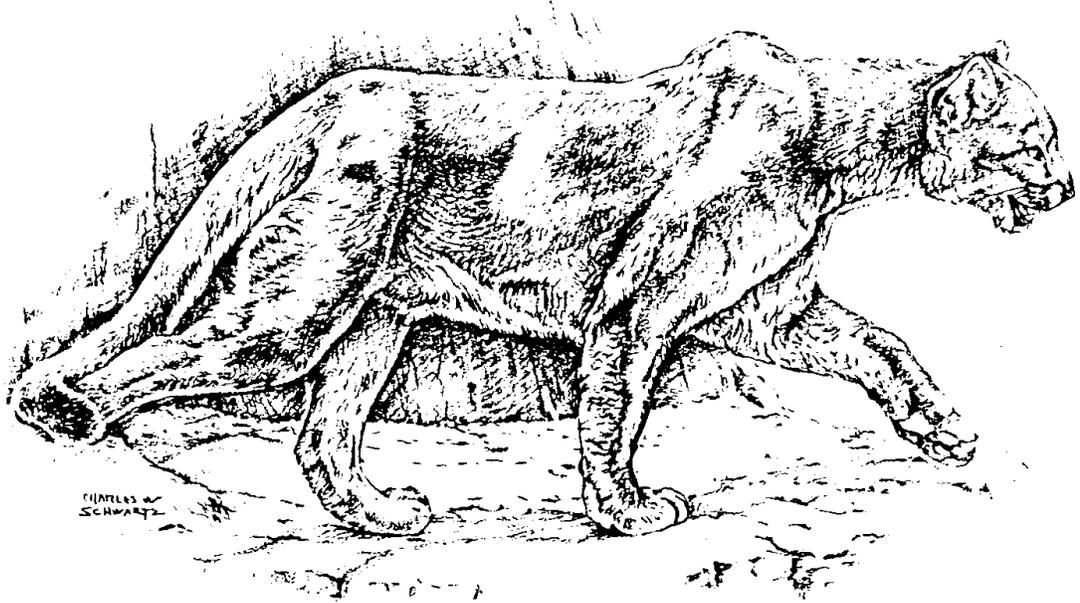


MOUNTAIN LIONS

Fig. 1. Mountain lion, *Felis concolor*



Damage Prevention and Control Methods

Exclusion

Install heavy woven-wire or electric fences to protect poultry and domestic animals of high value.

Cultural Methods

Remove brush and timber near farm or ranch buildings.

Frightening

Night lighting, blaring music, or barking dogs may repel lions.

Repellents

None are registered.

Toxicants

None are registered.

Fumigants

None are registered.

Trapping

Leghold traps sizes No. 4 and 4 1/2 Newhouse.

Leghold snares.

Snares.

Cage traps.

Shooting

Used in conjunction with predator kill watching, or calling.

Other Methods

The use of hounds trained to trail and tree lions is very effective.



PREVENTION AND CONTROL OF WILDLIFE DAMAGE — 1994

Cooperative Extension Division
Institute of Agriculture and Natural Resources
University of Nebraska - Lincoln

United States Department of Agriculture
Animal and Plant Health Inspection Service
Animal Damage Control

Great Plains Agricultural Council
Wildlife Committee



Fig. 2. Range of the mountain lion in North America.

Identification

The mountain lion (cougar, puma, catamount, panther; Fig. 1) is the largest cat native to North America. The head is relatively small, and the face is short and rounded. The neck and body are elongate and narrow. The legs are very muscular and the hind legs are considerably longer than the forelegs. The tail is long, cylindrical, and well-haired. The pelage of the mountain lion varies considerably. There are two major color phases — red and gray. The red phase varies from buff, cinnamon, and tawny to a very reddish color, while the gray phase varies from silvery gray to bluish and slate gray. The sides of the muzzle are black. The upper lip, chin, and throat are whitish. The tail is the same color as the body, except for the tip, which is dark brown or black. The young are yellowish brown with irregular rows of black spots. Male mountain lions are usually considerably larger than females. Adults range from 72 to 90 inches (183 to 229 cm) in total length including the tail, which is 30 to 36 inches (76 to 91 cm) long. They weigh from 80 to 200 pounds (36 to 91 kg). The mountain lion's skull has 30 teeth. Female mountain lions have 8 mammae.

Range

The range of the mountain lion in North America is shown in figure 2. Its

primary range occurs in western Canada and in the western and south-western United States. Sparse populations occur in the south, from Texas to Florida. Several mountain lion sightings have occurred in midwestern and eastern states but populations are not recognized.

Habitat

The mountain lion can be found in a variety of habitats including coniferous forests, wooded swamps, tropical forests, open grasslands, chaparral, brushlands, and desert edges. They apparently prefer rough, rocky, semiopen areas, but show no particular preferences for vegetation types. In general, mountain lion habitat corresponds with situations where deer occur in large, rugged, and remote areas.

Food Habits

Mountain lions are carnivorous. Their diet varies according to habitat, season, and geographical region. Although deer are their preferred prey and are a primary component of their diet, other prey will be taken when deer are unavailable. Other prey range from mice to moose, including rabbits, hares, beaver, porcupines, skunks, martens, coyotes, peccaries, bear cubs, pronghorn, Rocky Mountain goats, mountain sheep, elk, grouse, wild turkeys, fish, occasionally domestic livestock and pets, and even insects. Mountain lions, like bobcats and lynx, are sometimes cannibalistic.

General Biology, Reproduction, and Behavior

Mountain lions are shy, elusive, and primarily nocturnal animals that occasionally are active during daylight hours. For this reason they are seldom observed, which leads the general public to believe that they are relatively rare, even in areas where lion populations are high. They attain great

running speeds for short distances and are agile tree climbers. Generally solitary, they defend territories. Dominant males commonly kill other males, females, and cubs. A mountain lion's home range is usually 12 to 22 square miles (31 to 57 km²), although it may travel 75 to 100 miles (120 to 161 km) from its place of birth.

The mountain lion does not have a definite breeding season, and mating may take place at any time. In North America there are records of births in every month, although the majority of births occur in late winter and early spring. The female is in estrus for approximately 9 days. After a gestation period of 90 to 96 days, 1 to 5 young (usually 3 or 4) are born. The kittens can eat meat at 6 weeks although they usually nurse until about 3 months of age. The young usually hunt with their mother through their first winter.

Historically, the North American mountain lion population was drastically reduced by the encroachment of civilization and habitat destruction. Some populations in the West are growing rapidly. Local populations may fluctuate in response to changes in prey populations, particularly deer, their primary food source.

The mountain lion is usually hunted as a trophy animal with the aid of trail and sight hounds. Pelts are used for trophy mounts and rugs; claws and teeth are used for jewelry and novelty ornaments. The mountain lion is not an important species in the fur trade. In North America, it is primarily harvested in Arizona, New Mexico, Utah, Colorado, Idaho, western Montana, British Columbia, and Alberta.

Damage and Damage Identification

Mountain lions are predators on sheep, goats, cattle, and horses. House cats, dogs, pigs, and poultry are also prey. Damage is often random and unpredictable, but when it occurs, it can consist of large numbers of livestock killed in short periods of time. Cattle, horse, and burro losses are

often chronic in areas of high lion populations. Lions are considered to have negative impacts on several bighorn sheep herds in New Mexico, Arizona, Nevada, and Colorado.

In areas of low deer numbers, mountain lions may kill deer faster than deer can reproduce, thus inhibiting deer population growth. This usually occurs only in situations where alternative prey keep lions in the area and higher deer populations are not close by.

Lions are opportunistic feeders on larger prey, including adult elk and cattle. Individual lions may remain with a herd and prey on it consistently for many weeks, causing significant number reductions. Mountain lions cause about 20% of the total livestock predation losses in western states annually. Historically, lion damage was suffered by relatively few livestock producers who operate in areas of excellent lion habitat and high lion populations. This historic pattern has changed in recent years, as lion distribution has spread, resulting in frequent sightings and occasional damage in residential developments adjacent to rangelands, montane forests, and other mountain lion habitat. Predation typically is difficult to manage although removal of the offending animals is possible if fresh kills can be located.

Sheep, goats, calves, and deer are typically killed by a bite to the top of the neck or head. Broken necks are common. Occasionally, mountain lions will bite the throat and leave marks similar to those of coyotes. The upper canine teeth of a mountain lion, however, are farther apart and considerably larger than a coyote's (1 1/2 to 2 1/4 inches [3.8 to 5.7 cm] versus 1 1/8 to 1 3/8 inches [2.8 to 3.5 cm]). Claw marks are often evident on the carcass. Mountain lions tend to cover their kills with soil, leaves, grass, and other debris. Long scratch marks (more than 3 feet [1 m]) often emanate from a kill site. Occasionally, mountain lions drag their prey to cover before feeding, leaving well-defined drag marks.

Tracks of the mountain lion are generally hard to observe except in snow or on sandy ground. The tracks are relatively round, and are about 4 inches (10 cm) across. The three-lobed heel pad is very distinctive and separates the track from large dog or coyote tracks. Claw marks will seldom show in the lion track. Heel pad width ranges from 2 to 3 inches (5 to 8 cm). The tracks of the front foot are slightly larger than those of the hind foot. The four toes are somewhat teardrop shaped and the rear pad has three lobes on the posterior end.

Although uncommon, mountain lion attacks on humans occasionally occur. Fifty-three unprovoked mountain attacks on humans were documented in the US and Canada from 1890 to 1990. Nine attacks resulted in 10 human deaths. Most victims (64%) were children who were either alone or in groups of other children. Attacks on humans have increased markedly in the last two decades (see Beier 1991).

Legal Status

All of the western states except California allow the harvest of lions. They are protected in all other states where present. Generally, western states manage mountain lions very conservatively as big game animals. Lion harvests are severely restricted by the harvest methods allowed and by quotas.

If mountain lion predation is suspected in states where lions are protected, contact a local wildlife management office for assistance. Most states allow for the protection of livestock from predators by landowners or their agents when damage occurs or is expected. Some states, however, require that a special permit for the control of mountain lions be obtained or that the wildlife agency personnel or their agent do the control work. Several states have a damage claim system that allows for recovery of the value of livestock lost to mountain lion predation.

Damage Prevention and Control Methods

Exclusion

Heavy woven-wire fencing at least 10 feet (3 m) high is required to discourage lions. Overhead fencing is also necessary for permanent and predictable protection. Fencing is practical only for high-value livestock and poultry. Night fencing under lights or in sealed buildings is useful where practical.

Electric fencing with alternating hot and ground wires can effectively exclude mountain lions. Wires should be 10 feet (3 m) high, spaced 4 inches (10 cm) apart, and charged with at least 5,000 volts.

Cultural Methods

Mountain lions prefer to hunt and stay where escape cover is close by. Removal of brush and trees within 1/4 mile (0.4 km) of buildings and livestock concentrations may result in reduced predation.

Chronic mountain lion predation has led to some ranchers shifting from sheep to cattle production. In areas with high levels of predation, some ranchers have changed from cow-calf to steer operations.

Frightening

Bright lights, flashing white lights, blaring music, barking dogs, and changes in the placement of scarecrow objects in livestock depredation areas may temporarily repel mountain lions. The Electronic Guard, a strobe light/siren device developed by USDA-APHIS-ADC, may also deter lions.

Repellents

No chemical repellents are registered for mountain lions.

Toxicants

No chemical toxicants are registered for mountain lion control. Since lions prefer to eat their own kills and fresh untainted meats, an efficient delivery system for toxicants has not been developed.

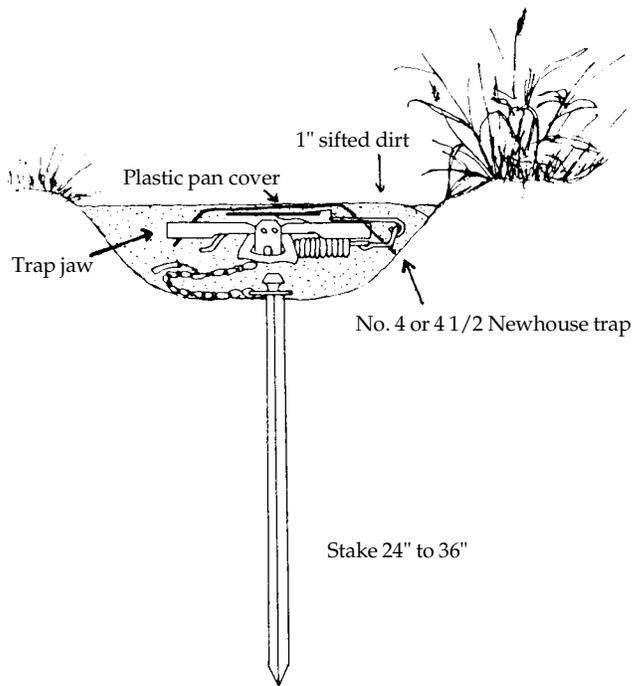


Fig. 3. Bedded trap

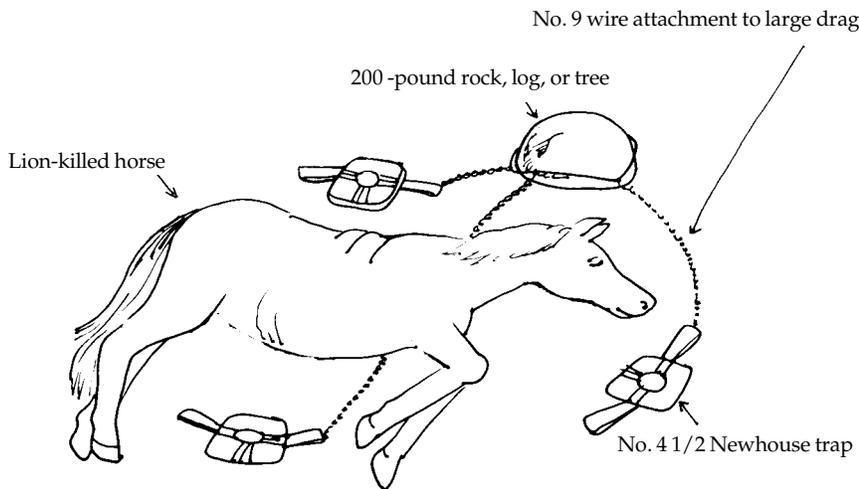


Fig. 4. Trap set at mountain lion kill.

Fumigants

No chemical fumigants are registered for use on lions.

Trapping

Leghold Traps. Mountain lions are extremely strong and require very strong traps. Well-bedded Newhouse traps in size No. 4 or 4 1/2 are recommended (Fig 3). Recommended sets are shown in figures 3 and 4. Use large

heavy drags, sturdy stakes, or substantial trees, posts, or rocks to anchor traps to ensure against escape.

Mountain lions are easily trapped along habitual travel ways, in areas of depredations, and at kill sites. Although blind sets are usually made in narrow paths frequented by lions, baits made of fish products, poultry, porcupine, rabbits, or deer parts, as well as curiosity lures like catnip, oil of

rhodium, and house cat urine and gland materials are effective attractants. Mountain lions are very curious and respond to hanging and moving flags of skin, feathers, or bright objects.

Leg Snares. Leg snares are effective when set as described in the **Black Bears** chapter, and as shown here in figures 4, 5, and 6. Substitute leg snares for the No. 4 or 4 1/2 leghold traps. The Aldrich-type foot snare can be used to catch mountain lions. This set is made on trails frequented by lions; stones or sticks are used to direct foot placement over the triggering device.

Snares. Snares can be set to kill mountain lions or hold them alive for tranquilization. Commercially made mountain lion snares are available from Gregerson Manufacturing (see **Supplies and Materials**). They should be suspended in lion runways and trails (Fig. 7), or set with baits in cubby arrangements (Figs. 8 and 9).

Kill snares should be placed with the bottom of the loop approximately 16 inches (40 cm) above the ground with a loop diameter of 12 to 16 inches (30 to 41 cm). Snares intended to capture lions alive should be placed with the bottom of the loop 14 inches (36 cm) from the ground and a loop diameter of 18 to 20 inches (46 to 51 cm). Snares set for live capture should be checked daily from a distance.

Cage Traps. Large, portable cage traps are used by USDA-APHIS-ADC personnel in California to capture mountain lions that kill pets and livestock in suburban areas and on small rural holdings. The traps are constructed of 4-foot (120-cm) wide, 4-foot (120-cm) high, 10-foot (3-m) long welded-wire stock panels with 2 x 4-inch (5 x 10-cm) grid. The trap is placed where the mountain lion left the kill, and it is baited with the remains of the kill. See Shuler (1992) for details on this method.

Shooting

Mountain lions sometimes return to a fresh kill to feed and can be shot from ambush when they do so. Locate an ambush site where the shooter cannot

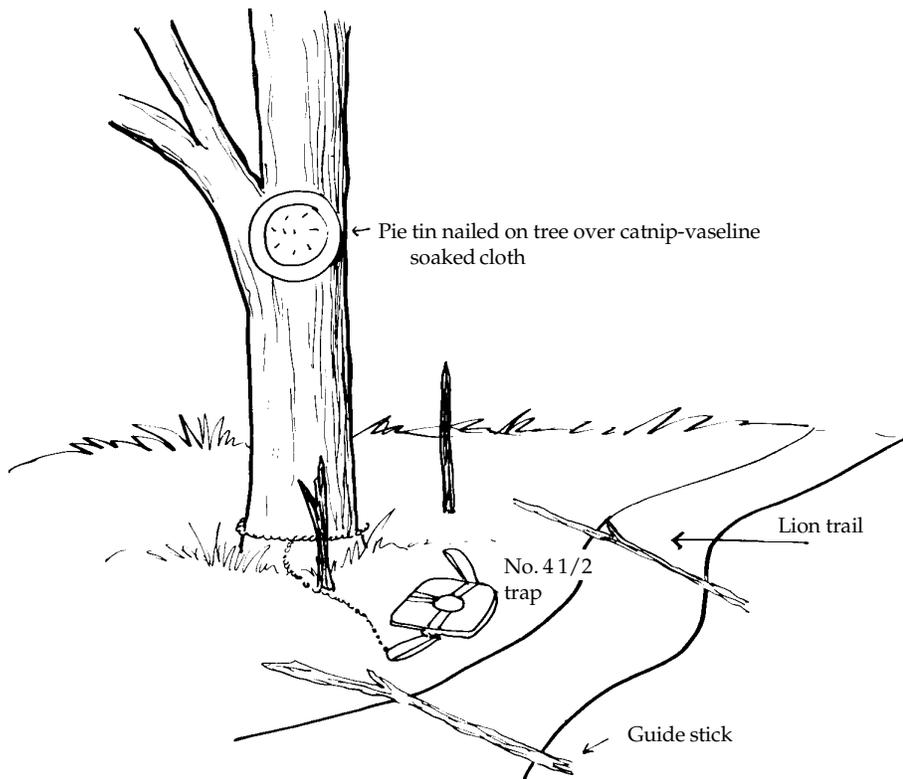


Fig. 5. Lion catnip set

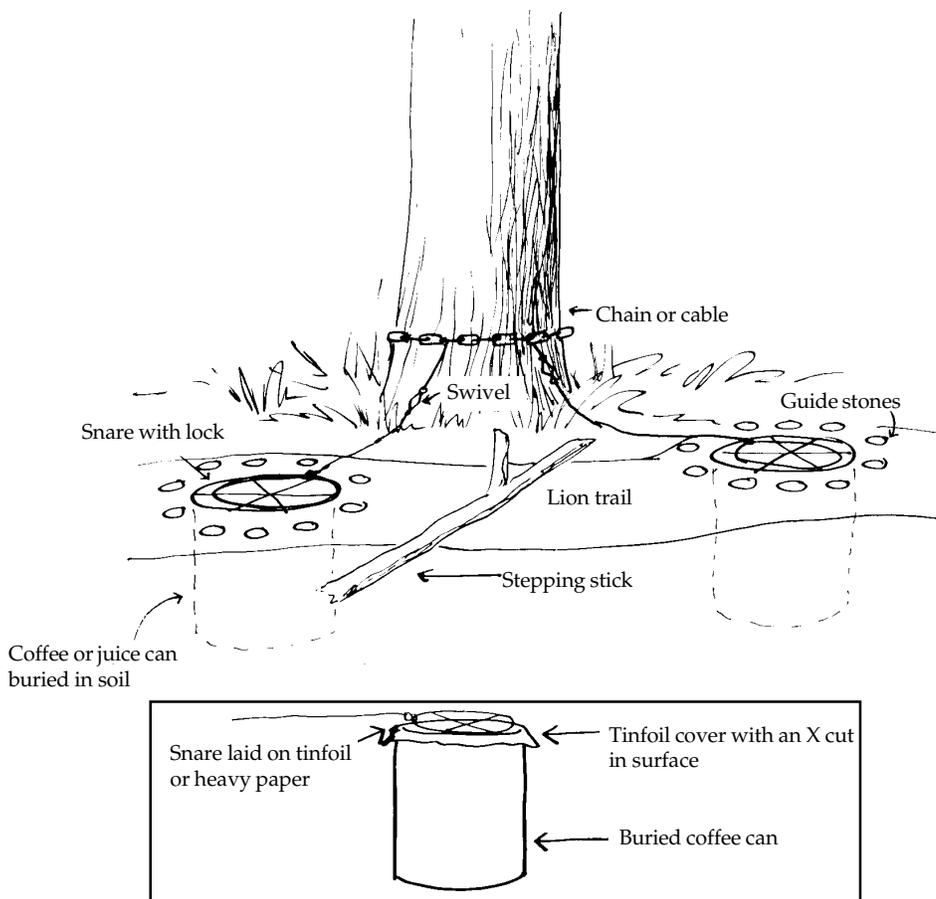


Fig. 6. Lion-trail leg-snare set

be seen and the wind carries the shooter's odor away from the direction that the cat will use to approach the kill site. Set up at least 50 yards (45 m) from the kill site. Calibers from .222 Remington and larger are recommended. Mountain lions can be called into shooting range with predator calls, particularly sounds that simulate the distress cry of a doe deer. See Blair (1981) for additional information on calling lions.

Other Methods

Trained dogs can be used to capture or kill depredating lions. The dogs are most often released at the kill site, where they pick up the lion's scent and track the lion until it is cornered or climbs a tree. The lion can then be shot and removed, or tranquilized and transplanted at least 300 miles (480 km) away. Transplanting of lions is not recommended unless they are moved to an area where no present lion population exists, where habitat and weather are similar to those of the original area, and where there will be no problem of potential depredation by the translocated lions. Placing a mountain lion in an area with which it is unfamiliar reduces its chance of survival and is likely to disrupt the social hierarchy that exists there. Lions from a distant area may transmit a disease or contaminate a gene pool that has been maintained through a natural selection process for population survival in a specific area. In addition, depredating lions are likely to cause depredation problems in the area to which they are transplanted.

Hunting of mountain lions as big game animals should be encouraged in areas of predation to lower the competition for native food sources. To reduce or eliminate future losses, quick action should be taken as soon as predation is discovered.

Economics of Damage and Control

Verifying livestock losses to mountain lions is difficult because of the rough mountainous terrain and vegetation cover present where most lion

Wrap wire in brush to obtain the proper height of snare loop.
 Clamp 14-gauge wire on snare cable here.
 Bend snare cable here.
 Don't let any brush touch the snare loop.
 The bottom of the snare loop should be 16 to 18 inches above the ground with loop diameter of 12 to 16 inches.

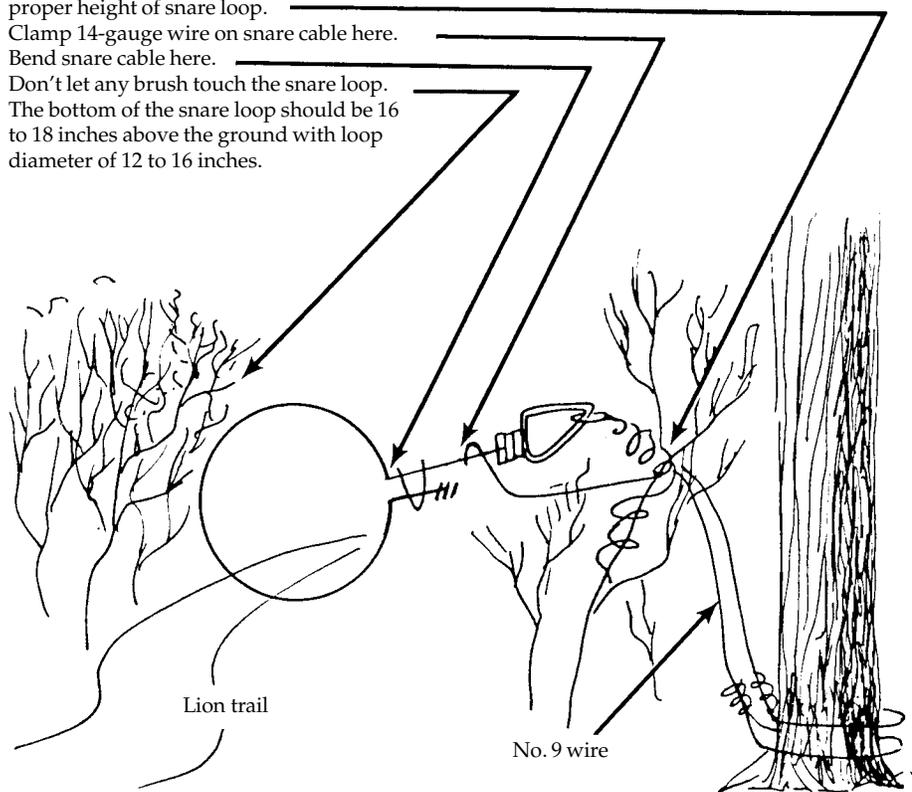


Fig. 7. Kill snare set

predation occurs. Many losses occur that are never confirmed. Generally, lion predation is responsible for only a small fraction of total predation losses suffered by ranchers, but individual ranchers may suffer serious losses.

In Nevada, it was estimated that annual losses of range sheep to mountain lions averaged only 0.29% (Shuminski 1982). These losses, however, were not evenly distributed among ranchers. Fifty-nine sheep (mostly lambs) were killed in one incidence. The mountain lion involved apparently killed 112 sheep in the area before it was captured.

In states such as Colorado and Wyoming, where damages are paid for lion predation, contact the state wildlife agency for information about the claims process and paperwork. Most systems require immediate reporting and verification of losses before payments are made.

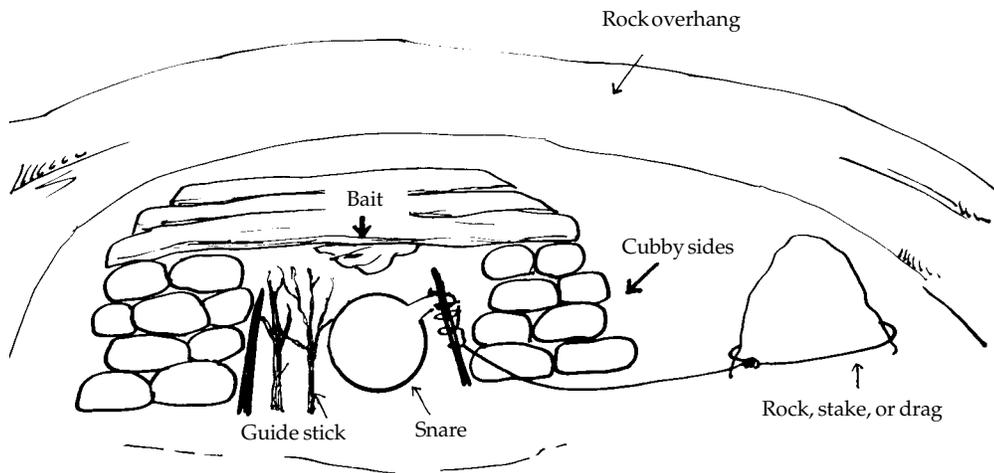


Fig. 8. Rock cubby snare set

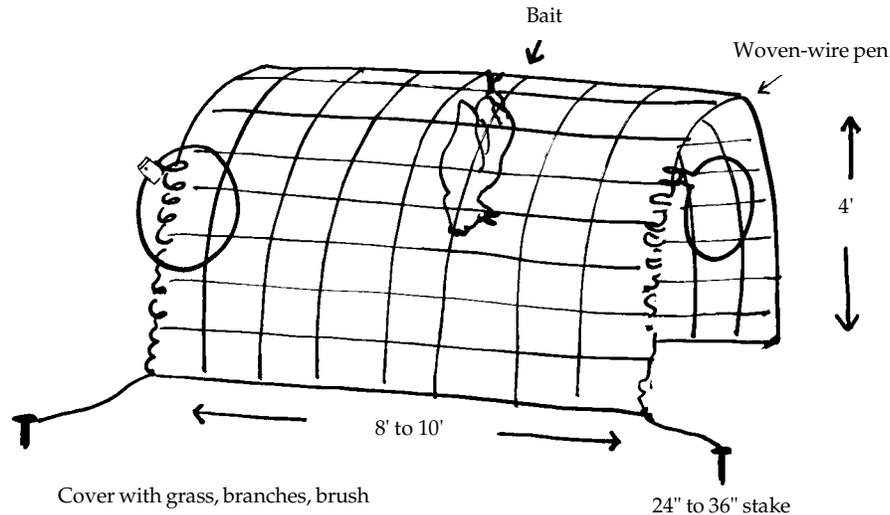


Fig. 9. Woven-wire pen set (snare)

Acknowledgments

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I thank Keith Gregerson for use of the snare suspension and anchoring diagram and the Colorado Trapper's Association for use of diagrams of lion sets from its book (Boddicker 1980). Sections on identification, habitat, food habits, and general biology are adapted from Deems and Pursley (1983).

Figures 1 and 2 from Schwartz and Schwartz (1981), adapted by Jill Sack Johnson.

Figures 3, 4, 5, and 6 from Boddicker (1980).

Figure 7 courtesy of Gregerson Manufacturing Co., adapted by Jill Sack Johnson.

Figures 8 and 9 by Boddicker, adapted by Jill Sack Johnson.

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Editors

Scott E. Hygnstrom
Robert M. Timm
Gary E. Larson

