Title
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Journal
Proceedings of the Vertebrate Pest Conference, 10(10)

ISSN
0507-6773

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Publication Date
1982

SNARES FOR PREDATOR CONTROL

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ABSTRACT: The use of snares predates recorded history. The snare was first used when ancient man realized that an association between a tightening loop of vine and an ensnared animal was something which he could construct and repeat. The current increased interest in snares has been a result of restricted chemical tools in animal damage control resulting in a new look at old mechanical methods. The increased value of pelts of predators has brought efforts by private trappers to improve snaring as a tool. As a result, the ancient art of snaring has been greatly improved over the last decade.

New snare locking mechanisms, improved snare cables, swivel and holding systems, and placement strategies have resulted in snaring becoming a very useful and reliable method for animal damage control and fur harvest. It has become an efficient alternative for leghold traps and M-44s in many situations where weather makes these tools inoperable. The versatility of snares has long been overlooked. They are weather-resistant, can be selectively set and located and constructed with break-away devices to protect against holding livestock and nontarget animals. Snares can be set in killing or live-trapping arrangements. The cost of snares is low and maintenance is equivalent to or less than for steel traps.

Snares deserve another look as a tool in controlling livestock damage due to coyotes, fox, bobcat, mountain lion, and bear. They can be used on most other problem mammal species as well.

INTRODUCTION

During the evolution of man, it seems apparent that the thinkers among the tribes realized that man was poorly anatomically prepared to compete for survival. Man's claws were pathetic. His teeth were poorly adapted for predation. Strength and speed were sorely lacking compared with dire wolves, sabre-toothed tigers and Paleolithic bears. The opposable thumb and reasoning brain obviously were relied upon for the surviving edge. Both are essential in the sophisticated use of tools.

The use of snares predates recorded history. And as Fitzwater (1980) so eloquently established at this conference, trapping is the oldest profession. It is probable that first snare use was contemporary with the first use of pitfalls, spearheads and other Stone Age tools. According to Bateman (1971) the snare is first indicated in Paleolithic artwork in Europe in the range of 25,000 years ago and predates bows and arrows. He records that Mesolithic trappers used spring nooses as well as hanging snares to produce furs in order to support the second oldest profession. By the Neolithic or "New Stone Age" period, trapping devices had developed into a variety of sophisticated equipment including several ingenious uses of snares. According to Bateman (1971) Old Testament chroniclers make mention of the Israelites using nets, traps, snares, and pitfalls.

In an Old Testament story, Samson captured foxes, tying their tails together and torching them, so they could run through and burn the Philistines' crops. It does not say how Samson trapped them but snares were likely the means.

Snares were used by British poachers in the 13th Century to catch deer. Bateman (1971) and Phillips (1961) make reference to American Indians using snares to produce furs for the earliest trade with Europeans in the New World. The sophistication to which snaring has evolved over these thousands of years affirms man's ability to innovate and improvise.

The first snares were made with simple slip knots tied on twisted bark, rawhide or hair cords. These materials remained the standard until copper, brass, bronze, and iron wire became available during the late 1800s.

Thompson (1977), widely recognized as the father of modern snaring, said that snaring with wire in the early 1920s was less than efficient. "The first usable snare wire came from steel wire rope..." This cable was unwound and sections of it used as snares. He records that he experimented with snares, developed a slide-locking device and came up with the idea of a snare cable made up of double-twist wires: cable made with an inner core of wires twisting right with an outer layer of left-twist wire. This meant that a twisting animal always tightened the snare cable, further securing it, rather than unravelling it. This double-twist cable is currently very popular.

A.R. Harding's (1935) book Deadfalls and Snares, accompanies Thompson's as the classic in the trapping literature for diagrams and strategy in snare use. Both books are very informal and simple "state of the art" books. They are presently available and also rather obsolete, describing the 1930s-1960s methods and equipment.

Publications which discuss modern snaring methods include: Grawe (1981), Grawe's Snaring Methods; Petersen (1979), Predator Trapping Problems and Solutions; Wittman (1978), Larry's Snaring Experiences; Petersen (1980), Practical Snare Methods; and Pavek (1982), The Snaresman; and many others. Private lessons in snaring are also available from several of these authors and snare manufacturers.

1982. Proceedings Tenth Vertebrate Pest Conference
(R.E. Marsh, Ed.), Univ. of California, Davis, Calif.

DISCUSSION

For those of you unfamiliar with the recent history of the fur trade, the years 1971-1973 were milestones. The U.S. Military put out a contract for wolf fur-lined arctic parkas. The environmentalist-humanitarian movement blew its lid, resulting in a modification of the contract to allow coyote fur as a substitute. In developing this contract the New York fur industry, also reacting positively but belatedly, to the removal of fur luxury taxes by the Johnson administration, decided to promote the "fun furs." That included most wild furs which had very poor market interest since World War II. By 1973, the private fur trapper was on his way back. According to figures in "Predator Damage in the West" (1978) the U.S. Fish and Wildlife Service catch of coyotes exceeded the private fur take until 1974. Since 1974, private trappers have harvested 50-80 thousand more coyotes per year than animal damage control programs. Historically, the dollar has provided an excellent incentive for improvement in harvest technology. It has repeated that character with snaring.

Historical problems with snaring were: lack of a dependable, sensitive, yet durable snare cable, lack of a dependable, sensitive and selective locking device, lack of a general use and knowledge transfer on snaring techniques, public opposition to use because of the snares' history as a poaching device, humaneness issues, and nontarget catch problems. To a large degree, these problems have been successfully addressed.

Snares can be used for most mammal pests as a substitute for other mechanical trapping devices. Problems of time, cost, visitation frequency, weather, nontarget-catch risk, and problem animal behavior are criteria to consider before snares are selected for use. Snares can be used to advantage in many animal damage control situations where fox, coyote, bobcat, mountain lion, bear, or dogs are involved.

The Aldrich bear snare has long been standard in the animal damage control bag of tricks. The snaring of mountain lions has also been a popular alternative to the use of hounds in controlling lion damage over the years. And though individual ADC fieldmen have used snares effectively for many years, the general use of snares apparently has come into its own rather recently.

Snaring was not of sufficient importance to list as a technique by the U.S. Fish and Wildlife Service in the Cain Report (1972). In Predator Damage in the West (Herbst 1978), snaring is prominently listed. Montana, Nebraska, Oregon, Texas, and Utah programs listed snaring as a significant method. The 1977 Texas program reported 32% of its manpower and 28% of its funds committed to snaring. Other states expended much less snaring effort. In Table E-4 in Predator Damage in the West, entitled "Methods Used and Coyotes Taken in U.S. Fish and Wildlife Service Animal Damage Control Programs," snares took 3,187 coyotes or 3.8% of the total. In dollar cost per coyote taken, snaring was listed as the most expensive ($137.13) as compared with other mechanical means of taking (see Table E-4). This indicates a rather low efficiency which might be related to the relative inexperience in using snares by ADC fieldmen.

Table E-4. Methods used and coyotes taken in the U.S. Fish and Wildlife Service animal damage control program, fiscal year 1976[a] (from Herbst, R. 1978. Predator damage in the west. U.S. Fish and Wildl. Serv., Wash., D.C.).

	Cost			Mantime				
	Coyotes taken Number	%	Dollars expended	Percent dollars expended	Man years expended	% Man year	Dollars per coyote taken[b]	Coyotes taken per man-year
Trap	31,581	37.0	2,777,745	43.7	228.26	55.7	$89.64	135.7
M-44	5,328	6.3	456,667	7.2	46.34	11.3	86.28	113.5
Gr. Shot	5,347	6.3	211,145	3.3	17.79	4.3	39.79	298.3
Snare	3,187	3.8	437,024	6.8	45.32	11.1	137.13	70.3
Den	5,226	6.2	283,853	4.5	24.33	5.9	54.38	214.5
Dog	204	0.2	11,274	0.2	0.84	0.2	55.26	242.9
Ground Total	50,164	59.8	4,177,708	65.7	362.88	88.5	83.22	138.2
Fixed Wing	9,692	11.6	538,119	8.5	22.74	5.6	55.52	426.2
Helicopter	23,934	28.6	1,639,502	25.8	24.19	5.9	68.50	989.4
Air Total	32,626	40.2	2,178,621	34.3	46.93	11.5	66.78	695.2
Grand Total	83,790	100.0	6,356,329	100.0	409.81	100.0	75.82	204.5

[a]Data from U.S. Fish and Wildlife Service ADC Program field operations for FY 1976 (excluding the Transition Quarter) in Arizona, California, Idaho, Montana, Nebraska, Nevada, New Mexico, North Dakota, Oklahoma, Oregon, Texas, Utah, Wyoming.

[b]These are costs per coyote removed and do not accurately reflect costs associated with alleviating specific depredation problems.

One gets the impression from Predator Damage in the West (1978), Table E-5, that the Washington, D.C. ADC staff are not very enthusiastic about snares. Table E-5, Ranking of Animal Damage Control Operational Predator Control Methods With Respect to Efficiency, Selectivity, Humaneness, Safety, Environmental Risks, Social Acceptance, and Legal Constraints, gives snares unenthusiastic ratings. Snares are classified as fair in offending individual, poor for population reduction, fair in selectivity, poor in humaneness, good in safety, poor in social acceptance, and slight in environmental risks. One wonders how a snare hung to catch predators could be less than excellent in safety. As far as environmental risks, I have never understood fully what an "environmental risk" was; a snare is absolutely not an environmental risk unless iron oxide is a pollution problem. In my view, this U.S. Fish and Wildlife Service chart typifies the general ignorance about snares and snare use that generally prevails in the wildlife business. Of all of the mechanical means now in animal damage control use, the snare offers the most potential for development of significant positive results over present use. To develop this potential, in-service training and re-emphasis on snare use will be necessary.

Table E-5. Ranking of ADC Operational Predator Damage Control Methods with Respect to Efficiency, Selectivity, Humaneness, Safety, Environmental Risks, Social Acceptance, and Legal Constraints (from Herbst, R. 1978. Predator Damage in the West. U.S. Fish and Wildl. Serv., Wash., D.C.)

Control methods	General Efficiency: Offending individual	General Efficiency: Population reduction	Selectivity	Humaneness	Safety	Social acceptance	Environ. risks	Legal constraint
Steel Traps	Good	Poor	Fair	Poor	Excellent	Poor	Slight	State laws on visitation requirements.
Snares	Fair	Poor	Fair	Poor	Good	Poor	Slight	
Aerial Hunting	Good	Good	Excellent	Good	Fair	Fair	Slight	Fed. and/or state permits required. State control on time and/or location.
Calling and/or Shooting	Fair	Very Poor	Excellent	Excellent	Excellent	Good	Slight	Various restrictions by states.
Den Hunting	Good	Poor	Excellent	Good	Good	Fair	Slight	No fumigants registered.
Toxic Chemicals:								
Sodium Cyanide in M-44	Fair	Good	Good	Excellent	Good	Good	Slight	Subject to (EPA) Regis. restrictions. Restricted from some Federal lands.
Single Lethal[a] Baits	Fair	Good	Fair	Good	Good	Fair[b]	Some	No registration (EPA)
Bait Station[a]	Poor	Excellent	Fair	Good	Good	Poor[b]	Some	No registration (EPA)

[a]Rankings would depend in part on the toxicant formulation used. Both toxicant delivery systems are currently excluded on public lands and in the Fish and Wildlife Service Animal Damage Control Program by Executive Order 11643.

[b]Judgments vary depending upon chemical and pharmacological properties of toxicant as well as method, timing, and location of application.

As previously mentioned, technology in snare design and materials has greatly improved the tool. There are many designs of snare cable available from the cable industry including custom cable-making to the purchaser's specifications. Cable is available from soft copper braid to stainless steel, in diameters from 1 mm or less to inches, and with carbon contents yielding soft wire to hard, inflexible cable. Locking devices have been patented which include a highly sensitive and dependable lock-up system for quick killing. Locks have been made of materials which are weight-and-wear sensitive. When an animal over certain weight limits is accidently snared, the lock will break or wear through

and drop off. Snare stops are widely used which allow for the snare loop to constrict to a diameter which will hold the animal without killing it. Snare stops allow the cable to slip off of a larger nontarget animal caught by a foot. Break-away attachment devices and arrangements are in use to further reduce holding or injuring large nontarget animals.

The selection of snare locations and placement of fencing devices are also essential to effectiveness and selectivity. Imaginative use of lures, baits, snare size and design, and placement in height and cant, all contribute to efficiency and selectivity.

Hanging devices have been developed which make snare attachment quick, simple and dependable. Fur trappers are catching coyotes in barren, short grass prairies on cow trails with the highest vegetation at less than three inches. Snares are relatively weatherproof when properly located and attached. Snow, cold, soil conditions, and moderate winds which have very negative effects on other mechanical means can enhance the effectiveness of snares. In areas of theft risk, snares offer excellent concealment. Animals caught are dead and cannot be released. Snared animals do not offer as much public exposure as animals held in traps.

Live-capture with snares using snare stops and/or loop size and height is practical and effective. I have live-trapped 63 beaver in the last two years, all of which could have been transplanted alive without complication. When live capture is desired, loop stops, or large low hung loops, can be used to produce live catches. Release of these animals can be accomplished by cutting the cable with cable cutters after the snare is used to guide the animal to the release site. I use the snare for spring beaver trapping when I wish to release the pregnant females. Leghold and Conibear traps eliminate this option.

George Stewart (personal communication), a professional trapper in Colorado's mountains, estimates that snare use since 1977 has increased his catch by 50% over steel traps alone and extended his collection season by six weeks through the high-snow periods of January, February and March. He snares some of the most sterile, hostile trapping country existing. His estimated kill efficiency on snares set to take coyotes and bobcats is 85%. Only 15% of animals snared will be alive when he visits his sets. Damage to pelts and inhumane situations are not problems, according to Stewart. Stewart catches between 80 and 150 coyotes and bobcats per year for both fur and animal damage control purposes.

In animal damage control, snares have several advantages which are similar to other mechanical devices. They can be applied and withdrawn at will without any residual problems. They offer zero human risk. Many of them can be used at very small cost, i.e., prices are about $18.00 - $20.00 per dozen. They can be used until a catch is made; they can then be remodeled at a cost of about $.30 each. If properly set they are primarily a killing device which means less frequent visitation is necessary, although a 48-hour checking regimen is recommended.

In snaring coyotes and bobcats, snare placement in trails, through or under fences, in heavy brush or crop cover, and in approaches and trails to the sites of depredations are very effective at catching offending predators. By baiting and luring, coyotes and bobcats can be pulled into cover types which enhance the snare use and discriminate against nontarget catches. The basic working principle of snares is to catch predators as they travel to and from food sources, or other activities. Baits and lures can be effectively used with snares, but efficient snaring is not dependent on them as it is with M-44s, steel traps, or toxicant applications.

Since snares are not placed in the soil and do not require extensive camouflaging, temperature and precipitation does not affect their efficiency to the degree traps are affected. The mechanical works of snares are very simple, resulting in less mechanical failure as experienced with traps and M-44s. Since snares do not make noise, are not closely associated with baits and are easily hidden, predators do not learn to avoid snares as they do traps and M-44s. When a snare is properly located and hung, the question becomes "when" will it catch, not "if" it will catch.

Disadvantages of snares are several. It takes skill to select set locations and properly maintain snares. Not many ADC fieldmen have the training and experience to get the potential from snares. Snares are a threat to livestock, deer and antelope when improperly placed. Placement outside of pastures where livestock is present is important for the safety of stock and to keep stock from knocking down the snares. Placement of snares in tight cover where stock cannot get to the snare but coyotes and bobcats go on through is an alternative. Placing snares in croplands where mechanical harvest equipment may operate is not recommended. Certain barren cover types make snare placement more difficult than in sagebrush or heavy covers. An efficient snaresman can place snares at about the same time investment as steel traps and M-44s with at least the equivalent return. In heavy snows, freezing and thawing soils, and areas of high-theft risk, snares offer a better chance of resolving a predator problem than traps or M-44s.

There has been a great deal of discussion of late on the pros and cons of the leghold snare device for coyote and fox. Models I have seen are simple, scaled-down versions of the Aldrich bear snare. Woodstream Corporation arranged for a field demonstration of these in Texas in June of 1981.

My frank evaluation of them is that they offer no advantage to well maintained leghold traps. The problems of leghold traps are simply additive to the problems with snares when the two ideas are combined. Cable erosion in the soil, freezing and thawing of soil, plugging and corroding of the snare cable lock, time and inconvenience of setting, animals chewing the snare cable in two, nontarget catches, foot-tissue abrasion and damage caused by the cable, are all problems to leghold snare use for small predator trapping. If live-capture of coyotes is necessary, snare loops can be increased

in size, and/or hung near the ground to produce more reliable live catches than the Novak leghold snare device.

A continuing private effort is in progress to improve snares and snaring. Experimenting is in progress on cable construction, swivels and attachments, and locking devices. In my view, achievable improvements in break-away locking devices can greatly reduce problems with nontarget livestock and big game catches.

CONCLUSION

It is my strong conclusion, after five years of teaching snare use and observing efficient snaring practice, that snares offer the animal damage control profession a great deal of extra flexibility and efficiency. It would serve the profession well to take a long look at snaring with a view of providing in-service training to improve snaring skills and expand snare use in ADC operations.

LITERATURE CITED

BATEMAN, J. 1971. Animal traps and trapping. Stackpole Books, Harrisburg, PA. 286 pp.
CAIN, S. et al. 1972. Predator control 1972. Council Env. Qual. Washington, D.C. 207 pp.
FITZWATER, W. 1980. Trapping - the oldest profession. Proc. Fourth Vert. Pest Conf. 101-108.
GRAWE, A. 1981. Grawe's snaring methods. A. Grawe, Wahpeton, ND. 48 pp.
HARDING, A. 1935. Deadfalls and snares. A.R. Harding Co., Columbus, OH. 218 pp.
HERBST, R. 1978. Predator damage in the west. U.S. Fish and Wildl. Serv., Washington, D.C. 168 pp.
PAVEK, L. 1982. The snaresman. L. Pavek, Hinckley, MN. 123 pp.
PETERSEN, L. 1979. Predator trapping problems and solutions. L. Petersen, Ekalaka, MT. 54 pp.
_____. 1980. Practical snare methods. L. Petersen, Ekalaka, MT.
PHILLIPS, P.C. 1961. The fur trade. U. of Oklahoma Press, Norman. Vol. 1. 686 pp.
STEWART, G. 1982. Personal communications. Windsor, CO.
THOMPSON, R. 1977. Snares and snaring. R. Thompson Co., Lynwood, WA. 59 pp.
WITTMAN, L. 1978. Larry's snaring experiences. L. Wittman, McClusky, ND. 53 pp.