

Bunnell, K., Bassett, S., Millgate, E., Weis, J., Flinders, J., and Hill, H. Utah Bobcat Management Plan 2007-2016. 06-10, Report: 1-38. 2007. The Bobcat Working Group, Utah Division of Wildlife Resources.

Keywords: 3US/bobcat/*Lynx rufus*/harvest/management/management plan/conservation/distribution

Abstract: The purpose of the Utah Bobcat Management Plan is to direct the management of bobcats (*Lynx rufus*) in Utah in accordance with the mission of the Utah Division of Wildlife Resources (UDWR) through 2016. The mission of UDWR is: "to assure the future of protected wildlife for its intrinsic, scientific, educational and recreational values through protection, propagation, management, conservation and distribution throughout the State of Utah". A combination of increasing numbers of bobcat trappers and high fur prices resulted in an unprecedented period of higher than average bobcat harvest in Utah beginning in 2001 and continuing through 2006. As a result, UDWR decided to evaluate and formalize the process by which bobcat harvest is regulated in the State. The Utah Bobcat Management Plan was developed by UDWR with the assistance of a group of Utah citizens representing major stakeholders concerned with bobcat management and conservation.

# **Utah Bobcat Management Plan**

## **2007- 2016**



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Director**

**Publication No. 06-10**

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## **INTRODUCTION**

**Kevin Bunnell**

The purpose of the Utah Bobcat Management Plan is to direct the management of bobcats (*Lynx rufus*) in Utah in accordance with the mission of the Utah Division of Wildlife Resources (UDWR) through 2016. The mission of UDWR is:

*to assure the future of protected wildlife for its intrinsic, scientific, educational and recreational values through protection, propagation, management, conservation and distribution throughout the State of Utah.*

A combination of increasing numbers of bobcat trappers and high fur prices resulted in an unprecedented period of higher than average bobcat harvest in Utah beginning in 2001 and continuing through 2006. As a result, UDWR decided to evaluate and formalize the process by which bobcat harvest is regulated in the State. The Utah Bobcat Management Plan was developed by UDWR with the assistance of a group of Utah citizens representing major stakeholders concerned with bobcat management and conservation. This "Bobcat Team" consisted of a representative from the Utah Trappers Association (UTA) (Stan Bassett), a houndsmen representative (Ernie Millgate), a representative of non-consumptive views (John Weis), an academic (Dr. Jerran Flinders) and two representatives from UDWR (Kevin Bunnell and Heather Hill). This group operated on the basis of consensus and all members of the group endorse the Utah Bobcat Management Plan. UDWR wishes to thank the members of the Bobcat Team for the time and efforts they devoted to the development of this plan.

## **NATURAL HISTORY**

**Kevin Bunnell**

### **Distribution**

The bobcat is the most widely distributed felid native to North America. It ranges from as far north as central British Columbia and south to Oaxaca, Mexico (Rolley 1987). With the exception of Delaware, the bobcat occurs in all of the lower 48 states, although its distribution is restricted in Illinois, Indiana, Iowa, Michigan, Missouri, and Ohio (Woolf and Hubert 1998). In Utah, bobcats occur in all 29 counties and in most habitat types.

### **Description**

Bobcats can be various shades of buff and brown with dark brown or black stripes and spots. In Utah, bobcats from lower elevations tend to be more spotted than those at higher elevations, leading trappers to refer to higher elevation bobcats as "lynx cats". Bobcats are distinguished from other felids, except Canada Lynx, by a short tail, tufted ears, relatively small head, and a flared facial ruff or mane. Lynx can be distinguished from bobcats by their large

furred feet, long legs, slightly shorter tail, longer ear tufts (>2 in), and relatively spotless and grayer pelage. One of the best ways to distinguish between bobcats and lynx is by their tails. Bobcat tails are banded only on the upper surface with a black spot on the upper surface of the tip. Lynx tails are not banded on either the upper or lower surfaces and have a black tip that completely encircles the tail, as if the tail was dipped in black ink (Figure \_).

Bobcats are sexually dimorphic with males being larger than females. Adult bobcat weights vary throughout their range with adult males and females averaging 21.2 (14.1 – 40.3) lbs and 15.0 (9.0 – 33.7) lbs, respectively (Banfield 1897). Bobcats trapped on the Sheeprock and Tintic Mountains of west central Utah averaged 26.9 lbs and 14.3 lbs for adult males and females, respectively (Blackwell 1991). Total length of male bobcats averages 86.9 (47.5 – 125.2) cm and adult female length averages 78.6 (610 – 109.2) cm (McCord and Cardoza 1982). Bobcat body size appears to follow Bergmann's rule, with size increasing with latitude and elevation (Sikes and Kennedy 1992).

## **Reproductive Biology**

Bobcats are seasonally polyestrous and probably spontaneous ovulators, experiencing up to three estrous cycles between March and June if not impregnated during one of the ovulations (Crowe 1975). However, early researchers assumed bobcats were induced ovulators and there is some evidence to support this contention. Male bobcats possess a barbed penis and engage in repeated coitus, both characteristics of induced ovulators (Merher 1975). Evidence clearly indicates that female bobcats can ovulate without the stimulation of the male, but coitus may induce or hasten ovulation (Anderson and Lovallo 2003). The majority of bobcat breeding occurs during February and March, however, breeding can occur at any time because litters have been reported in every month (Duke 1954; Young 1958; Gashwiler et al. 1961; Fritts 1973; Crowe 1975). The breeding season for bobcats probably varies with latitude, longitude, altitude, climate, photoperiod, and prey availability (McCord and Cardoza 1982).

## **Habitat Selection**

In general, any habitat that supports abundant prey in terms of leporids and other small mammals, and is suitable for hunting by either ambush or stalking, is suitable for bobcats. This generalization is supported by the broad distribution of the species in the United States, which includes forested bottomlands of the southeast, arid deserts regions of the southwest, boreal forests of Minnesota, tropical regions of Florida and montane habitats in the Rocky Mountains (Anderson and Lovallo 2003). In Utah, bobcat habitat selection has been characterized by 2 separate research efforts (Karpowitz 1981; Blackwell 1991; Appendix I). Karpowitz (1981) characterized bobcat habitat selection in the Wasatch Mountains and found that pinyon-juniper and mountain brush vegetative

types were preferred, and also reported that cliffs and rocks were important components of bobcat habitat. The preference for rocky habitats was believed to be important for providing escape terrain for evading coyotes. Blackwell (1991) studied bobcat habitat selection in the Sheeprock and Tintic mountains and determined that pinyon-juniper mixed with sagebrush, closed pinyon-juniper communities and riparian zones were preferred habitats.

## **Prey Selection**

Bobcats are almost exclusively carnivores and most frequently kill prey that weighs between 1.5 and 12 lbs (Anderson and Lovallo 2003). Throughout most of their range, rabbits and hares are the most important prey items, sometimes exceeding 90% of their diet (Bailey 1979; Parker and Smith 1983). However, there are regional variations. In the northern portion of the range, snowshoe hare and white-tailed deer predominate bobcat diets (Nussbaum and Maser 1975; Berg 1979; Parker and Smith 1983). In the southeast, cotton rats may constitute the majority of the diet (Knight 1962; Beasom and Moore 1977; Miller and Speake 1979). In western Washington, the mountain beaver makes up the majority of bobcat diets (Knick et al. 1984). In Utah, Blackwell (1991) found that 78.6% of bobcat scats collected in the Sheeprock and Tintic mountains contained the remains of desert cottontails. Other prey items found in the scats included deer mice, great basin pocket mice, wood rats, chipmunks and mule deer.

## **Behavior and Home Range**

Bobcats are essentially solitary with brief, infrequent social interactions. The exceptions to this generalization are females with kittens and adult males and females during breeding season. Three social classes seem to exist in all populations, including residents, transients and kittens. Most adults are considered residents and generally remain in a home range or territory. Transients are generally yearlings dispersing from their natal home ranges (Bailey 1974; Rolley 1983).

Estimates of bobcat home range sizes vary widely among studies and range from 0.4 mi<sup>2</sup> to 26.9 mi<sup>2</sup> for females and 1.0 mi<sup>2</sup> to 53.5 mi<sup>2</sup> for males. However, there are several consistent generalizations that have been discovered. Home ranges in northern latitudes are considerably larger than those in the south. Male home ranges are generally 2-3 times larger than those of females. Home range size seems to be most strongly correlated to prey abundance (Anderson and Lovallo 2003). In Utah, Karpowitz (1981) reported home range sizes of 6.3 mi<sup>2</sup> for female and 8.7 mi<sup>2</sup> for male bobcats in the Wasatch Mountains. Daily movement distances also vary widely by region, sex, weather conditions and individuals (Anderson and Lovallo 2003).

## **Competitive Interactions**

The most significant and influential competitors of bobcats are coyotes. Coyotes often use the same habitats and utilize the same prey as bobcats. Buskirk et al. (2000) hypothesized that coyotes have a significant ecological advantage over bobcats due to their larger size, broader diet, wider habitat niche, higher reproductive rates, wider behavioral plasticity and higher human tolerance. Litvaitis and Harrison (1989) reported that a sharp decline in bobcat harvest in Maine was highly correlated with a dramatic increase in coyote populations. Likewise, a 3-year experiment in western Texas in which coyote populations were artificially reduced led to increases in bobcat and rodent populations, whereas no similar population changes were observed in a control area (Henke and Bryant 1999). In addition to coyotes, Cougars have been documented killing bobcats. For Example, Blackwell (1991) found an instance where a cougar killed and mostly consumed a radio-collared bobcat, and a female with kittens reduced her activity to portions of her home range with rocks and crevices in seeming response to the presence of a resident cougar, which also had kittens.

## **MANAGEMENT HISTORY IN UTAH**

**Heather Hill**

### **History**

Prior to the 1970s, bobcats were classified as predators (non-protected wildlife) and therefore not under the jurisdiction of the Utah Division of Wildlife Resources (UDWR). Bounties were offered on bobcats in Utah from the late 1800s to 1975, with the greatest number of bounties, 4,396, occurring in 1969 and again in 1970 (Stiver 1982). Historically, bobcats had little economic importance, with an average pelt price of only \$5.00 between 1950 and 1970 (Anderson 1987). During the 1970s, bobcat harvest and average pelt price increased dramatically in the United States. With this increased demand, the bobcat trade came under heavy fire during the 1970s and early 1980s. In 1973, UDWR began attempts to gain management authority over bobcats, and met strong opposition by agricultural and livestock interests hoping to reduce loss caused by predators. UDWR and sportsmen successfully achieved a moratorium on bobcat trapping in Utah in 1976.

### **CITES**

The 1977 listing of bobcats as an Appendix II species under the Convention on International Trade in Endangered Species (CITES) required that the exportation of bobcat pelts not cause detriment to the survival of the species. Bobcats became a protected wildlife species in Utah in 1979, and active management of harvest was implemented at this time. As a result of a suit brought by Defenders of Wildlife, a court order was issued in 1981 that required the collection of reliable population estimates and accurate harvest data prior to the lifting of a temporary

export ban. The case was dismissed in 1982 and in 1983, CITES permitted the U.S. to redefine bobcats in Appendix II, under “similarity of appearance” to enable effective regulation of other listed cats. Due to the political uproar during this time, management and research efforts were greatly increased in an attempt to collect more information on the biology and ecology of bobcats in the United States.

## **License Requirements**

New regulations were also implemented in 1979 when bobcats received protection in Utah. Any person intending to harvest bobcat were required to obtain possession tags from UDWR and check-in each pelt to have a permanent CITES tags affixed, as well as surrender the lower jaw. A bobcat season was also implemented, restricting the take of bobcats to a fixed-length season. In 1982, UDWR added bobcat to its annual fur harvest questionnaire. This questionnaire included questions about bobcat harvest and trapping effort by county, as well as questions to collect fur harvester suggestions on management decisions.

## **Harvest History**

During the last three decades, bobcat harvest has been primarily open statewide. The bobcat season length fluctuated between 6 and 12 weeks, and tag limits were between 4 and 10. Harvest also fluctuated during this time, from a high of 2,640 bobcats during the 1983-1984 season, to a mere 527 bobcats during the 1990-1991 season, and back up to 2,176 in 2002-2003 (Table 1). Years of low harvest were partly attributed to a decrease in the rabbit population and decreased pelt prices (Bates 1987; McDonald 1990).

## **Population Monitoring**

Each year, biologists and managers used population trend indicators to determine the status of the bobcat population in Utah. Most of these indicators, such as set-days per bobcat, bobcats per trapper, ratio of juveniles to adult females, abundance, and suggested tags, were obtained from the annual fur harvest questionnaire and a mandatory reporting of harvest to have permanent CITES tags affixed to pelts. In 1985, UDWR began to age teeth from the lower jaws of harvested bobcat. This information provided additional population trend indicators, such as adult survival and age structure of the harvest (Table 2).

UDWR initiated two studies during the mid-1980s in an effort to gain a better understanding of the bobcat population in Utah. One was a 1986-1993 study to determine the relationship between prey base levels and bobcat juvenile recruitment (Bates 1987), and another was a 1988-1989 study examining habitat selection, prey base, home range and reproduction of bobcats in western central Utah (Blackwell 1991; Appendix I). Other important research on bobcats in Utah

included a 1978-1981 study examining home ranges and movements of bobcats with radio telemetry and habitat selection and the relationship of bobcats to their prey base (Karpowitz 1981; Appendix I).

Table 1. Bobcat harvest in Utah, 1979-1980 through 2004-2005.

Trap Year	Projected Trappers	Total Harvest	Projected Set-days	Bobcat per Trapper	Set-days per Bobcat	Bobcat per 1,000 Set-days	Pelt Price
1979-1980	1,362*	1,593	--	1.17*	--	--	--
1980-1981	1,017*	1,646	--	1.62*	--	--	--
1981-1982	1,051*	2,535	--	2.41*	--	--	\$155.14
1982-1983	1,145	2,540	469,979	2.22	185.03	5.40	\$171.00
1983-1984	1,050	2,640	401,841	2.51	152.21	6.57	\$189.00
1984-1985	1,253	2,532	559,480	2.02	220.96	4.53	\$202.00
1985-1986	1,083	1,530	411,493	1.41	268.95	3.72	\$197.00
1986-1987	1,036	1,024	224,778	0.99	219.51	4.56	\$309.00
1987-1988	1,108	1,023	252,680	0.92	247.00	4.05	\$245.00
1988-1989	941	1,042	175,990	1.11	168.90	5.92	\$221.00
1989-1990	1,167	843	142,360	0.72	168.87	5.92	\$102.00
1990-1991	542	527	76,218	0.97	144.63	6.91	\$87.00
1991-1992	726	968	118,293	1.33	122.20	8.18	\$104.00
1992-1993	827	1,171	139,949	1.42	119.51	8.37	\$90.00
1993-1994	900	1,256	191,367	1.40	152.36	6.56	\$118.60
1994-1995	914	1,293	210,522	1.41	162.82	6.14	\$70.02
1995-1996	749	896	108,594	1.20	121.20	8.25	\$79.51
1996-1997	615	866	138,899	1.41	160.39	6.23	\$147.80
1997-1998	619	1,234	255,147	1.99	206.76	4.84	\$60.89
1998-1999	1,031	2,092	633,774	2.03	302.95	3.30	\$55.86
1999-2000	828	1,430	238,152	1.73	166.54	6.00	\$82.64
2000-2001	852	2,008	399,609	2.36	199.01	5.02	\$93.56
2001-2002	666	1,866	342,678	2.80	183.64	5.45	\$147.66
2002-2003	984	2,176	593,692	2.21	272.84	3.67	\$270.33
2003-2004	1,133	2,027	701,383	1.79	346.02	2.89	\$203.17
2004-2005	1,300	1,954	462,019	1.50	236.45	4.23	\$221.65
Average, 1982-2005	933	1,519	315,169	1.63	196.90	5.51	\$150.81

\*Projected trappers from 1979-1980 to 1981-1982 is actually total number of permits sold, and bobcat per trapper is actually bobcat per permit.

Table 2. Bobcat population trend indicators in Utah, 1985-1986 through 2004-2005.

Trap Year	Juveniles/ Adult Female	Juveniles/ Adult	Males/ Females	Juv. Males/ Juv. Females	Adult Survival (S)		Juvenile Survival	
					S	95% C.I.	S	95% C.I.
1985-1986	0.48	0.21	1.20	0.95	63%	60< s >65	42%	40< s >45
1986-1987	0.67	0.30	1.09	0.92	63%	60< s >65	35%	32< s >39
1987-1988	1.18	0.53	1.11	0.97	65%	61< s >68	35%	32< s >38
1988-1989	1.09	0.44	1.32	1.05	64%	60< s >68	38%	35< s >40
1989-1990	0.76	0.32	1.39	1.00	67%	63< s >71	41%	38< s >44
1990-1991	0.82	0.33	1.23	0.62	58%	53< s >62	36%	31< s >41
1991-1992	0.86	0.69	1.47	1.25	58%	55< s >60	32%	29< s >36
1992-1993	0.91	1.00	1.37	1.21	59%	56< s >63	29%	25< s >33
1993-1994	1.58	0.61	1.32	0.98	54%	52< s >57	40%	36< s >43
1994-1995	0.62	0.57	1.34	1.14	57%	54< s >59	34%	30< s >37
1995-1996	1.36	0.54	1.30	0.72	64%	61< s >66	30%	25< s >34
1996-1997	1.86	0.67	1.40	1.10	68%	65< s >70	34%	30< s >38
1997-1998	1.15	0.44	1.38	0.94	71%	69< s >74	34%	28< s >40
1998-1999	2.06	0.82	1.30	1.13	71%	70< s >73	29%	26< s >33
1999-2000	0.82	0.30	1.55	1.01	66%	64< s >68	35%	33< s >38
2000-2001	0.69	0.26	1.56	1.12	64%	62< s >66	36%	33< s >39
2001-2002	0.40	0.16	1.44	0.96	65%	63< s >67	39%	36< s >42
2002-2003	0.37	0.16	1.24	0.88	67%	65< s >68	39%	35< s >42
2003-2004	0.63	0.29	1.10	0.85	71%	70< s >72	22%	19< s >25
2004-2005	0.80	0.32	1.28	0.83	74%	73< s >76	36%	33< s >38
Average	0.96	0.45	1.32	0.98	64%	--	35%	--

## **BOBCAT TRAPPING**

**Stan Bassett**

Most of the bobcats that are harvested in Utah are harvested by trapping (Table 3). There are a multitude of reasons why an individual traps bobcats. There is also a multitude of techniques that are used to trap bobcats. Harvesting a bobcat by trapping offers an individual a unique and rewarding experience by allowing the trapper to match wits with the bobcat while experiencing the bobcat's demanding environment.

### **Reasons for Trapping**

Some trappers trap bobcats for the opportunity to harvest a trophy that they will be able to admire for a lifetime. Trappers that target a trophy bobcat are usually very selective as to the size and color of the bobcat that they harvest. They want the best possible bobcat they can harvest for their mount or rug. Trappers that target bobcats for a trophy may only harvest one or two bobcats in a lifetime.

The vast majority of bobcats that are harvested are harvested for the sale of their pelts. Many trappers harvest bobcats to help supplement their income. Bobcat pelts are sold to fur buyers and the fur buyers sell the bobcat pelts to manufacturers, who process the pelts into coats and fur garments. The price of bobcat pelts is determined by fashion trends. When fashion trends encourage the use of bobcat pelts then the price of bobcat pelts increase. When bobcat pelts are not the focus of the fashion designers then the price of bobcat pelts decrease. Trappers who harvest bobcats for income usually experience a roller-coaster ride for their pelts. They may receive low prices for their pelts and then as soon as the fashion market warrants the need for bobcat pelts then the price will begin to increase.

Many trappers trap bobcats just for the enjoyment of getting to experience the beauty of nature. Trophies or supplemental income are secondary to the general overall experience of being able to be in the bobcats' habitat with a chance to match wits with this elusive feline. Finding a travel route that the bobcat routinely uses, or finding bobcat tracks in the snow is reason enough for many trappers to pursue bobcats.

Trapping bobcats can be hard work. It usually requires hiking through snow or up steep mountains. The recreational possibilities for trapping bobcats are vast. Trappers can snowshoe, use ATV's, snowmobiles, boats and skis to get into bobcat habitat. Bobcat trappers can and do use many different recreational avenues while trapping bobcats.

## **Methods of Trapping**

Trappers use several different types of traps to trap bobcats. The most common type of trap that is used for bobcats is the foothold trap. When the bobcat steps in the trap, jaws close on the bobcat's foot and hold the bobcat until the trapper arrives. This restraining type trap allows for the release of the bobcat if the trapper does not want to harvest a particular bobcat. Trappers must use traps with an offset jaw (a gap between the jaws), and they must check their traps every 48 hours. This will help to ensure that the bobcat will not have to endure any unneeded discomfort.

Lethal traps are traps that will dispatch the bobcat as soon as it is captured. Snares that are set to catch the bobcat around the neck typically dispatch the bobcat with little discomfort to the bobcat. Conibears are another type of lethal trap that is used for bobcats. When the bobcat puts its head in the jaws of a conibear, the jaws close on the bobcat's neck, and death occurs in seconds. The major disadvantage of using lethal traps is that the trapper cannot be selective in harvesting and releasing unwanted bobcats.

Some bobcat trapping is done with box or live traps. These are wire cages with a door that closes when the bobcat steps inside. They are designed to catch bobcats so they will be alive and unharmed. Box traps are used in urban areas where catching pets may be a problem. They are also used when bobcats need to be trapped for research or for relocation to another area.

Trapping bobcats is a sport that offers many unique opportunities for those that participate. Bobcat trapping is typically taught and passed down from generation to generation. Fathers and sons or daughters tend to be trapping partners as soon as many children are old enough to walk. It is not uncommon to see grandparents, parents and grandchildren all on the same trap line together. Children are taught at an early age to understand the balance of nature and they soon learn to respect the environment as well as the animals that they pursue. Young trappers are taught the trapping techniques that have taken their parents a lifetime to learn. As a result, these young trappers learn the most efficient, as well as humane, techniques for harvesting bobcats.

There is far more to bobcat trapping than merely harvesting a bobcat. Bobcat trappers learn to use the best possible equipment for bobcat trapping to minimize any discomfort that the bobcat will have to endure. But most importantly, they learn to truly respect the bobcat and the bobcat's environment. With parents teaching young trappers the proper trapping ethics, and with mandatory fur harvester education classes being taught in the state, bobcat trapping should continue to be a rewarding experience for those individuals that choose to trap bobcats.

## **BOBCAT HARVEST WITH HOUNDS**

**Ernie Millgate**

The history of hunting with hounds can be traced back to our forefathers. As we know, George Washington had a pack of hounds imported from the old country in order to carry on the sport here in this country. But soon the poorer class families found that hounds could contribute in securing food for their families.

As people came west to settle and raise livestock, the need for hounds was realized again as a tool for taking predatory animals such as bear, lion, bobcat, and coyotes. It seemed that, in the early days, almost every ranch house had its own pack of hound dogs. Neighboring ranches would help each other with not only working cattle, but would also get together with their hounds for big hunts.

Today, a lot of houndsmen just want to carry on the tradition of the early settlers of the west. Though many of us are not full-time cowboys or full-time hunters, it is a romantic part of the western life we don't want to see end.

In the eyes of many houndsmen, bobcats are trophy class animals because it takes a well-trained pack of dogs to catch them consistently. More times than not, after turning dogs loose on a bobcat track, a houndsman is just happy at the end of the day to get ALL the dogs back and loaded in the truck without even putting a cat up the tree. Bobcats use every trick in the book when pursued by dogs: climbing ledges, jumping from tree to tree, and lots of circles back over their own tracks to elude their pursuers. In different parts of the country, hunters use this trick to their advantage. They lay in wait to shoot the bobcat ahead of the dogs as they come around on one of their famous circles.

The majority of houndsmen in Utah do this for the thrill of the chase, to see and know that their dogs can actually put a bobcat up a tree. That is why we as hunters can be selective in our own harvest by taking home only mature cats or leave them in the tree to run another day. The taking of bobcats by houndsmen in this state is not much of a threat to the species, as shown by the statistics, 7 – 13% of the total harvest (Table 3). In recent years, houndsmen are spending more time in bobcat country, as there seems to be fewer lions to run due to the decline in deer numbers and the predator management plan that is now in place.

In order to get dogs to the point where they are considered "good bobcat dogs", you must spend more time working with them than most dog owners can relate to. It is an ongoing, year-round program, training dogs on scent and raccoons. You can't let a week slip by without working your dogs, which in turn makes serious houndsmen very passionate about their sport. As for the physical demands that are put on a person, you not only have to hike into prime bobcat areas, but also must keep within hearing distance of the dogs so you don't lose any. The elements can have you past your limits in waist deep snow on a sixty degree plus slope in temperatures that, some days, can be well below zero degrees. But there is nothing better to a houndsman on a below zero morning

than listening to hound music echo across the canyon, and to hear the long drawn out bawl of a hound change to an excited, choppy bark and know you have just treed your first bobcat.

Table 3. Bobcat harvest by method of take, 2000-2001 through 2004-2005.\*

Trap Year	Trapping		Dogs		Predator Calls		Other		Unknown	
	Harvest	%	Harvest	%	Harvest	%	Harvest	%	Harvest	%
2000-01	1,489	74	140	7	40	2	4	0.2	335	17
2001-02	1,396	75	179	10	62	3	10	0.5	219	12
2002-03	1,801	82	207	9	92	4	17	0.8	71	3
2003-04	1,688	83	263	13	5	0	59	2.9	12	1
2004-05	1,656	85	229	12	21	1	48	2.5	0	0

\*Trapping harvest includes traps and snares. Other harvest includes roadkill and incidental hunting without the use of predator calls or dogs.

## **VALUE OF BOBCATS TO NON-CONSUMPTIVE USERS**

**John Weis**

Bobcats are an indigenous predator that few Utah residents have observed in the wild. Bobcats are solitary hunters, leery of human contact and well camouflaged within their habitat. These cats, like the lynx, occupy a physical and emotional niche that many non-consumptive users find intriguing. Bobcats, unlike the mountain lion, are not a feline predator to be feared, and contact with them in the wild would be an unexpected pleasure. Developing management plans to increase the numbers of bobcats that would, in turn, increase the probability of chance meetings should be encouraged as long as the additional bobcats would not negatively impact other native species. Bobcats should not be targeted for harvest under any predator control initiatives.

### **Bobcat Viewing Opportunities**

Most Utah residents would prefer see the bobcat in the wild, rather than in their backyard stalking quail or their chihuahua. Non-harvest areas represent the best viewing opportunities, including National Park acreages and State parks such as Antelope Island. The Utah Division of Wildlife Resources should survey state and federal lands, and identify regions in which bobcat viewing could be productive. The identity of such areas should be publicized as long as the area is protected from bobcat harvest. While habitat restoration and protection is critical for the maintenance and expansion of many species, the same is not likely to be as true for bobcats due to their prey base and opportunistic feeding habits.

### **Attitudes of Non-consumptive Users Toward Harvest**

The attitudes of non-hunters towards the killing of bobcats ranges from acceptance of harvest objectives to rejection that any harvest should be permitted. A common ethic of many non-hunters, especially concerning a species such as a bobcat, is that they should be left alone, not hunted, and appreciated for their wildness. Bobcats rightfully occupy many of their traditional habitats in the state of Utah (unlike some other predator species) and their presence there must be protected. Encroachment of urban areas in foothill and mountainous areas guarantees that conflicts between the bobcat and households will increase, especially if accessibility of food is linked to the human dwellings. Such problems should be anticipated and homeowners educated to prevent unwanted interactions.

The two major methods of hunting bobcats in the state of Utah, hounds and trapping, are objectionable to many non-consumptives. Using hounds to track and tree a bobcat is seen by some as providing an unfair advantage to the hunter, eliminating a reasonable chance of escape for the bobcat. Trapping and snaring of bobcats is perhaps more objectionable than the use of hounds because the opportunity of release of the bobcat is limited - leg trapped animals

can be held for a time before the trap is checked, and snaring is designed to suffocate the animal. Although trained trappers can design the positioning of their traps/snares to catch adult animals, those trappers with less experience can catch immature bobcats or other animals, including endangered lynx, should they return to Utah.

It is difficult to reconcile the wants and desires of the bobcat hunters and trappers with those of non-consumptive appreciators of wildlife who do not agree with any level of harvest. Finding common ground for compromise could include requiring greater hunter/trapper education to prevent inadvertent killing of immature animals and animals of different species. Regulations on trap maintenance and supervision must be enforced. Setting aside regions, other than national or state parks, for bobcat protection and viewing opportunities should be explored, as should re-introduction of the animal into areas in which the feline has been eliminated by hunting and trapping.

## **GOAL, OBJECTIVES AND STRATEGIES**

### **Goal**

Maintain a healthy bobcat population within existing suitable habitat and provide quality recreational opportunities for bobcat harvest while considering the social aspects of bobcat harvest.

### **Population Objective**

- 1) Maintain current statewide distribution of bobcats with a reasonable proportion of older age animals.

- a. Performance Targets

Variable	Mean	95% Confidence Interval
Proportion of kittens and yearlings in the harvest	0.49	0.42 - 0.56
Adult Survival	0.68	0.65 - 0.72
% Females in the harvest	0.43	0.41 - 0.45
Set-days / bobcat	197	171 - 220

- b. Strategies

- i. Maintain or return to baseline management strategy of < 2 variables (net) are outside the historical range
      1. Baseline strategy :
        - a. 6 tags / individual
        - b. Season from third Wednesday in November to the second Sunday in February
        - c. No cap on the number of tags sold
      - ii. Adjust the number of bobcat tags available to individuals (+ or – 1-2 tags) if any 2 (net) of the above performance targets are outside the historical range (outside the 95% CI) in the same direction.
      - iii. Adjust the length of the bobcat harvest season (+ or – 1-2 weeks) if any 3 (net) of the above performance targets are outside the historical range (outside the 95% CI) in the same direction. Implemented in addition to Strategy i.
      - iv. Cap the total number of bobcat tags available at 80% of the number of tags sold the previous year if all 4 of the above performance targets are outside the historical range (outside the 95% CI) in the direction indicating that harvest needs to be reduced. These tags would be sold on a first-come, first-served basis. Implemented in addition to Strategies i and ii.

## **Recreation Objectives**

- 1) Maintain quality recreation opportunities related to bobcat harvest and / or viewing opportunities for a minimum of 1,250 people annually.
- 2) Promote ethical and legal trapping practices.
  - a. Strategies
    - i. Encourage trappers to keep each other honest by promoting and developing incentive programs to encourage the reporting of violations.
      1. Advertise monetary reward program through UTA newsletter and the Furbearer Proclamation.
      2. UTA and the houndsmen associations will appoint a contact person for reporting violations.
      3. UDWR will work to develop additional incentive programs, with input from UTA and houndsmen associations.
    - ii. Work with and help the Utah Trappers Association promote ethical trapping practices.
    - iii. Continue to emphasize trapping ethics through the Fur-Harvester Education Program in accordance with Utah Code.
    - iv. Advertise and promote additional educational opportunities, such as the trappers convention, in the furbearer proclamation.
    - v. Advertise and promote trapping “Best Management Practices” for bobcats being developed by the International Association of Fish and Wildlife Agencies.
  - 3) Maintain and develop productive relationships between UDWR and user groups, and other Utah citizens concerned with bobcats and their management.
    - a. Strategies
      - i. Hold an annual meeting between the Mammals Program Coordinator and the Utah Trappers Association to discuss problems and concerns and potential solutions.
      - ii. Hold an annual meeting between UDWR Law Enforcement personnel and the leadership of the Utah Trappers Association to discuss conflicts, concerns and potential solutions.

- 4) Reduce conflicts between bobcat trappers and houndsmen.
  - a. Strategies
    - i. Trappers should use the smallest trap sizes they can in order to minimize damage to hounds when trapping for bobcats in areas that might also be used by houndsmen.
    - ii. Trappers should avoid using lethal sets when trapping in areas frequented by houndsmen.
    - iii. Houndsmen should avoid conflicts with trappers by avoiding running their dogs in areas that are known to be frequented by trappers.
    - iv. When hounds are caught in traps, they should be released in a way that leaves traps undamaged and trap sites undisturbed.
- 5) Reduce conflicts between those involved in bobcat harvest (trappers and houndsmen) and other recreationists.
  - a. Strategies
    - i. Recreationists have an obligation to respect the private property of trappers and houndsmen. The traps, snares, and dogs used in lawful pursuit of game are the property of trappers and houndsmen and should not be abused. If traps or captured animals are encountered they should be left undisturbed.
    - ii. Houndsmen and trappers have an obligation to carry out their pursuit of wild game with as little confrontation with the non-hunting public as possible. Traps and snares should be set away from popular hiking and recreation sites and should not parallel established hiking trails. Houndsmen, if possible should avoid chases through popular recreation areas and/or populated areas.
    - iii. Trappers and houndsmen should avoid displaying dead animals in ways that others may find offensive.

## **Research Objective**

- 1) Provide funding to an in-state university to conduct research designed to address questions relative to bobcat management in the State of Utah. Potential research topics include:
  - a. Population estimation
  - b. Survival

- c. Population connectivity
- d. Identification of sources and sinks

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## APPENDIX I – ABSTRACTS FROM THESES

(Blackwell 1991) **Abstract:** Prey base, habitat selection, and home range use by bobcats were studied for two and one-half years on the Sheeprock and Tintic mountains of Utah. Most of the study area was closed to commercial trapping for bobcats during the period of research. Fourteen bobcats were radio instrumented, including 3 kittens. An assessment of fecal pellet numbers determined that each bobcat location was associated with 20.8 leporids per ha for females and 9.6 for males in 1988, and 28.3 per ha for females in 1989. Diets were dominated by desert cottontails with an average of 78.6% occurrence in scats ( $n=40$ ) that were analyzed. Other diet items were field mice, Great Basin pocket mice, wood rats, chipmunks, and mule deer. Single needle pinion and/or Utah juniper mixed with sagebrush and closed pinion-juniper communities were preferred habitats. Riparian zones were also important habitat. Mean home range size of adult males was found to be significantly larger than that of adult females.

(Karpowitz 1981) **Abstract:** Home ranges and movements of bobcats (*Lynx rufus*) were studied for 3 years in the Wasatch Mountains of Utah. Thirteen bobcats were radio instrumented including 5 kittens. Home ranges of resident males ( $x = 22.5 \text{ km}^2$ ) were larger than those of resident females ( $x = 16.4 \text{ km}^2$ ). A minimum density of 1 resident per  $16.1 \text{ km}^2$  was estimated. Boundaries of home ranges were prescribed by social interactions and by physical features of the study area. Seasonal uses of home ranges were defined by elevation and directional aspect of slope. Pinyon-juniper and mountain brush vegetative types were determined to be preferred habitats. Rocky habitats were also selected as high use areas. Dispersal was observed for 1 kitten but not for 2 other kittens that remained in the study area for more than 1 year. Relative densities of bobcats increased in the study area despite decreases in 2 main prey categories.

# Best Management Practices for Trapping Bobcats in the United States





**Figure BC1.** Bobcat  
(*Lynx rufus*)

Best Management Practices (BMPs) are carefully researched recommendations designed to address animal welfare and increase trappers' efficiency and selectivity. The extensive research and field-testing used to develop BMPs are described in the Introduction of this manual. The evaluation methods used to develop BMPs have been standardized, enabling them to be easily updated and revised as new traps and techniques become available. All traps listed in the BMPs have been tested and meet performance standards for animal welfare, efficiency, selectivity, practicality and safety.

Trapping BMPs provide options, allowing for discretion and decision making in the field. Best Management Practices are meant to be implemented in a voluntary and educational approach, and do not present a single choice that can or must be applied in all cases. BMPs are the product of on-going work that may be updated as additional traps are identified through future scientific testing.

## The Bobcat at a Glance

### Characteristics

The bobcat is a medium sized member of the cat (Felidae) family (Figure BC1). Adult males are generally larger than adult females; males range from 12-68 pounds and average 20-28 pounds, while females range from 9-34 pounds and average 14-20 pounds. The average length for adults is 28-37 inches. The base coloration of the bobcat is typically reddish-brown with darker fur traversing the middle of the back. Both sexes can be differentiated from similar species by a bobbed tail (about 5 inches) that is black at the very tip only on the top and sides, but pale or white on the bottom. The scientific name of the bobcat is *Lynx rufus*, although the bobcat may be classified as *Felis rufus* in some texts.

### Range

The bobcat is the most widely distributed native felid in North America and is found in all 48 of the contiguous United States, in Canadian provinces bordering the United States and in non-tropical Mexico.

### Habitat

The adaptability and wide prey base of the bobcat allows for the occupation of a wide range of habitats. Assuming adequate cover, forests, grasslands, deserts, and mountainous regions are all suitable bobcat habitat. Large areas of intense cultivation or human development are less desirable habitats. Rough, rocky country interspersed with dense cover seems to be the preferred habitat.

### Food Habits

Bobcats are opportunistic and effective predators. Primarily carnivorous, their most common prey includes small mammals such as mice, rats and rabbits, but reptiles, birds and domestic cats are preyed upon as well. Bobcats also prey on deer fawns, and are capable of preying on adult deer, particularly when heavy snow cover favors the bobcat's mobility and hunting techniques. They rarely scavenge, but will cache surplus food under snow or leaves for later feeding.

## Reproduction

Breeding may occur over a seven month period from December to June, with a usual peak in March. Typically, two to three young are born after a 50-70 day gestation period. Females breed beginning at one or two years of age and may produce a single litter every year thereafter. Males do not breed until two years of age. Young usually stay with the female until fall or later.

## Populations

Bobcat populations vary across the United States. While the highest densities are found in the Southeastern states and coastal region of California, the lowest densities are found in Midwestern states. Bobcat mortality is most often human-related (e.g., hunting, trapping, and vehicle collisions), with natural mortality being of secondary importance in most populations. However, at times of low prey density, starvation of kittens and inexperienced juveniles can be a significant source of mortality. Predation of adult bobcats by larger carnivores, domestic dogs, or other bobcats rarely occurs, although predation of bobcat kittens by coyotes, great-horned owls, and especially adult male bobcats is more common. Adult bobcats live solitary lives except during the breeding season.

# General Overview of Traps Meeting BMP Criteria for Bobcats in the United States

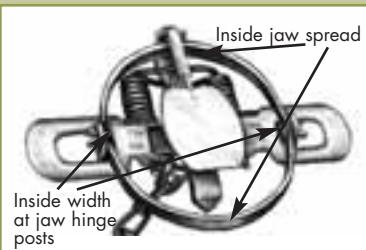
Three basic types of traps were tested for bobcats: foothold restraining traps, a powered cable devices for foot capture, and a cage trap (Table BC1). Examples, brief descriptions, and mechanical details of the various devices are given in the next section.

**Table BC1.** Overview of traps meeting BMP criteria for bobcats in the United States.

Trap Category	Jaw/Frame Characteristics	Inside Jaw/Frame Spread at Dog*	Inside Width at Jaw/Frame Hinge Posts*
Coil-spring	Unmodified	4 1/2 - 6 1/8	4 5/8 - 6 3/8
	Padded	4 1/2 - 5 3/16	4 9/16 - 6 7/16
	Offset, laminated and/or wide	5 1/16 - 6 1/16	5 1/16 - 6 3/8
Longspring	Unmodified	5 7/16	5 9/16
Powered Cable Device (foot capture)	Smooth, round rod, 3/32 inch cable	6 3/8	5 3/4
Cage	Total Dimensions* Length x Width x Height	Door Size* Width x Height	Mesh Size*/Guage
	42 x 15 x 20	15 x 19 1/4	1 x 2 12 guage galvanized

\* Inches





**Figure BC2.** Coil-spring trap

## General Considerations When Trapping Bobcats

### Foothold Traps

- Many currently-used trap models meet specifications
- Pan-tension set at two-four pounds may improve selectivity and foot placement in the trap
- Can be used to capture several furbearer species
- Captures and holds animals alive, allowing for release

### Powered Cable Device (foot capture)

- Pan-tension set at two-four pounds may improve selectivity
- Can be used to capture several furbearer species
- Use of a loop stop (plastic sleeve) minimizes capture of smaller species
- Cables require frequent replacement after capture
- Captures and holds animals alive, allowing for release

### Cage Traps

- Bulky
- Requires bait or lure
- Can be used to capture several furbearer species
- Captures and holds animals alive, allowing for release

## Specifications of Traps Meeting BMP Criteria for Bobcats in the United States

As more capture devices are tested and new information becomes available, they will be added to an updated list. Mechanical descriptions of tested traps are given as an aid to trappers or manufacturers who may wish to measure, build or modify traps to meet these specifications (Figure BC2). Also, other commercially available traps, modified traps, or other capture devices not yet tested may perform as well as, or better than the listed BMP traps. References to trap names are provided to identify the specific traps tested. The following list is provided for information purposes only, and does not imply an endorsement of any manufacturer.

Average mechanical measurements are rounded to the nearest  $\frac{1}{16}$  inch. There may be up to  $\frac{1}{8}$  inch variation in specifications (Figure BC2) on the part of the manufacturer. Manufacturers use recognizable names, such as "No. 2" coil-spring, to identify certain traps. However, there is no standardized system linking mechanical design features with trap names. The mechanical features of these traps are listed so that similar traps may be identified. The performance of anchoring systems was not specifically evaluated, however, methods of attachment are described for informational purposes.

## Unmodified Jaws (Figure BC3a and BC3b)

### Average Mechanical Description and Attributes

Inside jaw spread (at dog): 4 1/2 inches

Inner width: 4 1/4 inches

Inside width at jaw hinge posts: 4 5/8 inches

Jaw width: 7/16 inch smooth round jaw

Jaw thickness: 1/8 inch

Main trap springs: Two 0.130 inch diameter wire coil-springs

Base plate: Not reinforced

Any trap that has similar specifications may be considered a BMP trap regardless of brand or source of modification, although performance information on all other BMP criteria (see "Criteria for Evaluation of Trapping Devices": Introduction pages 4-6) needs to be considered as well. The trap tested was the Woodstream™ Victor No. 1 1/2 coil-spring.

### Additional information

- Chain attachment used in trap testing: 18 inch center-mounted with three swivels, one in-line shock spring, and anchored with a stake.
- Selectivity features: Brass pan tension machine screw; pan tension was set so two-four pounds of pressure triggered the trap, and was checked and readjusted as needed after every capture.
- Special considerations for practicality: This device also meets BMP criteria for red foxes.



### Average Mechanical Description and Attributes

Inside jaw spread (at dog): 5 1/4 inches

Inner width: 4 9/16 inches

Inside width at jaw hinge posts: 5 inches

Jaw width: 1/2 inch smooth round jaw

Jaw thickness: 1/8 inch

Main trap springs: Two 0.145 inch diameter wire coil-springs

Base plate: Not reinforced

Any trap that has similar specifications may be considered a BMP trap regardless of brand or source of modification, although performance information on all other BMP criteria (see "Criteria for Evaluation of Trapping Devices": Introduction pages 4-6) needs to be considered as well. The trap tested was the Woodstream™ Victor No. 1.75 coil-spring.

### Additional information

- Chain attachment used in trap testing: 18 inch center-mounted with three swivels, one in-line shock spring, and anchored with a stake.
- Selectivity features: Brass pan tension machine screw; pan tension set so two-four pounds of pressure triggered the trap, and was checked and readjusted as needed after every capture.
- Special considerations for practicality: This device also meets BMP criteria for red foxes, Eastern coyotes and Western coyotes.



**Figure BC3a.** Unmodified jaw coil-spring trap (open)



**Figure BC3b.** Unmodified jaw coil-spring trap (closed)

#### *Average Mechanical Description and Attributes*

Inside jaw spread (at dog): 5 inches

Inner width: 4 1/2 inches

Inside width at jaw hinge posts: 5 inches

Jaw width: 1/2 inch smooth round jaw

Jaw thickness: 1/8 inch

Main trap springs: Two 0.145 inch diameter wire coil-springs

Base plate: Not reinforced

Any trap that has similar specifications may be considered a BMP trap regardless of brand or source of modification, although performance information on all other BMP criteria (see "Criteria for Evaluation of Trapping Devices": Introduction pages 4-6) needs to be considered as well. The trap tested was the Woodstream™ Victor No. 2 coil-spring.

#### *Additional Information:*

- Chain attachment used in trap testing: 18 inch center-mounted with three swivels, one in-line shock spring, and anchored with a stake.
- Selectivity features: Brass pan tension machine screw; pan tension set so two-four pounds of pressure triggered the trap, and was checked and readjusted as needed after every capture.
- Special considerations for practicality: This device also meets BMP criteria for Eastern coyotes.



#### *Average Mechanical Description and Attributes*

Inside jaw spread (at dog): 6 1/8 inches

Inner width: 5 7/8 inches

Inside width at jaw hinge posts: 6 3/8 inches

Jaw width: 5/8 inches square jaw

Jaw thickness: 3/16 inches

Main trap springs: Two 0.160 inch diameter wire coil-springs

Base plate: Not reinforced, D-ring chain attachment

Any trap that has similar specifications may be considered a BMP trap regardless of brand or source of modification, although performance information on all other BMP criteria (see "Criteria for Evaluation of Trapping Devices": Introduction pages 4-6) needs to be considered as well. The trap tested was the Bridger™ No. 3 coil-spring.

#### *Additional information*

- Chain attachment used in trap testing: 18 inch center-mounted with three swivels, one in-line shock spring, and anchored with a stake.
- Selectivity features: Brass pan tension machine screw; pan tension set so two-four pounds of pressure triggered the trap, and was checked and readjusted as needed after every capture.
- Special considerations for practicality: This device also meets BMP criteria for Western coyotes.



#### Average Mechanical Description and Attributes

Inside jaw spread (at dog): 5  $\frac{7}{16}$  inches  
Inner width: 5  $\frac{1}{4}$  inches  
Inside width at jaw hinge posts: 5  $\frac{9}{16}$  inches  
Jaw width:  $\frac{9}{16}$  inch  
Jaw thickness:  $\frac{3}{16}$  inch  
Length of main trap springs: 6  $\frac{1}{2}$  inches  
Thickness of main trap springs:  $\frac{1}{8}$  inch  
Width of main trap springs: 1  $\frac{3}{16}$  narrowing to  $\frac{5}{8}$  inches  
Base plate: Reinforced with D-ring

Any trap that has similar specifications may be considered a BMP trap regardless of brand or source of modification, although performance information on all other BMP criteria (see "Criteria for Evaluation of Trapping Devices": Introduction pages 4-6) needs to be considered as well. The trap tested was the Sleepy Creek™ No. 3 double-longspring.

#### Additional information

- Chain attachment used in trap testing: 18 inch center-mounted with three swivels, one in-line shock spring, and anchored with a stake.
- Selectivity features: Brass pan tension machine screw; pan tension set so two-four pounds of pressure triggered the trap, and was checked and readjusted as needed after every capture.

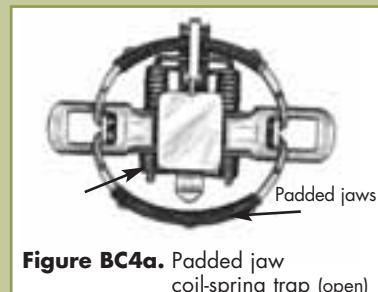


#### Padded Jaws (Figure BC4a and BC4b)

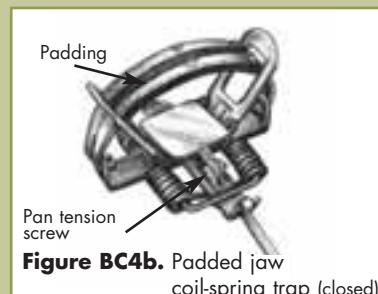
##### Average Mechanical Description and Attributes

Inside jaw spread (at dog): 4  $\frac{1}{2}$  inches  
Inner width: 4  $\frac{7}{8}$  inches  
Inside width at jaw hinge posts: 4  $\frac{9}{16}$  inches  
Jaw width:  $\frac{9}{16}$  inch padded jaw  
Jaw thickness:  $\frac{3}{8}$  inch  
Padding: Manufacturer supplied rubber pads  
Main trap springs: Two 0.131 inch diameter wire coil-springs  
Additional springs: Two 0.100 inch diameter wire coil-springs  
Base plate: Reinforced with D-ring

Any trap that has similar specifications may be considered a BMP trap regardless of brand or source of modification, although performance information on all other BMP criteria (see "Criteria for Evaluation of Trapping Devices": Introduction pages 4-6), needs to be considered as well. The trap tested was the Woodstream™ Victor No. 1  $\frac{1}{2}$  Softcatch™ modified coil-spring, four-coiled.



**Figure BC4a.** Padded jaw coil-spring trap (open)



**Figure BC4b.** Padded jaw coil-spring trap (closed)

#### *Additional Information*

- Chain attachment used in trap testing: 18 inch, center mounted with three swivels, one in-line shock spring, and anchored with a stake.
- Selectivity features: Brass pan tension machine screw; pan tension was set so two-four pounds of pressure triggered the trap, and was checked and readjusted as needed after every capture.
- Special considerations for practicality: Some damage to trap pads should be expected and will require occasional replacement as a normal part of trap maintenance and upkeep. Special care should be taken to prevent odor contamination of the rubber jaws. Avoid using petroleum-based dye directly on the rubber pads. This device also meets BMP criteria for red foxes, Eastern coyotes, gray foxes and opossums.



#### *Average Mechanical Description and Attributes*

Inside jaw spread (at dog): 5  $\frac{3}{16}$  inches

Inner width: 6  $\frac{1}{16}$  inches

Inside width at jaw hinge posts: 6  $\frac{7}{16}$  inches

Jaw width:  $\frac{9}{16}$  inch round padded jaw

Jaw thickness:  $\frac{3}{8}$  inch

Padding: manufacturer supplied rubber pads

Main trap springs: Two 0.145 inch diameter wire coil-springs

Additional springs: Two 0.115 inch diameter wire coil-springs

Base plate: Reinforced with D-ring

Any trap that has similar specifications may be considered a BMP trap regardless of brand or source of modification, although performance information on all other BMP criteria (see "Criteria for Evaluation of Trapping Devices": Introduction pages 4-6) needs to be considered as well. The trap tested was the Woodstream™ Victor No. 3 Softcatch™ modified coil-spring, four-coiled.

#### *Additional Information*

- Chain attachment used in trap testing: 18 inch center-mounted with three swivels, one in-line shock spring, and anchored with a stake.
- Selectivity features: Brass pan tension machine screw; pan tension set so two-four pounds of pressure triggered the trap, and was checked and readjusted as needed after every capture.
- Special considerations for practicality: Some damage to trap pads should be expected and will require occasional replacement as a normal part of trap maintenance and upkeep. Special care should be taken to prevent odor contamination of the rubber jaws. Avoid using petroleum-based dye directly on the rubber pads. This device also meets BMP criteria for red foxes, Eastern coyotes and Western coyotes.



## Offset, Laminated and/or Wide Jaws (Figure BC5, BC6, BC7)

### Average Mechanical Description and Attributes

Inside jaw spread (at dog):  $5 \frac{1}{16}$  inches

Inner width:  $4 \frac{9}{16}$  inches

Inside width at jaw hinge posts:  $5 \frac{1}{16}$  inches

Jaw width:  $\frac{7}{16}$  inch wide, smooth round jaw

Jaw thickness:  $\frac{5}{16}$  inch

Jaw thickness with lamination:  $\frac{1}{2}$  inch

Lamination:  $\frac{3}{16}$  inch above-jaw lamination

Jaw offset:  $\frac{3}{16}$  inch

Main trap springs: Two 0.135 inch diameter wire coil-springs

Base plate: Not reinforced

Any trap that has similar specifications may be considered a BMP trap regardless of brand or source of modification, although performance information on all other BMP criteria (see "Criteria for Evaluation of Trapping Devices": Introduction pages 4-6) needs to be considered as well. The trap tested was the Woodstream™ Victor No. 1.75 coil-spring trap modified with offset, laminated jaws (lamination on top of jaws).

### Additional Information

- Chain attachment used in trap testing: 18 inch center-mounted with three swivels, one in-line shock spring, and anchored with a stake.
- Selectivity features: Brass pan tension machine screw; pan tension set so two-four pounds of pressure triggered the trap, and was checked and readjusted as needed after every capture.
- Special considerations for practicality: This device also meets BMP criteria for gray foxes, red foxes, Eastern coyotes and Western coyotes.



### Average Mechanical Description and Attributes

Inside jaw spread (at dog):  $5 \frac{1}{2}$  inches

Inside jaw spread (between below-jaw lamination): 5 inches

Inner width:  $5 \frac{1}{16}$  inches

Inside width at jaw hinge posts:  $5 \frac{9}{16}$  inches

Jaw width:  $\frac{7}{16}$  inch square jaw

Jaw thickness:  $\frac{3}{16}$  inch

Jaw thickness with lamination:  $\frac{7}{16}$  inches

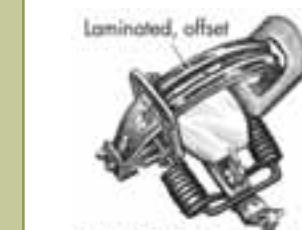
Lamination:  $\frac{1}{4}$  inch below-jaw lamination

Jaw offset:  $\frac{3}{16}$  inch

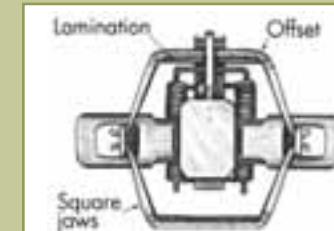
Main trap springs: Two 0.145 inch diameter wire coil-springs

Additional springs: Two 0.110 inch diameter wire coil-springs

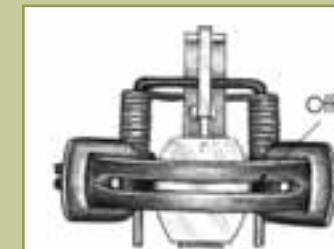
Base plate: Reinforced with D-ring



**Figure BC5.** Laminated, offset trap (closed)



**Figure BC6.** Laminated, offset trap (open)



**Figure BC7.** Offset jaws

Any trap that has similar specifications may be considered a BMP trap regardless of brand or source of modification, although performance information on all other BMP criteria (see "Criteria for Evaluation of Trapping Devices": Introduction pages 4-6) needs to be considered as well. The trap tested was the Bridger™ No. 2 coil-spring trap with square jaw, modified with offset, laminated jaws (lamination on bottom of jaws), and four-coiled.

#### *Additional Information*

- Chain attachment used in trap testing: 18 inch center-mounted with three swivels, one in-line shock spring, and anchored with a stake.
- Selectivity features: Brass pan tension machine screw; pan tension set so two-four pounds of pressure triggered the trap, and was checked and readjusted as needed after every capture.
- Special considerations for practicality: This device also meets BMP criteria for red foxes, Eastern coyotes and Western coyotes.



#### *Average Mechanical Description and Attributes*

Inside jaw spread (at dog):  $6 \frac{1}{16}$  inches

Inner width:  $5 \frac{7}{8}$  inches

Inside width at jaw hinge posts:  $6 \frac{3}{8}$  inches

Jaw width:  $\frac{1}{2}$  inch square jaw

Jaw thickness:  $\frac{3}{16}$  inch

Jaw offset:  $\frac{3}{16}$  inch

Main trap springs: Two 0.160 inch diameter wire coil-springs

Base plate: Reinforced with D-ring

Any trap that has similar specifications may be considered a BMP trap regardless of brand or source of modification, although performance information on all other BMP criteria (see "Criteria for Evaluation of Trapping Devices": Introduction pages 4-6) needs to be considered as well. The trap tested was the Bridger™ No. 3 coil-spring trap modified with an offset.

#### *Additional information*

- Chain attachment used in trap testing: 18 inch center-mounted with three swivels, one in-line shock spring, and anchored with a stake.
- Selectivity features: Brass pan tension machine screw; pan tension set so two-four pounds of pressure triggered the trap, and was checked and readjusted as needed after every capture.



#### *Average Mechanical Description and Attributes*

Inside jaw spread (at dog):  $6 \frac{1}{16}$  inches

Inner width:  $5 \frac{7}{8}$  inches

Inside width at jaw hinge posts:  $6 \frac{3}{8}$  inches

Jaw width:  $\frac{1}{2}$  inch square jaw

Jaw thickness:  $\frac{3}{16}$  inch

Jaw thickness with lamination:  $\frac{7}{16}$  inch

Lamination:  $\frac{1}{4}$  inch above-jaw lamination

Jaw offset:  $\frac{3}{16}$  inch

Main trap springs: Two 0.160 inch diameter wire coil-springs

Additional trap springs: Two 0.110 inch diameter wire coil-springs

Base plate: Reinforced with D-ring

Any trap that has similar specifications may be considered a BMP trap regardless of brand or source of modification, although performance information on all other BMP criteria (see "Criteria for Evaluation of Trapping Devices": Introduction pages 4-6) needs to be considered as well. The trap tested was the Bridger™ No. 3 coil-spring trap modified with offset, laminated jaws (lamination on top of jaws).

#### *Additional Information*

- Chain attachment used in trap testing: 18 inch center-mounted with three swivels, one in-line shock spring, and anchored with a stake.
- Selectivity features: Brass pan tension machine screw; pan tension set so two-four pounds of pressure triggered the trap, and was checked and readjusted as needed after every capture.



#### *Average Mechanical Description and Attributes*

Inside jaw spread (at dog):  $6 \frac{1}{16}$  inches

Inner width:  $5 \frac{7}{8}$  inches

Inside width at jaw hinge posts:  $6 \frac{3}{8}$  inches

Jaw width:  $\frac{1}{2}$  inch square jaw

Jaw thickness:  $\frac{3}{16}$  inch

Jaw thickness with lamination:  $\frac{7}{16}$  inch

Lamination:  $\frac{1}{4}$  inch above-jaw lamination

Main trap springs: Two 0.160 inch diameter wire coil-springs

Base plate: Reinforced with D-ring

Any trap that has similar specifications may be considered a BMP trap regardless of brand or source of modification, although performance information on all other BMP criteria (see "Criteria for Evaluation of Trapping Devices": Introduction pages 4-6) needs to be considered as well. The trap tested was the Bridger™ No. 3 coil-spring trap modified with laminated jaws (lamination on top of jaws).

#### *Additional Information*

- Chain attachment used in trap testing: 18 inch center-mounted with three swivels, one in-line shock spring, and anchored with a stake.
- Selectivity features: Brass pan tension machine screw; pan tension set so two-four pounds of pressure triggered the trap, and was checked and readjusted as needed after every capture.



#### *Average Mechanical Description and Attributes*

Inside jaw spread (at dog): 5  $\frac{3}{4}$  inches

Inner width: 5  $\frac{5}{16}$  inches

Inside width at jaw hinge posts: 5  $\frac{13}{16}$  inches

Jaw width: 1/2 inch

Jaw thickness: 3/8 inch

Jaw offset: 1/4 inch

Main trap springs: Four 0.148 inch diameter wire coil-springs

Base plate: Reinforced with D-ring

Any trap that has similar specifications may be considered a BMP trap regardless of brand or source of modification, although performance information on all other BMP criteria (see "Criteria for Evaluation of Trapping Devices": Introduction pages 4-6) needs to be considered as well. The trap tested was the Minnesota Brand MB650™ offset coil-spring, four-coiled.

#### *Additional Information*

- Chain attachment used in trap testing: 18 inch center-mounted with three swivels, one in-line shock spring, and anchored with a stake.
- Selectivity features: Brass pan tension machine screw; pan tension set so two-four pounds of pressure triggered the trap, and was checked and readjusted as needed after every capture.
- Special considerations for practicality: This device also meets BMP criteria for Western coyotes.



#### *Average Mechanical Description and Attributes*

Inside jaw spread (at dog): 5  $\frac{13}{16}$  inches

Inner width: 5  $\frac{7}{16}$  inches

Inside width at jaw hinge posts: 5  $\frac{7}{8}$  inches

Jaw width: 1/2 inches smooth round jaw

Jaw thickness: 3/8 inches

Jaw offset: 3/16 inches

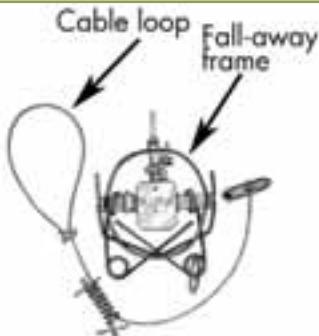
Main trap springs: Four 0.146 inch diameter wire coil-springs

Base plate: Reinforced with D-ring

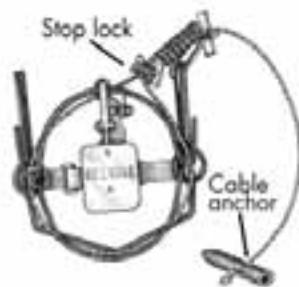
Any trap that has similar specifications may be considered a BMP trap regardless of brand or source of modification, although performance information on all other BMP criteria (see "Criteria for Evaluation of Trapping Devices": Introduction pages 4-6) needs to be considered as well. The trap tested was the Sterling™ MJ600 offset coil-spring trap, four-coiled.

#### *Additional Information*

- Chain attachment used in trap testing: 18 inch center-mounted with three swivels, one in-line shock spring, and anchored with a stake.
- Special considerations for practicality: This device also meets BMP criteria for Western coyotes.



**Figure BC8a.** Powered cable device



**Figure BC8b.** Powered cable device (set)

### **Powered Cable Devices (foot capture) (Figure BC8a and BC8b)**

#### *Average Mechanical Description and Attributes*

Inside cable retention frame spread (at dog): 6  $\frac{3}{8}$  inches

Inner width: 5  $\frac{3}{4}$  inches

Inside width at frame hinge posts: 6 inches

Cable retention frame width:  $\frac{1}{8}$  inch, smooth round rod

Cable retention frame thickness:  $\frac{1}{8}$  inch rod

Main trap springs: Two 0.188 inch diameter rod quick-release springs

Cable diameter:  $\frac{3}{32}$  inch cable

Minimum loop circumference: 2 inches

Base plate: Not reinforced

Any trap that has similar specifications may be considered a BMP trap regardless of brand or source of modification, although performance information on all other BMP criteria (see "Criteria for Evaluation of Trapping Devices": Introduction pages 4-6) needs to be considered as well. The trap tested was the Belisle™ Foot Snare.



**Figure BC9.** Cage trap

#### *Additional Information*

- Cable attachment on device tested: Swivel and shock spring with a cable anchor.
- Selectivity features: Pan tension machine screw; pan tension was set so two-four pounds of pressure triggered the trap, and was checked and readjusted as needed after every capture; large cable diameter and available plastic sleeve work to prevent the cable from closing to a small diameter, thus eliminating the incidental take of small mammals such as squirrels, skunks, etc.
- Special considerations for practicality: Some damage and kinking of cables should be expected following capture and will require frequent replacement as a normal part of trap maintenance and upkeep. This device also meets BMP criteria for red foxes, gray foxes, Eastern coyotes and Western coyotes.



### **Cage Traps (Figure BC9)**

#### *Average Mechanical Description and Attributes*

Cage material, and mesh size: 12 gauge galvanized steel wire mesh, 1 x 2 inches

Cage size (length x width x height): 42 x 15 x 20 inches

Door size (width x height): 15 x 19 1/4 inches

Weight: 21 pounds

Door closure: Spring operated

Any trap that has similar specifications may be considered a BMP trap regardless of brand or source of modification, although performance information on all other BMP criteria (see "Criteria for Evaluation of Trapping Devices": Introduction pages 4-6) needs to be considered as well. The trap tested was the Tomahawk™ Cage Trap, No. 109.5.

#### *Additional Information*

- Selectivity features: Opening size and length allows capture of large animals.
- Special considerations for practicality: Versatile set options (baited sets; blind sets only with double doors); can be used for multiple furbearer species in same sets; large and easily seen (difficult to conceal completely); bulky – requires space for transport and storage; easy to operate – requires little training; can be used to transport captured animals; captured animals are easily released; continues to operate in freezing weather conditions.