

CHAPTER 3

BLACK BEAR CAPTURE PROGRAM

CAPTURE METHODS

Black bears were opportunistically captured to instrument them with radio collars from 1989-1995. The most intensive capture efforts were conducted May through July with additional attempts made throughout the field season to capture specific animals and to recapture those that had either pulled off their collar or had their radio transmitter fail.

We captured bears using Aldrich foot snares (Aldrich Spring Activated Animal Snare, Callum Bay, Washington 98326) or with the aid of trained bear dogs (Willey 1980). Our objective was to capture and instrument radio collars on the majority of the black bears whose movements and home ranges included Stratton Mountain and the immediate vicinity. Although males were captured and collared, especially during the first years of the study, our primary efforts were in capturing resident females. Our intention was not for this to be a population study where large numbers of study animals are desired, but rather a research effort focusing on intensive monitoring of a smaller number of animals in a more focused area.

The location and intensity of capture efforts varied in response to the location and number of adult females being monitored. Initial capture sessions were designed to capture as many animals as possible but, following the first year, capture efforts were concentrated in areas where females had not previously been captured.

Pre-baiting was done at snare sites and the actual snare not set and monitored until a bear was beginning to take the bait. Two widely-spaced snare sets were placed at each site in the event that multiple bears visited it together. To reduce the chance of snared animals injuring themselves, drag logs were not used and snare cables were securely attached to the bases of live trees at least four inches in diameter.

Two dog breeds used primarily in locating and capturing study animals were Plott Hounds and Walkers. We attempted to lessen the overall impacts of the capture program by not attempting capture with the trained hounds in areas where telemetry checks indicated there were collared bears present. After the hound pack had successfully treed a bear, two rectangular, braided nylon safety nets (3.66 x 6.10 meter) were erected under the tree prior to any immobilization actions. The bear's safety was the main concern; therefore, if conditions were not conducive to a safe capture, immobilization was not attempted.

Captured bears were chemically immobilized using Ketamine/Rompun (Ketamine hydrochloride + Xylazine hydrochloride) and the bottom right first premolar extracted for age determination purposes using cementum annuli counts (Stoneberg and Jonkel 1966, Willey 1974) on animals more than one year of age. Each was given metal identification tags in both ears and fitted with radio-transmitter collars (Telonics, Inc., Mesa, AZ 85204) modified with leather

break-away segments. Collars were fit to allow for normal growth. Decay of the leather segments ensured collars would fall off in the event of transmitter failure. Radio collars were placed on all adult (> 4 years-old), subadults (2-3 year-olds), and yearlings (1 year-old).

Physical measurements were taken on each bear and notes recorded on the reproductive status and overall condition of the animal. Body temperatures were monitored with a digital rectal thermometer after the first capture season.

We visited dens of radio-collared bears to replace collars, record physical condition, and check for offspring. Yearling cubs were collared and eartagged, but newborn cubs were not marked. A spring check on cub survival was conducted in late April or early May prior to leafout and when the mother and cubs had left the den.

The capture and marking methods and techniques described here were reviewed and approved by the Animal Care and Use Committee at the University of Vermont in 1990.

RESULTS AND DISCUSSION

Capture Success

Fifty-two individual black bears over one year of age were captured between June 1989 and June of 1995 (Appendix A). The majority were caught using trained bear hounds, while the remainder were caught in snares and as yearlings in their dens (Table 3.1). A total of 57 captures was made with hounds including 22 recaptures in an estimated 150 attempts. Only nine bears, all males, were captured in snares and there were no recaptures (Table 3.2).

Most of the first field season was spent in trying to capture study animals. Thirteen bears were caught and radio-collared in the first two months of the study. Technicians from the University of Massachusetts conducting the initial capture operations were the first to comment on the wariness and difficulty in capturing bears in the Stratton Mountain region. They had been also capturing bears for studies in northern Massachusetts where success rates using both snares and hounds were much higher. Thirteen study animals provided a sufficient sample size to begin monitoring in April, 1990. Unfortunately, by the next spring attrition from regulated hunting, natural mortality, and bears pulling their collars off left only eight transmitters operating. Trying to maintain 12-16 operating collars proved to be an almost continuous effort that required over 100 days with hounds and more than 1200 snare nights over the next 6 years.

Attempts to snare bears were only partially successful and required much effort and time. Capturing bears, especially females, was more productive and efficient with trained hounds. Eventually, snaring was only attempted after extensive pre-baiting and in areas of heavy road traffic where using hounds was impractical.

Table 3.1. Method of capture used in initially capturing 51 individual black bears marked as study animals in the Stratton Mountain study, 1989-1995.

Capture Method	No. of Bears Captured			
	Male	Female	Total No. ^a	Percent of Total
Hounds	22	17	39	76.5
Snares	9	0	9	17.6
Den	1	2	3	5.9

^a One additional male was initially captured in Massachusetts but spent most of 1991 in Vermont.

Table 3.2. Black bear capture effort and success from 1989-1995. Stratton Mountain Study Area, Vermont.

Characteristic	Year							Total
	89	90	91	92	93	94	95	
No. days with hounds	unk. ^a	22	35	27	13	11	1	109+
No. captures with hounds	11	7	13	12	7	6	1	57
No. of recaptures with hounds	0	2	8	8	0	3	1	22 ^b
Snare nights	unk.	160	815	127	75	30	0	1207+
No. snare captures	2	0	2	2	2	1	0	9
No. snare recaptures	0	0	0	0	0	0	0	0

^a 1989 capture effort data incomplete.

^b Most (18) recaptures were to replace radio collars.

Using hounds as a capture technique had its own set of advantages and disadvantages. Many bear crossing areas and feeding sites were first identified by the hounds while searching for bears to capture. A typical capture day, however, usually started before 4:00 a.m. and often continued until after dark trying to find lost dogs. Often a capture was not attempted because we were unable to locate a new bear to run during the early morning hours while it was still cool enough to attempt a chase. A total of 57 bears were treed out of 91 started, of which 46 were captured (Table 3.3). Some bears could be caught by the hounds and took a stand on the ground or in ledges. With difficulty, we captured 6 bears in this manner.

Immobilizing bears that had been run by hounds was more difficult than with most capture methods as the bear was often high up in a tree among thick branches or else swiftly descending the tree trying to escape. Under these conditions it was difficult to judge the weight of the animal correctly and prepare the immobilization drug and delivery system while the bear was still in his tree. Often the animal was so excited that the capture dose was insufficient. At least nine bears were missed for these reasons in the first few years of the study (Table 3.3).

Three mortalities occurred during capture operations. Two involved subadults who each died within three days of their capture. Both captures followed extensive chases with hounds and eventual chemical immobilization took place at high ambient temperatures. Both bears were kept cool after immobilization, but eventually died within a mile of the capture site. Cause of death was determined to be a combination of capture myopathy and heat stress. The third mortality was an adult male who was struck and killed by an automobile while we were attempting to capture him with hounds. Partially-healed injuries indicated he had survived a previous recent collision with an automobile. No mortalities were documented from other capture methods or during collar replacement during winter den visits.

Table 3.3. Summary of capture efforts using trained bear hounds, 1990 to 1995.

Year	No. of Days Attempted w/Hounds	No. of Bears Started	No. of Bears Treed	No. of Bears Started but not Treed	No. of Days None Started	No. of Bears Captured	No. of Bears Caught on Ground	No. of Times Researcher Missed or Drug Failed
1990	22	18	9	9	6	7	1	3
1991	35	29	19	10	8	13	2	5
1992	27	22	15	7	6	12	0	1
1993	13	10	5	5	3	7	2	0
1994	11	11	8	3 ^a	2	6	1	0
1995	1	1	1	0	0	1	0	0
Totals	109	91	57	34	25	46	6	9

^a One large male bear was struck and killed by a car while being chased by hounds.