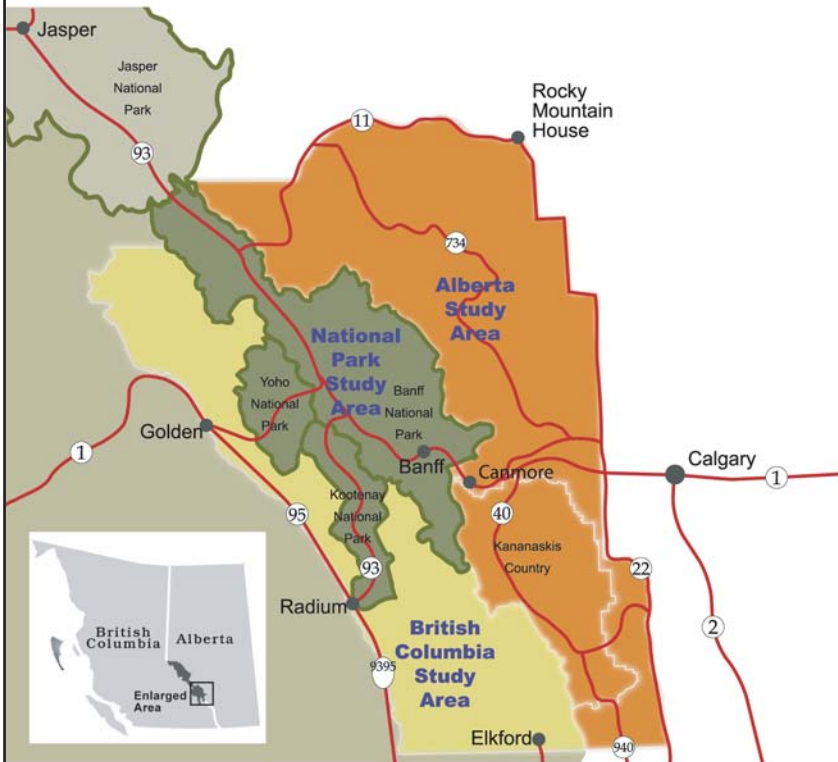


CHAPTER 4

GRIZZLY BEAR CAPTURE SUCCESS AND MORPHOLOGY



4. GRIZZLY BEAR CAPTURE SUCCESS AND MORPHOLOGY

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CAPTURE SUCCESS

The majority of captures were the result of intensive snaring effort (Table 1).

Table 1. Grizzly bear captures by method in the Bow River Watershed, AB, 1994-2003.

Capture Method	Adult	Subadult	Yearling	Total
Culvert Trap	30	17	1	48
Snare	41	26	3	70
Free Range	3	3	2	8
Heli-Dart	4	1	0	5

Eighty-seven individual grizzly bears were captured in 129 capture episodes 1994-2003 (Table 2). The most intensive capture effort in 1994 yielded the greatest number of individual bears. Accurate records of our trapping efforts were kept only for 1994-1998. Alberta Conservation officers who did not keep records of trapping effort captured many of the bears between 1999 and 2003. Between 1994 and 1998 trapping effort totaled 1481 site-nights, with capture success ranging from 5 to 33 site-nights/capture. Three adult females with cubs of the year were captured during the study, in addition to 3 adult females with yearling cubs and 3 with two-year-old cubs.

Our sample of 87 individual grizzly bears was 52% male and 48% female. Fifty-eight percent of the male captures were adults, 40% were subadults, and 2% were yearlings. Sixty-seven percent of female captures were adults, 31% were subadults and 2% were yearlings. Because our capture program targeted specific individuals, especially females and subadults, we can make no comparisons of sex and age ratios between other grizzly populations.

We recaptured 34 individual bears on 42 occasions. Six of the 34 recaptures occurred in the same year as initial capture. Most recaptures were of adult males followed by adult females, subadult females, and lastly subadult males (Table 3).

Table 2. Grizzly bear capture effort and success in the Bow River Watershed, AB 1994-2003.

	Year										Total
	94	95	96	97	98	99	00	01	02	03	
No. site-nights	898	366	n/a	189	28						1481
No. grizzly captures	35	10	8	18	6	6	4	10	19	13	129
No. individuals	27	10	8	18	6	6	4	10	19	13	121
Site-nights/capture ^a	33	37	n/a	11	5						19
No. new individuals ^b	27	8	6	12	1	4	3	4	12	9	87
No. new adult females	11	3	1	4	0	3	0	1	3	2	28
No. new adult males	10	2	1	4	0	0	1	0	5	2	25
No. new subadult females	1	1	2	3	1	0	2	1	1	1	13
No. new subadult males	4	1	2	1	0	1	0	2	2	4	17
No. yearlings	1	1	0	0	0	0	0	0	2	0	4

^a Site-nights/no. individuals

^b New individuals are specified as those grizzly bears not previously captured.



Table 3. Grizzly bear capture-recapture statistics in the Bow River Watershed, AB., 1994-2003.

	Age Class			
	Adult	Subadult	Yearling	Total
Captures:				
Male	22 (25) ^a	20 (23)	3 (4)	45 (52)
Female	26 (30)	15 (17)	1(1)	42 (48)
Recaptures:				
Male	17 (41) ^b	4 (10)	1 (2)	22 (52)
Female	11 (26)	8 (19)	0	19 (45)
Total:	76	47	5	128

^a Percent of 87 captures^b Percent of 42 recaptures.

MORPHOLOGY

We observed significant difference in morphological measurements of males to females (Table 4). Adult males averaged 52.5 kg (35%) heavier than adult females; subadult males averaged 19.5 kg (23%) heavier than subadult females. Adult males were 17cm (9%) longer than adult females; subadult males were 3cm (2%) longer than subadult females. Males measured larger in chest girth than females of the same age classes (adults: 15%, subadults 11%). Foot pad sizes of males were greater than females of the same age class. The weights of all sex and age classes of grizzly bears obtained from our study (Table 5) did not differ significantly from those reported from the Swan Mountain area of Montana (Mace & Waller 1997). Other Eastern Slopes grizzly bear morphological measurements such as total length and girth are nearly identical to those reported from the Swan Mountains.

Table 4. Morphological measurements of grizzly bears captured in the Bow River Watershed, AB 1994-2003.

Measurement ^a	Male		Female	
	Adult	Subadult	Adult	Subadult
Weight (kg)	148,17.2,21 ^b	85,6.8,18	95.5,4.5,24	65.5,6.8,15
Zoological Length (w/tail)	190,6.6,22	160,5.6,21	173.5,3.2,21	157,6,14
Chest circumference	115,4.9,22	93,4.2,19	98,2.5,24	83.5,3.3,15
Front foot:				
Pad width	14,0.5,22	12.5,0.4,19	12,0.4,23	11,0.6,15
Pad length	15,1.4,22	11,1.5,19	10.5,1.3,23	9.5,1.2,15
Rear foot:				
Pad width	13,0.5,22	11.5,0.4,19	12,0.3,23	10,0.3,15
Pad length	21.5,1.5,22	18.5,1.4,19	17.5,0.9,23	17.5,1.2,15

^a Measurements are from initial captures only.^b Mean, SE, N. Scale weight given in kg, all other measurements in cm.

Table 5. Comparison of mean weight (kg) of grizzly bears from the Bow River Watershed, AB and Swan Mountains, MT.

Study Area	Male		Female	
	Adult	Subadult	Adult	Subadult
Eastern Slopes, AB	146	88	97	61
Swan Mountains, MT	156	81	88	60

LITERATURE CITED

Mace, R.D., and J.S. Waller. 1997. Final report: grizzly bear ecology in the Swan Mountains. Montana Fish, Wildlife and Parks Department, Helena, Montana, USA.

