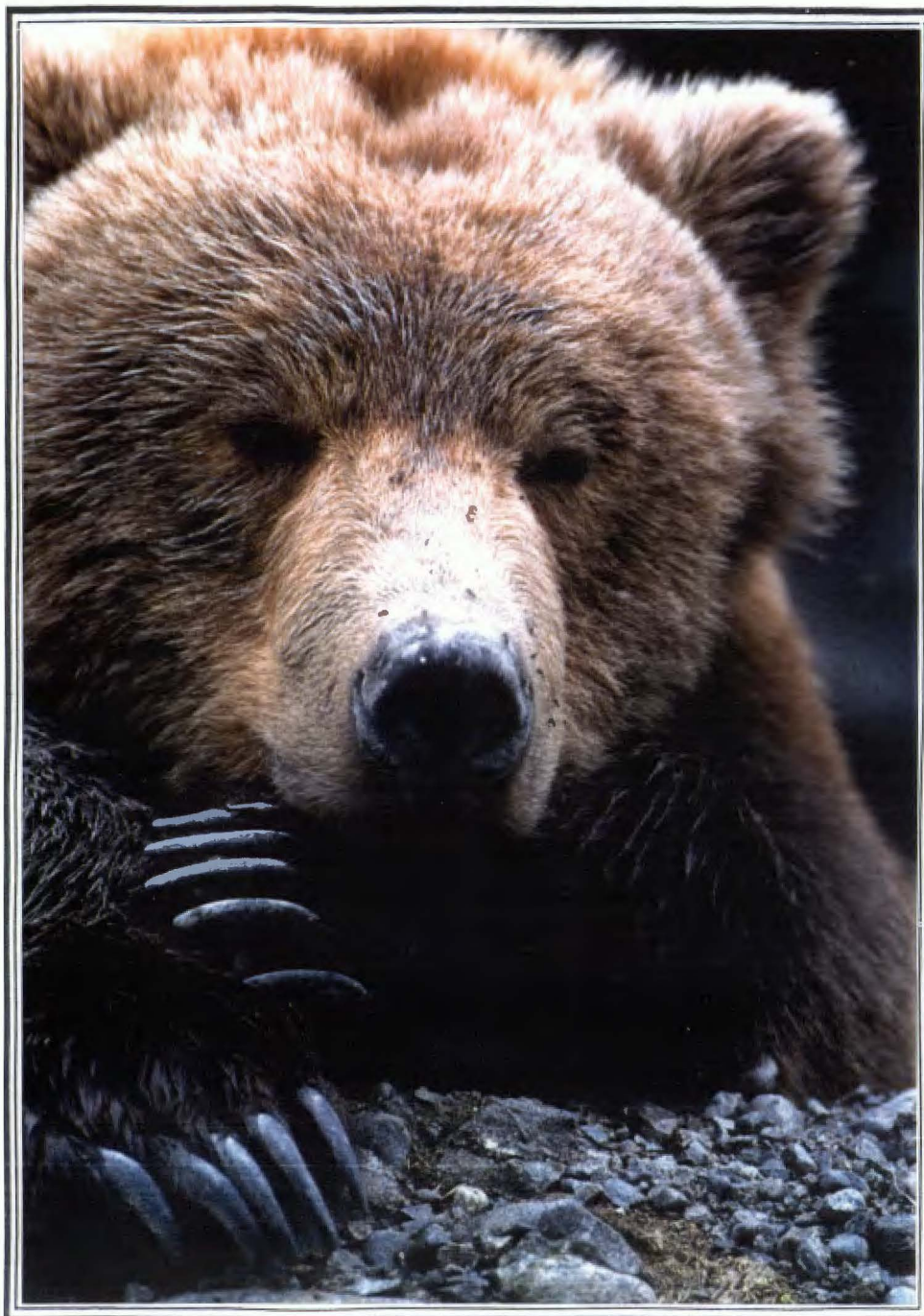


**Alaska Department of Fish and Game  
Division of Wildlife Conservation**

**Federal Aid in Wildlife Restoration  
Research Progress Report  
1 July 1995- 30 June 1996**

## **Effects of Harvest on Grizzly Bear Population Dynamics in the Northcentral Alaska Range**

**Harry U Reynolds, III**



**Grant W-24-4  
Study 4.25  
September 1996**

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## RESEARCH PROGRESS REPORT

**STATE:** Alaska **STUDY NO.:** 4.25  
**COOPERATOR:** US Army, Fort Richardson and Fort Wainwright  
**GRANT NO.:** W-24-4  
**STUDY TITLE:** Effects of Harvest on Grizzly Bear Population Dynamics in the Northcentral Alaska Range  
**AUTHOR:** Harry V Reynolds, III  
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### SUMMARY

During 1996 the third phase in a long-term investigation of the effects of harvest on grizzly bear (*Ursus arctos horribilis*) population dynamics continued in a 3160-km<sup>2</sup> area of the northcentral Alaska Range. The total population size declined during the first 2 phases, and the adult female segment of the population was stable at 21 to 23 from 1981 to 1989 but declined to 14 by 1993. During the third phase, the recovery rate will be determined for both the total population and the productive female segment of the population. During 1996, 37 bears were captured and 22 were radiocollared, primarily to maintain the sample of radiocollared adult females. Two eartag transmitters were deployed on breeding males, bears which often shed standard radiocollars. Of 13 bears fitted with special mortality sensors, all bears survived during the monitoring period except 1 which was mortally wounded but not located by the person who shot it in defense of life or property. Twenty-three adult females were present in the area, compared with 14 in 1993, 15 in 1994, and 18 in 1995.

**Key words:** grizzly bear, harvest rates, Interior Alaska, mortality, population dynamics, recovery rates, reproductive biology, *Ursus arctos*.

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## BACKGROUND

An understanding of the effects of different levels of hunter harvest on grizzly bear (*Ursus arctos horribilis*) population density, structure, and dynamics is necessary for effective management. In addition, rates of recovery and mechanisms of response to high levels of harvest must be included in analyses for management models to reflect real-life situations. Although recent studies have increased our knowledge on some of these aspects of population dynamics, additional information is necessary to clarify the extent and direction of population response to, and recovery from, high harvest levels. Further, as demands on grizzly bear habitat and populations increase, more intensive management will be required using models based on observed harvest and recovery rates of specific segments of the population.

To determine sustainable harvest levels for grizzly bears, it is crucial to be able to document responses in population numbers or density to various harvest rates (Miller et al. 1987; Reynolds et al. 1987; Miller 1990a,b,c, 1993). It is equally important to understand the mechanisms of population responses to harvest (such as compensatory production or survival) through long-term observation of individuals (Reynolds et al. 1987, Schwartz and Franzmann 1991, Reynolds and Boudreau 1992). Use of harvest data alone is inadequate for timely determination of population trend or calculation of sustainable harvest rates (Harris and Metzgar 1987).

Documentation of population response to exploitation is necessary to fully realize the benefits from this long-term study. Additional data on population production, survival, compensatory behavior, and emigration rates will make assessment of future direction of these investigations more effective. Because of characteristics of production and survival, grizzly bear populations respond very slowly to forces that may change population status. For instance, because Alaska Range grizzly bears do not usually produce surviving young

until they reach 7 years of age, and the mean interval between litters is 4.1 years (Reynolds 1990, Reynolds and Boudreau 1990), the effects of compensatory production or survival cannot be documented until additional litters are weaned and provide potential recruitment to the population, approximately 7 years.

This study was initiated in 1981 as a 3-phase study. It has been conducted in a 3160-km<sup>2</sup> study area of representative northern Alaska Range habitat in Unit 20A. The study area is large enough to include the entire home ranges of 66% of females under observation for at least 5 years, and 17% of males.

Phase I was completed in 1985; it emphasized the gathering of baseline information on the population biology (Reynolds 1982; Reynolds and Hechtel 1983, 1984, 1985, 1986, 1988; Reynolds et al. 1987). Harvest level during the years 1965 through 1980 was generally moderate (i.e., 5.6% of the estimated population); however, from 1981 to 1985 it increased to about 12%. By 1985, at the end of Phase I, the population had already begun to decline.

Initially, study design called for low to moderate levels of harvest to occur during Phase I while baseline data were collected. This was to be followed by higher harvest levels during Phase II, while data were collected on individuals and on population response to increased harvest. However, grizzly bear harvest by hunters, supplemented in part by capture mortality, resulted in the 12% harvest level during Phase I. Even though this harvest was higher than indicated in the study design, this circumstance strengthened rather than detracted from the investigation. The early high harvest level allowed monitoring of reproductive responses over a longer period of time.

Phase II, which continued from 1986 through 1991, was designed to measure grizzly bear population response to human-caused mortality. Throughout this period, mean annual harvest rates continued at 11% (Reynolds 1989, 1990; Reynolds and Boudreau 1992). Alaska Department of Fish and Game (ADF&G) staff monitored changes in estimated population size and productivity. During 1986 a mark-recapture density estimate was conducted (Reynolds et al. 1987). Changes in reproductive performance of adult females and survival rates of young bears showed nonconclusive evidence for compensatory production and survival; additional data from subsequent years will be necessary to substantiate any trends.

Following the completion of Phase II, a second mark-recapture density estimate was conducted in 1992 (Reynolds 1993a) for comparison with the 1986 estimate (Reynolds et al. 1987). No changes in density could be detected between the 2 time periods because the estimates displayed wide confidence intervals, primarily because of low density within the search areas. However, annual direct count estimates, based on intensive capture and presence of individual bears within home ranges in the area, indicated that by 1992 the population of bears  $\geq 2$  years of age declined by 20% since 1981.

Patterns of movement or fidelity to maternal or established home ranges indicated that all females remained in the vicinity of their maternal home ranges and none emigrated from

the study area. All males weaned or captured as 2- or 3-year-olds emigrated from their maternal or established home ranges within 2 years. Males  $\geq 4$  years of age apparently left their maternal home ranges to immigrate to the study area; none of these later emigrated from the study area although some had home ranges that extended beyond the study area boundaries.

Several other intensive studies documented declining populations (Craighead et al. 1974; Knight and Eberhardt 1984, 1985; McLellan 1989a,b,c). Harvest models that have been developed are complex and illustrate the difficulty of using harvest data to predict population changes (Tait 1983, Harris and Metzgar 1987, Miller and Miller 1990, Miller 1993). Miller (1990a) estimated a sustainable harvest rate of 8% in Unit 13 in Alaska but concluded a number of potential biases remained to be investigated. Other studies addressed aspects of population biology or density of grizzly bears in Interior Alaska (Dean 1976; Murie 1981; Ballard et al. 1982; Miller and Ballard 1982; Miller 1984, 1987, 1990a,b, 1993).

Before the effects of various harvest rates can be assessed, the following information should be available: 1) population density or size, 2) population structure, 3) movement patterns, 4) home range size, 5) mortality and survival rates, and 6) reproductive potential including age at first breeding, litter size, and interval between litters (Craighead et al. 1974; Reynolds 1974, 1976, 1978, 1980; Bunnell and Tait 1980, 1981; McLellan 1989a; Miller 1990c; Miller and Miller 1990). The approach taken in this study is to monitor these characteristics annually so harvest can be related to potential population responses.

## OBJECTIVE

Following reductions in human-caused mortality rates, determine the rate and length of time necessary for recovery of the female segment of a grizzly bear population which had declined by 32% from 1981-1988 levels; specifically, determine the recovery responses in the dynamics of the population, including female population size, total population size, and production and survival of offspring.

## STUDY AREA

The 3160-km<sup>2</sup> (1220-mi<sup>2</sup>) study area is located in the mountains and foothills of the northcentral Alaska Range within Unit 20A. The study area boundaries did not include mountainous areas above 1800 m (6000 ft), glaciers, or heavily forested portions of the Tanana Flats where searches were not attempted and few observations were made. The boundaries are the Gold King Creek and Wood River drainages downstream from Virginia Creek to the west, the crest of the Alaska Range to the south, the Delta Creek drainage to the east, and the southern edge of the Tanana Flats (approx. 64°07'N) to the north. It includes portions of 2 US Army reservations, Fort Wainwright and Fort Greely.

Elevation in the area ranges from 500 to 3700 m (1500 to 12,000 ft). Most rivers flow northerly through U-shaped, glacially formed valleys and are fed by active glaciers. Tree line is at approximately 900 m (3000 ft). Dense patches of willow (*Salix* spp.) or alder

(*Alnus crispa*), which bears use for cover, may be present up to an elevation of approximately 1200 m (4000 ft).

## **METHODS**

Methods used to capture bears and measure population variables have been described in previous reports (Reynolds 1982, 1993b, 1994; Reynolds and Hechtel 1983, 1984, 1985, 1986, 1988; Reynolds et al. 1987, Taylor et al. 1989, Reynolds and Boudreau 1992). Standardized weight and measurement data were collected (Kingsley et al. 1988).

## **RESULTS AND DISCUSSION**

The primary emphasis of the work accomplished during 1993-1996 was to monitor the presence of all adult females living within the study area. As funding allowed, I also replaced radiocollars on adult females and those 2- to 5-year-old females that will enter the adult cohorts if they survive. In addition, I monitored measures of reproductive status, reproductive performance, and possible compensatory changes in population dynamics.

### **BEARS CAPTURED AND RADIOCOLLARED**

During 1996, 37 bears were captured; 22 of these were radiocollared (Table 1). Captures included 24 females and 13 males: 13 (12 females, 1 male) were recaptured to replace radiocollars, and 24 had not been captured previously. Of those not previously captured, 14 were cubs or yearlings of marked females, 5 were 2-year-old offspring of marked females, 2 were females captured on the extreme southeast edge of the study area, 1 was a 4- or 5-year-old female captured on the West Fork of the Little Delta River; and 2 were 4- or 5-year-old males. Transmitters on 13 bears captured in 1995 contained special mortality sensors; 12 bears survived through the monitoring period, and 1 was shot in defense of life or property.

No capture mortalities occurred for the ninth consecutive year with 199 captures; this is in part due to the use of Telazol® (tiletamine HCL and zolazepam HCL, Fort Dodge Lab., Fort Dodge, IA) as an immobilizing drug (Taylor et al. 1989) and to experience gained in avoiding other hazards related to immobilization (Reynolds 1992).

We captured 171 individual bears in the study area from 1981 through 1996 (Table 1). In addition, 157 bears were recaptured to replace radiocollars. From 1981 to 1983, initial captures were made of bears of all sex and age classes. Since 1983, most initial captures were of offspring of previously captured bears. Radiocollars have been placed on 141 bears: 50 on young-age males ( $\leq 5$  years), 21 on adult males ( $\geq 6$  years), 43 on young-age females, and 27 on adult females. Radiocollars were not placed on 30 bears because they were cubs or yearlings (23), 2- and 4-year-olds (3), or capture-related mortalities (4).



## **FEMALES PRESENT IN THE POPULATION**

By May 1996, 23 adult females ( $\geq 6$  years of age) were assumed present in the population, compared with 21 to 23 during 1982 through spring 1989 (Reynolds 1993a,b). Adult females assumed present in the population included 7 observed with cubs, 5 observed with yearlings, 1 observed with 2-year-olds, 1 observed unaccompanied by offspring, and 4 assumed to be alive whose collars have failed. Each of the latter females met the criteria for inclusion in the estimated population as described in Reynolds (1994):

For comparison, the minimum numbers of adult females present in the study area were 11 in 1992, 14 in 1993, 15 in 1994, and 18 in 1995 (Reynolds 1993a, 1994, 1995). These increases could be due to a combination of factors including: 1) a decline in human-caused mortality; 2) the production of strong cohorts in 1988 and 1989; and 3) high survival rates in both young-aged and adult female segments of the population since 1993.

Four females (nos. 1345, 1362, 1397, and 1608) were not observed during 1995 but were assumed present in the population (Reynolds 1994). Intensive search efforts resulted in location and recapture of female nos. 1362 and 1608. In 1995 a marked female with an unreadable tattoo was killed by a hunter in the Yanert River drainage, the area of last observation for no. 1345. Genetic fingerprinting analysis of this hunter-killed female may show whether it is no. 1345. No. 1397 was not located during searches of her former home range.

## **STATUS OF PRODUCTIVE FEMALES**

For comparison, 13 females produced an observed total of 26 cubs during 1995. Female nos. 1607 and 1636 each produced 3 cubs, nos. 1348, 1385, 1391, 1394, 1603, 1623, 1624, 1627, and 1651 each produced 2 cubs, and nos. 1631 and 1654 each produced 1 cub. This was the highest total production of cubs by the population that has been observed since the study began.

In 1996 none of 3 5-year-old females known in the population produced cubs, but each was observed consorting with adult males. In comparison, during 1995, 5-year-old female nos. 1623, 1624, 1627, and 1636 produced cubs, but no. 1617 did not. Female nos. 1603 and 1631 produced their first litters at age 7.

## **MORTALITY**

Between July 1995 and 20 September 1996 hunters reported killing 4 bears in the study area, including marked female nos. 1391 and 1398. Of 2 unmarked males, one was a 3-year-old killed in the East Fork of the Little Delta River in fall 1995 and the other was about 7 years old and killed on the northwestern edge of the study area on 12 September 1996. In addition, 2 marked grizzlies were killed outside the study area, including male no. 1620, killed along the Tanana River, east of its confluence with the Little Delta River. The other was a female killed along Moose Creek in the Yanert River drainage whose tattoo was unreadable, but was possibly no. 1345. In addition, female no. 1324 was shot and mortally wounded during July 1996 at a remote cabin near Gold King Airstrip.



Seven other mortalities were observed or assumed to have occurred. Female no. 1605 was killed by another bear in June 1995, and I assumed that neither of her 2 yearling offspring survived. The single yearling offspring of no. 1398 disappeared in 1995 and was assumed dead. No. 1398 was accompanied by 3 cubs in June 1996; neither she nor her cubs were observed during aerial relocation flights, and the hunter who killed her in September claimed that she was alone.

## CONCLUSIONS AND RECOMMENDATIONS

This is the final year of the third phase in a study to evaluate effects of harvest on grizzly bear population dynamics. The primary objective during this phase is to monitor the recovery or stabilization of the population and to document the accompanying changes in productive capacity.

We consider it especially important to use radiotelemetry to monitor the number and status of all adult females in the study area. Female offspring of marked females should also be radiocollared to monitor their presence in the population and the rate at which they serve as recruits to the adult female cohort.

Hunter harvest should continue to be closely monitored and the take of females discouraged. ADF&G staff should explore the effectiveness of other methods besides season and bag limit management in reducing harvest of females.

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Table 1 Capture and marking characteristics of 171 bears captured in the northcentral Alaska Range, 1981-1996

Bear no./sex	Cem. age (yr)	Date of capture	Weight kg (lb)	Location	Drug dosage <sup>a</sup>	Ear tags <sup>b</sup>	Markers <sup>c</sup>
1301 M	6	5/18/81	120 (265)	Buchanan Creek	1.8/1.2 H	373/374	G/G
1302 F	3	5/19/81	75 (165)	East Fork Delta	1.0/1.0 M	368/367	R/G
	8	6/12/86	114 (250)	East Fork Delta	2.2 TEL M	280/281	O/IB
1303 F	11	5/12/89	109 (241)	Buchanan Creek	4.5 TEL M	339/340	O/IB
	2	6/17/81	57 (125)	Mystic Mountain	1.4/1.4 M	524/523	R/R
	4	6/27/83	82 (180)	Hearst Creek	5.0 M99 M	3227/3214	R/R
	6	6/14/85	73 (160)	Upper Gold King	2.0/2.0 M	486/487	R/R
1304 M	12	5/31/91	95 (210)	Upper Moose Creek	1.0 TEL L	104/104	Y/W
	5	6/19/81	136 (300)	West Fork Delta	2.4/2.0 M	451/452	IB/R
	11	5/21/87	255 (560)	Threemile Creek	8.1 TEL M	430/431	W/mG
	13	6/7/89	245 (540)	Slate Creek	7.0 TEL M	778/--	W/--
	15	6/1/91	272 (600)	West Fork Delta	9.6 TEL M	136/137	W/mG
1305 F	24	6/19/81	114 (250)	Slate Creek	A M	453/454	O/R
1306 M	2	5/24/82	44 (97)	West Fork Delta	1.0/1.0 L	3151/3086	G/IB
1307 M	2	5/24/82	44 (98)	West Fork Delta	1.0/1.0 H	3087/3152	IB/G
	5	6/17/85	114 (250) <sup>d</sup>	Sheep Creek	2.4/2.6 L	3087/3152	IB/G
1308 F	6	5/25/82	111 (245)	Dry Creek	- <sup>e</sup>	3001/3154	O/Pp
	8	6/20/84	120 (265)	Dry Creek	5.0 M99 M	3001/471	O/Pp
	11	6/8/87	123 (270)	Dry Creek	3.3 TEL M	528/529	O/Pp
	15	5/6/91	125 (275)	Dry Creek	6.0 TEL M	150/149	W/R
	18	5/30/94	129 (285)	Dry Creek	6.0 TEL M	332/333	W/R
	19	6/6/95	129 (285)	Dry Creek	7.2 TEL M	332/333	W/R
1309 M	8	5/25/82	318 (700) <sup>d</sup>	Dry Creek	A L	3153/3101	dB/Bk
1310 M	13	5/25/82	250 (550) <sup>d</sup>	Buchanan Creek	2.0/2.0 M	No tags	O/W
	15	6/20/84	241 (530)	Molybdenum Ridge	4.0/2.0 M	467/473	O/W
	18	5/21/87	264 (580)	Buchanan Creek	9.0 TEL M	414/413	Y/W
1311 F	12	5/26/82	120 (265)	Molybdenum Ridge	1.9/2.1 M	3106/3107	W/W
	14	6/21/84	116 (255)	Molybdenum Ridge	2.0/2.2 M	466/455	W/W
	17	6/8/87	123 (270) <sup>d</sup>	Molybdenum Ridge	3.4 TEL M	571/570	W/W
	21	6/3/91	125 (275)	Molybdenum Ridge	5.5 TEL M	139/140	W/W

Bear no./sex	Cem. age (yr)	Date of capture	Weight kg (lb)	Location	Drug dosage <sup>a</sup>	Ear tags <sup>b</sup>	Markers <sup>c</sup>
	22	5/10/92	121 (267)	Molybdenum Ridge	5.0 TEL M	249/250	W/W
	25	6/11/95	118 (260)	Molybdenum Ridge	7.0 TEL M	--	--
1312 F	Cub	5/26/82	12 (26)	Molybdenum Ridge	0.1/0.1 M	3104/3155	O/W <sup>f</sup>
1313 F	Cub	5/26/82	12 (27)	Molybdenum Ridge	0.08/0.13 M	3156/3105	W/O <sup>f</sup>
1314 M	6	5/27/82	116 (255)	Iowa Ridge	2.1/1.9 H	3088/3002	dB/IB
1315 M	13	6/4/82	272 (600)	Buchanan Creek	1.9/2.1 L	3102/3157	Bk/O
	15	5/17/84	295 (650)	Hayes Creek	A H	3322/none	Bk/-
1316 M	11	6/7/82	236 (520)	West Fork Delta	3.8/0.0 H	3089/3090	O/IB
1317 F	3	6/8/82	36 (80)	Forgotten Creek	1.2/1.8 L	3091/3003	IB/O
	5	5/16/84	55 (122)	Upper West Fork	A L	3486/3239	IB/O
	6	5/23/85	59 (130)	Upper Wood River	7.0 M99 M	497/498	IB/O
1318 F	13	6/8/82	104(230)	Buchanan Creek	A L	3004/3103	W/G
	15	6/22/84	118 (260) <sup>d</sup>	Slate Creek	A M	458/472	W/G
	18	6/2/87	105 (230) <sup>d</sup>	Slate Creek	3.3 TEL M	--	--
1319 M	Cub	6/8/82	12 (26)	Buchanan Creek	0.15/0 L	3005/3092	R/Y <sup>f</sup>
1320 F	17	6/8/82	102 (225)	Trident Glacier	A M	3158/3093	G/B
	19	6/25/84	139 (305)	East Hayes Creek	5.0 M99 M	463/461	G/B
	22	6/12/87	114 (250)	Hayes Glacier	4.0 TEL M	517/518	mG/dB
1321 F	16	6/9/82	141 (310)	Snow Mountain Gulch	2.1/1.9 M	3028/3108	G/W
	17	5/17/83	127 (280)	Dry Creek	1.8/2.2 M	3028/3427	G/W
	19	7/22/85	218 (480)	North VABM Wood	2.6/1.0 L	399/398	G/W
	23	6/6/89	170 (375)	Dry Creek	---- TEL M	788/789	IG/W
1322 F	8	6/9/82	91 (200)	Sheep Creek	1.9/2.1 M	3051/3159	W/IB
1323 F	11	6/10/82	95 (210)	Mystic Mountain	1.9/2.1 M	3160/3030	G/G
	13	6/29/84	132 (290)	VABM Wood	A M	579/582	G/G
1324 F	Cub	6/10/82	12 (26)	Mystic Mountain	0.12/0 M	3027/3162	R/W <sup>f</sup>
	6	5/26/88	111 (245)	Coal Creek	3.6 TEL L	159/160	Bk/W
	10	5/26/92	129 (285)	Dry Creek	5.5 TEL L	121/122	Bk/W
	12	5/27/94	125 (275)	Mystic Mountain	6.0 TEL M	121/122	Bk/W
	13	6/6/95	--	Wood River Bluffs	7.2 TEL M	121/122	Bk/W
1325 M	Cub	6/10/82	12 (27)	Mystic Mountain	0.10/0 M	3161/3031	W/R <sup>f</sup>



Table 1 Continued

Bear no./sex	Cem. age (yr)	Date of capture	Weight kg (lb)	Location	Drug dosage <sup>e</sup>	Ear tags <sup>b</sup>	Markers <sup>c</sup>
1326 F	2	5/15/84	67 (148)	Mystic Creek	1.0 M99 M	3233/3394	R/W
	4	6/18/82	93 (205)	Buchanan Creek	2.2/1.8 M	3008/3163	W/R
	6	6/21/84	109 (240)	Buchanan Creek	1.8/2.2 M	468/462	W/R
	7	6/27/85	111 (245)	Slate Creek	2.4/1.6 L	426/427	W/W
1327 F	16	7/8/82	127 (280)	Whistler Creek	2.2/1.8 M	3134/3192	G/R
	18	6/23/84	125 (275)	Whistler Creek	A H	458/192	G/R
1328 F	1	7/8/82	43 (95)	Whistler Creek	0.9/1.1 M	3115/3014	dB/G
1329 F	13	7/9/82	120 (265)	Buchanan Creek	2.4/1.6 M	3026/3111	W/R
1330 M	1	7/9/82	48 (106)	Buchanan Creek	-- M	--	R/W
	3	6/28/84	102 (225)	East Fork Delta	2.6/3.0 M	597/598	R/W
1331 F	4	7/10/82	77 (170)	Trident Glacier	2.4/1.6 M	3120/3194	Bk/O
	9	5/20/87	114 (250) <sup>d</sup>	East Hayes Creek	3.0 TEL M	519/520	Bk/Y
	12	5/15/90	111 (245)	Trident Glacier	6.0 TEL H	196/197	Bk/Y
1332 F	5	7/12/82	104 (230)	Gilliam Glacier	2.4/1.6 M	394/190	R/dB
1333 F	16	7/13/82	141 (310)	Buchanan Creek	A M	474/469	G/R
1334 M	1	7/13/82	49 (108)	Buchanan Creek	1.0/1.0 M	395/392	Y/G
	3	6/27/84	107 (235)	McGinnis Creek	A M	585/583	O/G
1335 F	1	7/13/82	38 (84)	Buchanan Creek	1.0/1.0 M	32/456	G/Y
	3	6/25/84	80 (175)	Gilliam Glacier	1.5/3.0 M	465/464	dB/G
1336 F	2	5/16/83	48 (105)	Kansas Creek	1.0/1.0 M	3201/3204	Bk/mG
	3	6/26/84	89 (195)	Copper Creek	2.0/3.0 M	470/595	Bk/mG
	4	6/17/85	102 (224)	Wood River	A L	470/595	Bk/mG
	6	5/15/87	109 (240)	Rogers Creek	2.2/2.0 M	521/522	Bk/mG
	8	5/17/89	145 (320)	Upper Wood River	4.5 TEL M	330/329	Bk/mG
	11	5/7/92	116 (255)	Wood River	6.0 TEL M	330/329	Bk/mG
1337 M	20	5/18/83	293 (645)	Sheep Creek	3.5/3.5 L	3209/3205	R/O
	25	6/15/88	277 (610)	Sheep Creek	A TEL H	364/363	O/R
1338 M	6	5/20/83	111 (245)	Molybdenum Ridge	A M	3203/3202	O/Bk
1339 M	6	5/23/83	120 (265)	Trident Glacier	-- M	3286/3351	IB/W
	7	5/17/84	168 (370)	East Fork Delta	6.0 M99 H	3254/3398	IB/W
1340 F	3	5/23/83	71 (157)	Hayes Creek	1.2/0.8 H	3277/3208	G/O

Table 1 Continued

Bear no./sex	Cem. age (yr)	Date of capture	Weight kg (lb)	Location	Drug dosage <sup>a</sup>	Ear tags <sup>b</sup>	Markers <sup>c</sup>
1341 F	4	5/19/84	91 (200) <sup>d</sup>	Molybdenum Ridge	4.0 M99 M	3277/3208	mG/O
	5	6/27/85	100 (220)	West Hayes Creek	2.4/1.6 L	590/596	mG/mG
	10	5/23/83	107 (235)	NE Portage	1.5/1.5 H	3210/3428	R/dB
	12	6/13/85	107 (235) <sup>d</sup>	East Fork Delta	2.0/2.0 M	442/none	O/-
	15	6/14/88	164 (360)	East Fork Delta	7.0 TEL M	356/355	dkB/
1342 M	2	5/24/83	49 (108)	Threemile Creek	0.6/1.2 M	3354/3207	W/dB
1343 M	2	5/24/83	43 (95)	Threemile Creek	0.6/1.2 M	3426/3285	R/B
1344 M	2	5/24/83	56 (123)	Threemile Creek	0.6/1.2 M	3361/3433	IB/Bk
	3	6/23/84	123 (270)	Hayes Creek	2.2/3.2 M	475/460	IB/Bk
1345 F	8	5/24/83	--	Upper West Fork	1.2/1.8 L	3206/3352	O/O
	10	5/23/85	105 (230) <sup>d</sup>	Upper West Fork	7.0 M99 M	499/500	O/O
	14	5/13/89	118 (260)	Upper Wood River	4.5 TEL M	445/446	O/O
1346 M	5	5/25/83	114 (250)	Hayes Glacier	A M	3359/3356	IB/IB
	12	5/14/90	--	Trident Glacier	10.5 TEL M	192/193	mG/mG
	13	6/1/91	249 (550)	Buchanan Creek	11.0 TEL M	192/193	mG/mG
	16	5/28/94	254 (560)	Delta Creek	7.6 TEL M	192/193	None
1347 M	6	5/31/83	189 (415)	Coal Creek	3.5 M99	None	Dead
1348 F	12	5/31/83	123 (270) <sup>d</sup>	Mystic Mountain	A M	3363/3372	W/O
	15	5/16/86	116 (255)	Wood River	2.4/1.6 M	235/236	W/O
	19	5/12/90	141 (310)	Gold King	6.0 TEL M	117/118	W/O
	20	5/9/91	120 (265)	SW Gold King	11.0 TEL H	117/118	W/O
	21	5/9/92	107 (235)	Wood River	5.5 TEL M	117/118	W/O
1349 M	18	6/2/83	264 (580)	O'Brien Creek	3.8/1.2 L	3364/3292	R/IB
1350 M	8	6/2/83	202 (445)	Ptarmigan Creek	3.0/2.0 L	3432/3430	dB/R
	11	6/12/86	205 (450) <sup>d</sup>	East Fork Delta	3.5 TEL L	273/272	dB/R
1351 F	14	6/23/83	114 (250) <sup>d</sup>	Dry Creek	4.0 M99 M	3217/3390	dB/W
	16	6/10/85	111 (245)	Little Delta River	2.0/2.0 M	477/436	dB/W
	18	5/19/87	130 (285)	Dry Creek	A M	503/504	dB/W
1352 F	14	6/27/83	111 (245)	West Fork Delta	--	3215/3316	O/W
1353 M	1	6/27/83	27 (60)	West Fork Delta	--	3310/none	O/-
1354 F	1	6/27/83	12 (27)	West Fork Delta	--	None/3314	-/O

Table 1 Continued

Bear no./sex	Cem. age (yr)	Date of capture	Weight kg (lb)	Location	Drug dosage <sup>a</sup>	Ear tags <sup>b</sup>	Markers <sup>c</sup>
1355 M	3	6/30/83	60 (133)	East Fork Delta	4.0 M99 H	3232/3473	O/Bk
	5	6/3/85	70 (155)	Whistler Creek	2.2/1.8 H	586/587	O/Bk
1356 M	2	6/30/83	50 (110)	Little Delta River	2.0 M99 H	3234/3392	Bk/O
1357 M	2	5/15/84	63 (138)	Dry Creek	1.1 M99 M	3323/3235	W/Bk
	3	6/24/85	93 (205)	Dry Creek	1.5/1.5 M	447/448	W/Bk
1358 M	13	5/18/84	205 (450)	Hayes Creek	A L	3318/3447	IB/dB
	15	5/20/86	236 (520)	Trident Glacier	3.4/2.0 L	297/296	IB/dB
1359 M	3	5/28/85	61 (134)	Snow Mountain Gulch	4.0 M99 M	489/488	dB/O
1360 F	10	5/28/85	95 (210)	Snow Mountain Gulch	7.0 M99 H	None	None
1361 F	3	5/28/85	63 (138)	Dry Creek	4.0 M99 M	482/483	mG/R
	4	5/19/86	100 (220)	Rogers Creek	1.7/2.0 L	274/275	G/Bk
1362 F	6	6/5/85	--	Glacier Creek	2.0/2.0 L	None	None
	6	6/24/85	114 (250)	Threemile Creek	2.2/1.8 L	443/490	dB/dB
	9	5/15/88	--	Sheep Creek	5.0 TEL H	197/198	O/Y
	16	9/28/95	173 (380)	3-Mile Creek	7.5 TEL L	834/833	IB/IB
1363 M	3	6/5/85	55 (120)	Slide Creek	1.0/2.0 M	592/593	dB/IB
1364 M	Cub	6/14/85	7 (15)	Gold King Creek	0.7/- M	None	None
1365 M	5	6/19/85	118 (260)	Wood River	A M	476/441	IB/G
1366 M	8	7/22/85	234 (515)	Tatlanika River	3.2/1.0 M	390/391	mG/R
1367 M	2	5/19/86	61 (134)	Threemile Creek	1.4/2.0 M	400/241	IB/W
1368 F	2	5/19/86	48 (106)	Threemile Creek	1.4/2.0 M	257/256	IB/IB
1369 M	2	5/19/86	68 (150)	Threemile Creek	1.4/2.0 L	247/246	W/dB
1370 F	2	5/20/86	47 (103)	Buchanan Creek	1.4/2.0 H	253/252	dB/Bk
	3	5/20/87	69 (151)	Buchanan Creek	1.5/1.5	--	--
1371 M	2	5/20/86	57 (126)	Buchanan Creek	1.4/2.0 M	269/268	Bk/dB
1372 M	2	5/20/86	72 (158)	Parmigan Creek	1.4/2.0 M	387/386	IB/O
	5	5/17/89	186 (410)	Chute Creek	7.0 TEL M	310/309	IB/O
1373 M	7	5/21/86	193 (425)	Delta Creek	4.0/2.0 M	295/294	IB/R
1374 F	6	5/21/86	106 (233)	Delta Creek	2.0/2.0 M	249/248	R/G
	9	6/9/89	147 (325)	Delta River	6.0 TEL M	320/319	IG/IB
1375 M	6	6/13/86	186 (410)	Sheep Creek	4.5 TEL L	276/277	Y/W

Table 1 Continued

Bear no./sex	Cem. age (yr)	Date of capture	Weight kg (lb)	Location	Drug dosage <sup>a</sup>	Ear tags <sup>b</sup>	Markers <sup>c</sup>
	9	5/13/89	281 (620)	Mystic Creek	9.0 TEL L	439/440	O/W
	11	5/31/91	295 (650)	Threemile Creek	14.0 TEL H	146/440	O/W
1376 F	14	6/13/86	130 (285)	Hayes Creek	3.0 TEL M	279/278	G/O
1377 M	2	8/28/86	132 (290)	Iowa Ridge	4.0 TEL L	505/507	Bk/R
1378 F <sup>8</sup>	2	5/20/86	59 (130) <sup>d</sup>	Ptarmigan Creek	--	None	None
1379 F	2	5/15/87	67 (148)	Sheep Creek	2.2/2.0 L	334/335	W/W
	4	6/6/89	102 (225)	Dry Creek	3.5 TEL L	777/776	W/W
1380 M	2	5/18/87	65 (142)	West Fork Delta	2.2 TEL H	513/514	W/R
	3	5/17/88	109 (240)	Buchanan Creek	3.2 TEL	175/174	W/R
1381 M	2	5/21/87	73 (160)	Dry Creek	3.0 TEL M	481/480	IB/Bk
1382 F	3	5/15/88	68 (150)	West Fork Delta	3.2 TEL M	169/170	R/Y
	4	6/7/89	84 (185)	Buchanan Creek	4.0 TEL M	169/170	R/Y
1383 M	2 <sup>d</sup>	6/12/87	77 (170)	Coal Creek	A M	389/390	mG/dB
1384 M	7 <sup>d</sup>	5/15/88	191 (420)	Chute Creek	7.0 TEL M	960/959	W/Y
1385 F	2	5/15/88	68 (150)	Upper Wood River	2.2 TEL H	168/167	IB/Y
	3	5/13/89	82 (180)	Wood River	3.4 TEL M	--	IB/Y
	4	5/11/90	95 (210)	Upper Wood River	A TEL H	--	--
	5	6/2/91	118 (260)	West Fork Delta	5.5 TEL M	108/107	IB/Y
	7	5/9/93	86 (190)	West Fork Delta	4.0 TEL M	108/107	IB/Y
	9	6/9/95	125 (275)	Upper Wood River	4.0 TEL M	258/259	IB/Y
	10	6/3/96	111 (245)	Big Grizzly Creek	7.0 TEL M	258/259	IB/Y
1386 M	2	5/15/88	73 (160)	Upper Wood River	2.2 TEL M	181/180	Bk/Y
	3	5/13/89	91 (200)	Upper Wood River	3.4 TEL M	181/180	Bk/Y
	4	6/7/90	120 (265)	Upper Wood River	7.0 TEL H <sup>b</sup>	790/791	Bk/Y
	5	5/31/91	156 (345)	West Fork Delta	6.0 TEL H <sup>b</sup>	790/791	Bk/Y
1387 F	2	5/23/88	55 (120)	Dry Creek	A TEL M	179/178	Y/R
	3	5/12/89	77 (170)	Rogers Creek	3.4 TEL M	337/338	Y/R
	4	5/15/90	84 (185)	Sheep Creek	A TEL M	190/191	--
1388 M	2	5/25/88	68 (150)	Dry Creek	2.5 TEL M	153/154	Y/IB
1389 M	3	5/13/89	84 (185)	Mystic Creek	4.5 TEL H	343/344	W/dB
1390 F	3	5/13/89	77 (170)	Mystic Creek	3.4 TEL H	345/346	Y/Y

Table 1 Continued

Bear no./sex	Cem. age (yr)	Date of capture	Weight kg (lb)	Location	Drug dosage <sup>a</sup>	Ear tags <sup>b</sup>	Markers <sup>c</sup>
1391 F	2	5/13/89	68 (150)	Dry Creek	2.8 TEL L	333/334	O/mG
	3	5/12/90	95 (210)	Dry Creek	3.8 TEL M	333/334	O/mG
	4	5/7/91	109 (240)	Forgotten Creek	5.5 TEL H	109/110	O/mG
	8	6/7/95	123 (270)	Slate Creek	7.0 TEL M	336/337	O/mG
	5	5/23/92	111 (245)	Dry Creek	5.0 TEL L	109/898	O/mG
1392 M	2	5/13/89	89 (195)	Dry Creek	2.8 TEL M	341/342	IG/O
	5	5/26/92	229 (505)	Dry Creek	13.0 TEL L	881/882	mG/R
1393 M	2	5/17/89	66 (145)	Molybdenum Ridge	3.5 TEL H	326/325	Bk/IB
	3	5/14/90	100 (220)	Trident Glacier	4.4 TEL M	326/325	Bk/IB
1394 F	2	5/17/89	59 (130)	Molybdenum Ridge	3.5 TEL -	331/332	IB/Bk
	6	5/10/93	94 (207)	Molybdenum Ridge	3.4 TEL M	165/166	IB/Bk
	7	5/28/94	125 (275)	Molybdenum Ridge	6.0 TEL M	165/166	IB/Bk
	9	6/2/96	142 (313)	Delta Creek	7.0 TEL M	126/166	IB/none
1395 M	2	5/17/89	86 (190)	Molybdenum Ridge	3.1 TEL M	302/301	dkB/W
1396 M	13 <sup>d</sup>	5/18/89	295 (650)	Molybdenum Ridge	7.0 TEL M <sup>b</sup>	327/328	Y/O
1397 F	2	5/18/89	61 (135)	Delta Creek	3.2 TEL M	314/313	O/O
	5	5/25/92	116 (255)	East Fork Delta	5.5 TEL M	793/792	O/O
1398 F	8 <sup>d</sup>	5/18/89	127 (280)	Delta Creek	4.5 TEL M	315/316	W/Y
	13	5/8/94	147 (325)	Trident Glacier	5.6 TEL L	-/316	-/Y
	15	6/2/96	127 (280)	Trident Glacier	6.4 TEL M	271/272	-/-
1399 M	2	5/18/89	66 (145)	Delta Creek	3.2 TEL M	303/304	R/R
1400 M	8 <sup>d</sup>	6/8/89	239 (525)	Trident Glacier	7.0 TEL M <sup>b</sup>	425/426	R/IB
1601 M	9	6/9/89	193 (425)	Whistler Creek	6.5 TEL M <sup>b</sup>	782/785	Gr/Y
	11	5/7/91	245 (540)	Slate Creek	13.0 TEL L	125/126	Gr/Y
	12	10/4/92	340 (750) <sup>d</sup>	Buchanan Creek	A TEL M	179/180	dB/W
1602 M	7	5/13/90	166 (365)	Molybdenum Ridge	A TEL M	122/121	IB/Gr
	9	5/25/92	200 (440)	East Fork Delta	7.0 TEL M	980/981	IB/Gr
	11	5/28/94	238 (525)	East Fork Delta	10.5 TEL L	338/339	IB/mG
1603 F	2	5/13/90	55 (120)	Hayes Creek	3.6 TEL H	141/142	IB/dB
	3	5/8/91	70 (155)	Whistler Creek	3.6 TEL M	128/127	IB/dB
	4	5/24/92	102 (225)	West Hayes Creek	6.0 TEL M	214/213	IB/dB

Table 1 Continued

Bear no./sex	Cem. age (yr)	Date of capture	Weight kg (lb)	Location	Drug dosage <sup>a</sup>	Ear tags <sup>b</sup>	Markers <sup>c</sup>
1604 F	6	5/30/94	113 (250)	West Hayes Creek	5.6 TEL M	348/349	IB/dB
	8	6/4/96	111 (244)	East Hayes Glacier	7.0 TEL M	237/238	IB/dB
	2	5/13/90	48 (105)	Buchanan Creek	3.4 TEL M	119/120	IB/R
	3	5/7/91	59 (130)	Buchanan Creek	4.0 TEL H	101/120	IB/R
	4	5/25/92	95 (210)	West Fork Delta	6.0 TEL M	101/889	IB/R
1605 F	5	5/8/93	82 (180)	Buchanan Creek	5.0 TEL M	889/101	R/IB
	5	5/10/93	--	East Fork Delta	5.0 TEL M	889/101	R/IB
	2	5/13/90	59 (130)	Buchanan Creek	3.6 TEL M	213/150	mG/IB
	3	5/8/91	68 (150)	East Fork Delta	3.6 TEL M	213/293	mG/IB
	4	5/25/92	102 (225)	Buchanan Creek	4.0 TEL M	213/293	mG/IB
1606 M	5	5/10/93	102 (225)	East Fork Delta	3.2 TEL M	195/196	mG/IB
	7	5/3/95	98 (215)?	Gillam Glacier	6.0 TEL H	195/196	mG/IB
	2	5/13/90	50 (110)	Buchanan Creek	A TEL M	143/144	R/dB
	3	5/8/91	70 (155)	Gillam Glacier	3.6 TEL M	143/144	R/dB
	5	5/8/93	105 (230)	West Hayes Creek	5.4 TEL M	396/397	R/dB
1607 F	8	5/14/90	141 (310)	Glacier Creek	5.5 TEL M	188/189	W/IB
	13	6/7/95	143 (315)	Glacier Creek	7.2 TEL M	330/331	IG/W
	15	5/14/90	136 (300)	Trident Glacier	5.5 TEL M	184/-	IG/-
1608 F	19	5/30/94	127 (280)	Trident Glacier	5.6 TEL M	172/-	IG/-
	21	6/1/96	120 (265)	Trident Glacier	7.0 TEL M	172/-	IG/-
	2	5/14/90	61 (135)	Trident Glacier	3.2 TEL M	103/104	dB/mG
1609 F	3	5/7/91	77 (170)	Trident Glacier	4.0 TEL M	103/102	dB/mG
	4	5/25/92	93 (205)	Piarmigan Creek	A TEL M	103/102	dB/mG
	5	6/29/93	107 (235)	E. Hayes Creek	6.2 TEL M	103/102	dB/mG
1610 F	2	5/6/91	70 (155)	Threemile Creek	3.4 TEL M	116/115	O/R
1611 M	2	5/6/91	91 (200)	Threemile Creek	3.4 TEL M	106/105	Gr/O
1612 F	2	5/6/91	73 (160)	Threemile Creek	3.4 TEL M	131/132	Y/mG
	6	5/3/95	125 (275)	Lower Sheep Creek	6.0 TEL M	16/22	R/IG
	6	6/8/95	127 (280)	Snow Mtn. Gulch	7.2 TEL M	16/22	R/IG
1613 M	7	6/3/96	109 (240)	Threemile Creek	7.0 TEL M	16/22	R/IG
	7	6/2/91	177 (390)	Wood River	12.0 TEL M	131/130	R/O

Table 1 Continued

Bear no./sex	Cem. age (yr)	Date of capture	Weight kg (lb)	Location	Drug dosage <sup>a</sup>	Ear tags <sup>b</sup>	Markers <sup>c</sup>
	11	5/29/95	211 (465)	West Fork Delta	12.9 TEL H	10/9	W/dB
	11	6/7/95	--	West Fork Delta	14.0 TEL M	10/9	W/dB
1614 M	4	6/1/91	109 (240)	Hayes Creek	12.0 TEL H	144/145	IG/G
1615 M	4 <sup>d</sup>	6/3/91	125 (275)	Hayes Creek	5.5 TEL H	112/111	R/W
1616 M	5	5/7/92	169 (370)	Mystic Creek	14.0 TEL H	239/240	Y/R
1617 F	2	5/7/92	54 (120)	Wood River	3.6 TEL M	847/848	R/G
	3	5/9/93	43 (95)	Wood River	3.6 TEL M	848/847	IG/R
	4	5/27/94	84 (185)	Wood River	3.6 TEL M	848/847	IG/R
	5	6/9/95	105 (230)	Kansas Creek	7.0 TEL M	374/118	IG/R
	6	5/4/96	120 (265)	Kansas Creek	4.2 TEL M	374/118	IG/R
1618 F	2	5/7/92	54 (120)	Wood River	3.6 TEL M	209/210	IB/G
	3	5/9/93	49 (107)	Virginia Creek	3.6 TEL M	209/210	IB/G
1619 F	2	5/7/92	68 (150)	Bonnefield Creek	3.6 TEL L	201/202	R/R
1620 M	2	5/7/92	75 (165)	Bonnefield Creek	3.6 TEL M	229/230	IB/IB
1621 M	2	5/7/92	82 (180)	Bonnefield Creek	3.6 TEL L	147/148	mG/Y
1622 M	2 <sup>d</sup>	5/9/92	100 (220)	Wood River	3.6 TEL M	143/236	Y/Y
1623 F	2 <sup>d</sup>	5/9/92	95 (210)	Wood River	3.4 TEL M	127/126	O/dB
	3	5/9/93	93 (205)	Wood River	3.6 TEL M	191/192	O/dB
	5	6/6/95	107 (235)	VAMB Mystic	7.2 TEL M	191/192	O/dB
	6	6/3/96	111 (245)	Mystic Creek	7.0 TEL M	191/192	O/dB
1624 F	2	5/10/92	70 (155)	Molybdenum Ridge	3.6 TEL M	245/246	dB/IB
	3	5/8/93	57 (125)	Molybdenum Ridge	3.4 TEL M	245/246	dB/IB
	4	5/28/94	98 (215)	Molybdenum Ridge	6.0 TEL M	245/217	dB/IB
	5	6/2/96	110 (243)	S. Molybdenum Ridge	6.5 TEL M	123/217	-/-
1625 M	2	5/10/92	84 (185)	Molybdenum Ridge	3.6 TEL M	243/244	R/Y
1626 F	16	5/23/92	109 (240)	Dry Creek	6.0 TEL L	150/233	W/IB
1627 F	3	5/7/93	73 (160)	Dry Creek	3.6 TEL M	997/998	Y/IB
	5	5/29/95	109 (240)	Slide Creek	6.0 TEL H	378/379	Y/IB
1628 F	2	5/7/93	45 (100)	Dry Creek	3.6 TEL M	173/174	IG/R
	3	5/8/94	64 (140)	West Fork Delta	3.6 TEL M	173/174	IG/R
	4	5/3/95	84 (185)	Buchanan Creek	4.5 TEL L	173/174	IG/R



Table 1 Continued

Bear no./sex	Cem. age (yr)	Date of capture	Weight kg (lb)	Location	Drug dosage <sup>a</sup>	Ear tags <sup>b</sup>	Markers <sup>c</sup>
1629 F	5	5/6/96	112 (247)	Forgotten Creek	5.8 TEL L	173/174	-R
	2	5/7/93	41 (90)	Dry Creek	3.6 TEL M	230/231	R/mG
1630 F	3	5/8/94	59 (125)	West Fork Delta	3.6 TEL M	231/230	mG/R
1631 F	3 <sup>d</sup>	5/7/93	59 (125)	Wood River	3.6 TEL M	168/167	dB/G
	5 <sup>d</sup>	5/9/93	89 (195)	Virginia Creek	5.6 TEL M	169/170	mG/O
	7 <sup>d</sup>	6/10/95	127 (280)	Upper Wood River	7.2 TEL M	169/375	mG/O
1632 M	10 <sup>d</sup>	5/10/93	277 (610)	Tatlanika Creek	12.2 TEL M	161/162	IG/mG
	11	5/30/94	281 (620)	Mystic Creek	13.4 TEL M	372/373	IG/mG
1633 M	3 <sup>d</sup>	5/8/94	66 (145)	Trident Glacier	6.4 TEL H	238/239	Gy/IB
1634 F	Cub	5/27/94	8 (18)	Mystic Mountain	0.25 TEL L	-/988	-/-
	1	6/6/95	52 (115)	Wood River Bluffs	4.7 TEL M	7/8	Bk/IB
	2	5/4/96	86 (190)	Mystic Mtn.	3.8 TEL M	7/8	-/-
1635 F	Cub	5/27/94	6 (14)	Mystic Mountain	0.25 TEL L	157/-	-/-
	1	6/6/95	52 (115)	Wood River Bluffs	4.7 TEL M	19/20	W/Y
1636 F	4 <sup>d</sup>	5/27/94	129 (285)	Mystic Mountain	6.0 TEL M	382/383	dB/Y
	5 <sup>d</sup>	6/5/95	111 (245)	Coal Creek	7.2 TEL M	383/382	Y/dB
1637 M	4 <sup>d</sup>	5/27/94	188 (415)	Mystic Mountain	7.0 TEL M	992/993	mG/W
1638 M	1	5/28/94	54 (120)	Delta Creek	3.6 TEL M	358/359	Y/mG
1639 M	4 <sup>d</sup>	5/29/94	220 (485)	East Fork Delta	10.5 TEL M	354/355	Bk/R
	6	6/1/96	262 (578)	Trident Glacier	13.0 TEL M	354/-	-/-
1640 M	2	5/2/95	80 (175)	Dry Creek	4.5 TEL M	13/14	W/mG
	2	6/8/95	64 (140)	Dry Creek	6.0 TEL M	13/14	W/mG
1641 F	2	5/2/95	57 (125)	Dry Creek	4.5 TEL M	23/24	R/W
	2	6/7/95	61 (135)	Dry Creek	5.5 TEL M	23/24	R/W
1642 F	6 <sup>d</sup>	5/2/95	125 (275)	Healy Creek	6.0 TEL M	4/3	IB/R
1643 M	Cub	6/6/95	13 (29)	VAMB Mystic	0.5 TEL H	17/-	-/-
1644 M	Cub	6/6/95	11 (24)	VAMB Mystic	0.5 TEL ?	-/18	-/-
1645 M	4 <sup>d</sup>	6/7/95	120 (265)	Forgotten Creek	7.2 TEL ?	5/6	IB/W
1646 F	3	6/7/95	61 (135)	Upper West Fork	7.2 TEL M	328/329	O/R
	4	6/4/96	83 (185)	West Fork Little Delta	5.0 TEL M	328/329	O/R
1647 M	5 <sup>d</sup>	6/9/95	270 (595)	Virginia Creek	13.2 TEL L	11/12	IB/W

Table 1 Continued

Bear no./sex	Cem. age (yr)	Date of capture	Weight kg (lb)	Location	Drug dosage <sup>a</sup>	Ear tags <sup>b</sup>	Markers <sup>c</sup>
1648 M	2	5/4/96	96 (212)	Chute Creek	A TEL M	113/114	mG/mG
1649 F	2	5/4/96	86 (190)	Chute Creek	3.8 TEL	171/172	W/IG
1650 M	5 <sup>d</sup>	5/5/96	163 (359)	Trident Glacier	7.4 TEL M	293/294	IB/W
1651 F	7 <sup>d</sup>	5/5/96	85 (187)	Trident Glacier	5.6 TEL M	267/268	IB/Y
1652 F	1	5/5/96	28 (62)	Trident Glacier	2.4 TEL M	119/120	IB/Gy
1653 M	1	5/5/96	28 (62)	Trident Glacier	2.4 TEL M	135/136	O/Y
1654 F	17 <sup>d</sup>	5/5/96	128 (283)	Trident Glacier	5.8 TEL M	141/142	W/Bk
1655 M	1	5/5/96	57 (126)	Trident Glacier	4.0 TEL M	104/110	Gy/Y
1656 M	2	5/6/96	--	Molybdenum Ridge	4.2 TEL M	259/260	R/G
1657 F	2	5/6/96	--	Molybdenum Ridge	4.0 TEL M	253/254	Y/W
1658 F	4 <sup>d</sup>	5/6/96	89 (196)	O'Brien Creek	4.2 TEL M	149/150	dB/G
1659 M	4 <sup>d</sup>	6/1/96	156 (345)	West Fork Little Delta River	9.0 TEL M	273/274	mG/IG
1660 M	2	6/1/96	88 (195)	Trident Glacier	4.6 TEL M	247/248	O/IG
1661 M	1	6/2/96	45 (100)	Molybdenum Ridge	3.0 TEL M	228/229	-/-
1662 F	1	6/2/96	23 (50)	Molybdenum Ridge	3.0 TEL M	192/191	-/-
1663 M	1	6/2/96	45 (100)	Molybdenum Ridge	3.0 TEL M	231/232	Y/R
1664 F	1	6/2/96	29 (65)	Molybdenum Ridge	3.0 TEL M	297/298	-/-
1665 F	1	6/3/96	48 (105)	Glacier Creek	3.0 TEL M	289/290	IB/O
1666 M	1	6/3/96	50 (110)	Glacier Creek	3.0 TEL M	287/288	O/W
1667 F	1	6/3/96	45 (100)	Glacier Creek	3.0 TEL M	279/280	IG/IG
1668 M	1	6/3/96	29 (63)	Big Grizzly Creek	2.5 TEL M	277/278	IG/IB
1669 F	1	6/3/96	32 (70)	Big Grizzly Creek	2.0 TEL M	286/285	W/O
1770 F	1	6/4/96	44 (96)	East Hayes Creek	3.5 TEL M	296/295	R/dB
1771 M	1	6/4/96	43 (95)	East Hayes Creek	3.5 TEL M	102/101	IB/O

<sup>a</sup> Dosage in ml. No designation indicates use of phenylcyclidine hydrochloride/acepromazine maleate at 100 mg/ml concentration; use of M-99 is designated M99 at 1 mg/ml concentration; use of Telazol<sup>®</sup> at 200 mg/ml concentrations is designated TEL; A denotes multiple injections with unknown effective dosage. Drug effects were as follows: L = light, M = optimum, H = heavy.

<sup>b</sup> Ear tag numbers, left/right.

Table 1 Continued

<sup>c</sup> Marking designations:

Colors: R, red; G, light green; mG, medium green; Gr, gray; O, orange; lB, light blue; dB, dark blue; W, white; Bk, black; Pp, purple; Y, yellow.

Marker types: One or 2 color combinations were used for ear flags, e.g., O/W is orange in left ear, white in right ear; -/G is no flag, left: green, right.

<sup>d</sup> Estimated.

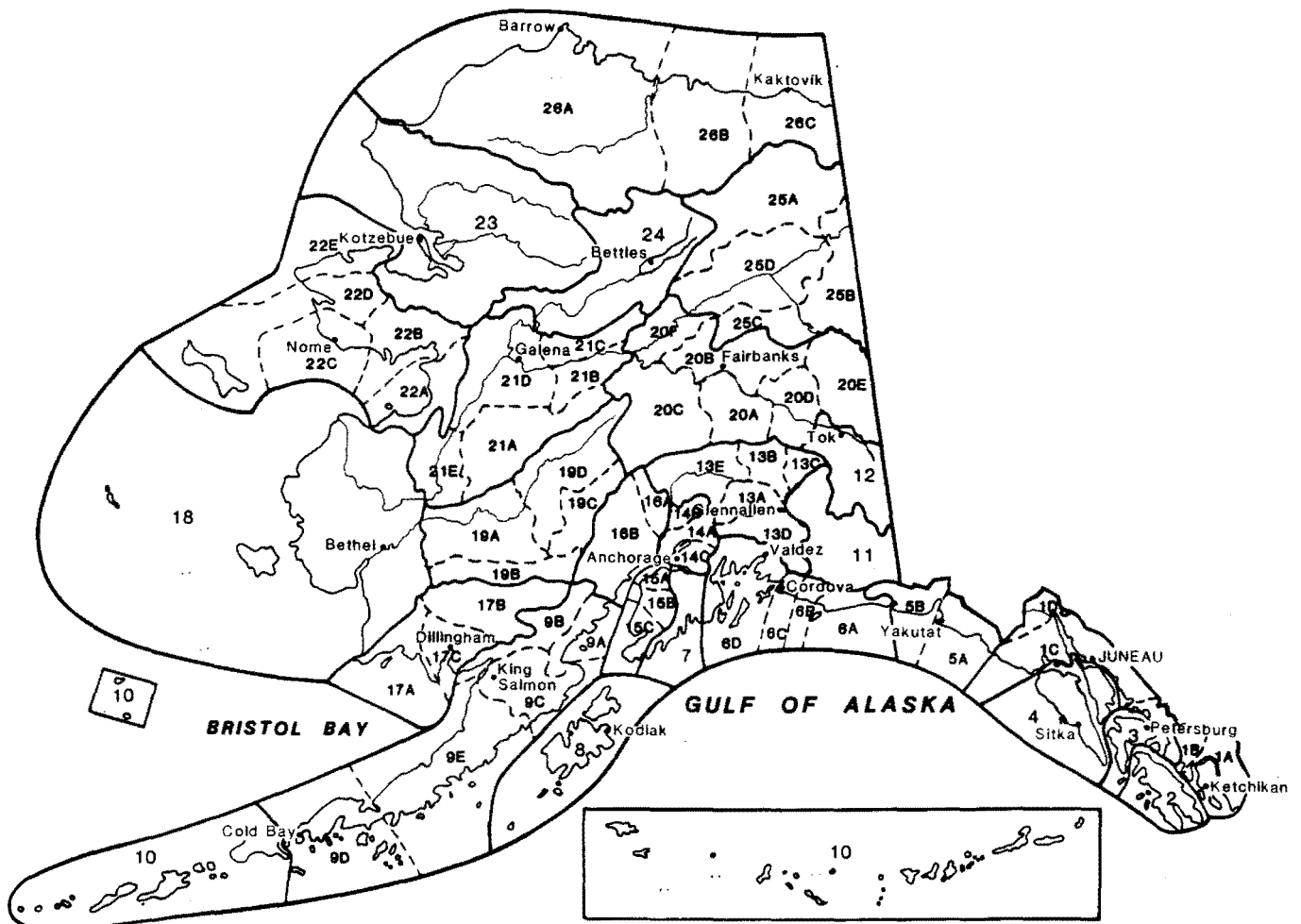
<sup>e</sup> Data collected but not recorded.

<sup>f</sup> Ear tags only and not ear-flagging material were used to mark cubs of the year; therefore, for these bears only, marker colors indicate ear tags and not ear flags.

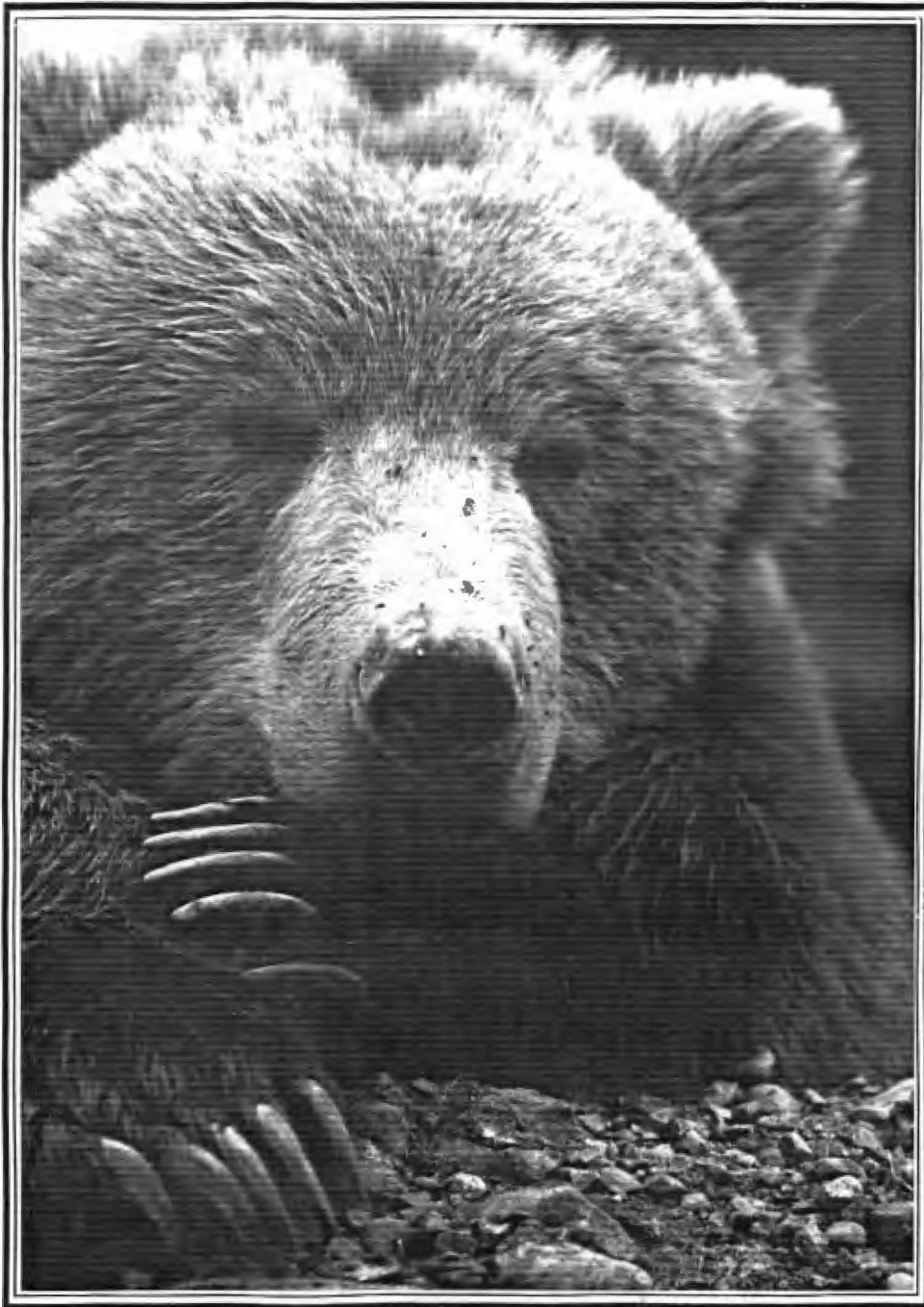
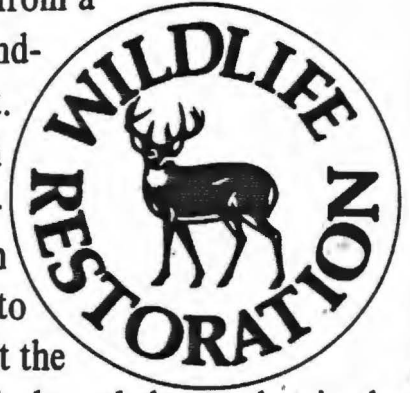
<sup>g</sup> Bear No. 1378, an offspring of No. 1311, was darted but not immobilized on 20 May 1986. We left her with her mother to recover from the darting chase, but she was killed by hunters before we returned. We include her in this table for ease of data analysis.

<sup>h</sup> Dosages of Telazol<sup>®</sup> administered at a concentration of 300 mg/ml, instead of the usual 200 mg/ml.

# Alaska's Game Management Units



The Federal Aid in Wildlife Restoration Program consists of funds from a 10% to 11% manufacturer's excise tax collected from the sales of handguns, sporting rifles, shotguns, ammunition, and archery equipment. The Federal Aid program allots funds back to states through a formula based on each state's geographic area and number of paid hunting license holders. Alaska receives a maximum 5% of revenues collected each year. The Alaska Department of Fish and Game uses federal aid funds to help restore, conserve, and manage wild birds and mammals to benefit the public. These funds are also used to educate hunters to develop the skills, knowledge, and attitudes for responsible hunting. Seventy-five percent of the funds for this report are from Federal Aid.



KEN WHITTEN