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CAPTURE OF GRAY WOLVES
IN THE KANUTI REFUGE:
INITIATION OF FIVE-YEAR STUDY

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ABSTRACT: Fourteen wolves in 5 packs were captured and fitted with radio-collars in or near the Kanuti National Wildlife Refuge between 18 and 21 March 1990. There may be as many as 5 more packs using all or part of the refuge. Average pack sizes observed were only half of the estimated average size of packs in March 1989. An estimated minimum 31% of the (pre-hunt) population of wolves was harvested in March 1989. In 1990, there was no evidence of wolf hunting during the capture effort.

INTRODUCTION

A study of the interior gray wolf (*Canis lupus pambasileus*) was initiated in 1990 in response to a need for baseline information on numbers, distribution, movements, moose-wolf ratios, harvest, and other parameters. With a better understanding of these relationships, strategies to regulate the hunting of wolves in the Kanuti Refuge can be improved.

The study objectives were (1) Determine the number, structure and seasonal distribution of wolves captured in the Kanuti Refuge; determine boundaries of pack territories, and density of wolves from fall-spring location data, (2) Obtain an estimate of wolf survival (turnover) and dispersal, and estimate the annual harvest (legal and illegal) of the population that is taken in winter, (3) Estimate annual winter moose-wolf ratios to make an initial assessment of the moose-wolf relationship in the Kanuti, (4) Determine the species composition of ungulate prey taken by wolves, (5) Compare findings on population parameters of wolves in this study with those of other studies in interior Alaska, and (6) Formulate improved management strategies to conserve wolves, prey and habitat in their natural diversity as mandated by the Alaska National Interest Lands Conservation Act.

The first year budget of the approved study was cut 50.8% two weeks prior to the initial capture effort. Accordingly, the study objectives were "scaled down".

METHODS

The capture effort was carried out between 18 and 21 March 1990. Two Piper Super Cubs were used to locate wolves. A Bell 206B Jet Ranger III was used to pursue and capture wolves. Wolves were immobilized with 5.8 - 15.0 mg/lb (varied with animal weight) of Telazol (300 mg/mL) in a solution of 2.5 ml sterilized water, and 0.5 ml propylene glycol (to prevent freezing of solution). Cap-chur equipment (Palmer Chemical and Equipment Co., Douglasville, Ga.) was used for dart delivery. Wolves were fitted with radio collars (Telonics, Mesa, Ariz.) having mortality sensors. Small orange Herculite fabric (Vaughan Brothers, Inc., Portland, Oreg.) was riveted to each collar (as visual marker). Body and tooth measurements were taken. Blood (femoral artery) and hair samples were also collected. Data on each capture effort were also recorded. Camassial

teeth were photographed. All wolves were given 1-2 ml (IM) of Durapen (Vedco, Overland Park, Kans.), an antibiotic.

RESULTS AND DISCUSSION

Fourteen individuals in 5 packs were captured and collared (Fig. 1, Appendix 1), but associations in 2 packs were unclear. The Stout Island pack of 2 may be associated with another group now being followed by the National Park Service. Members of the Taclodahten Lake pack were captured in the same vicinity as a lone female, the previous day. This female may be part of the pack, but at this writing she was a loner.

There may be as many as 5 more packs using all or part of the Kanuti that were not collared (Fig. 1, Table 1). The National Park Service has members from 2 packs whose movements have overlapped the northwest and northeast refuge (B. Dale, pers. commun.). The capture team pursued the Sithylemenkat Lake Pack on 21 March, but they escaped into the southern mountains, eluding capture. Depleted funds ultimately prevented us from capturing pack members.

Estimates of average sizes of packs observed during the capture was only half of the estimated average size of packs in March 1989 (Table 1). Between year comparisons of packs captured in 1990 and observed (pre-hunt) in March 1989 averaged 9.0 members in 1989 and 5.4 in 1990. These observations suggest a large harvest of wolves in 1989, possibly with a significant take of pregnant females, which may have accounted for the smaller average pack size this year. However, natural factors such as interpack strife or a diminishing food base (T. O. Osborne, pers. commun.), and other factors could have contributed to relatively lower average pack size.

Fuller (1989) stated that "annual rates of increase of exploited [wolf] populations vary directly with mortality rates, and harvests exceeding 28% of the winter population often result in declines." An estimated minimum 31% of the pre-hunt population of wolves was harvested in the Kanuti in 1989 (Table 1). The illegal take could have been significantly additive.

Several important land-and-shoot wolf hunting violations in 1989 resulted in the conviction of at least 1 hunter in the Kanuti. This year, there was no evidence of hunting during the capture effort.

RECOMMENDATIONS

1. Bring funding levels back to those in accordance with the study plan so that all Kanuti packs can be studied.
2. In 1990, begin moose trend surveys in sampling units that are included within pack location boundaries, so that moose-wolf ratios can be determined.
3. Examine wolf sealing certificates for that portion of Game Management Unit 24, which includes the Kanuti to better estimate wolf harvest.
4. Examine reported moose harvest in the Kanuti to begin an analysis of hunting mortality.

LITERATURE CITED

Fuller, T. K. 1989. Population dynamics of wolves in north-central Minnesota. Wildl. Monogr. 105. 41pp.

ACKNOWLEDGEMENTS

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Fig. 1. General ranges of wolf packs (dashed lines) observed in March 1989 (A. Greenblatt, Bettles, Alaska, pers. commun.), and general location of wolf capture sites in March 1990. Lines with arrows and question mark point to possible pack associations.

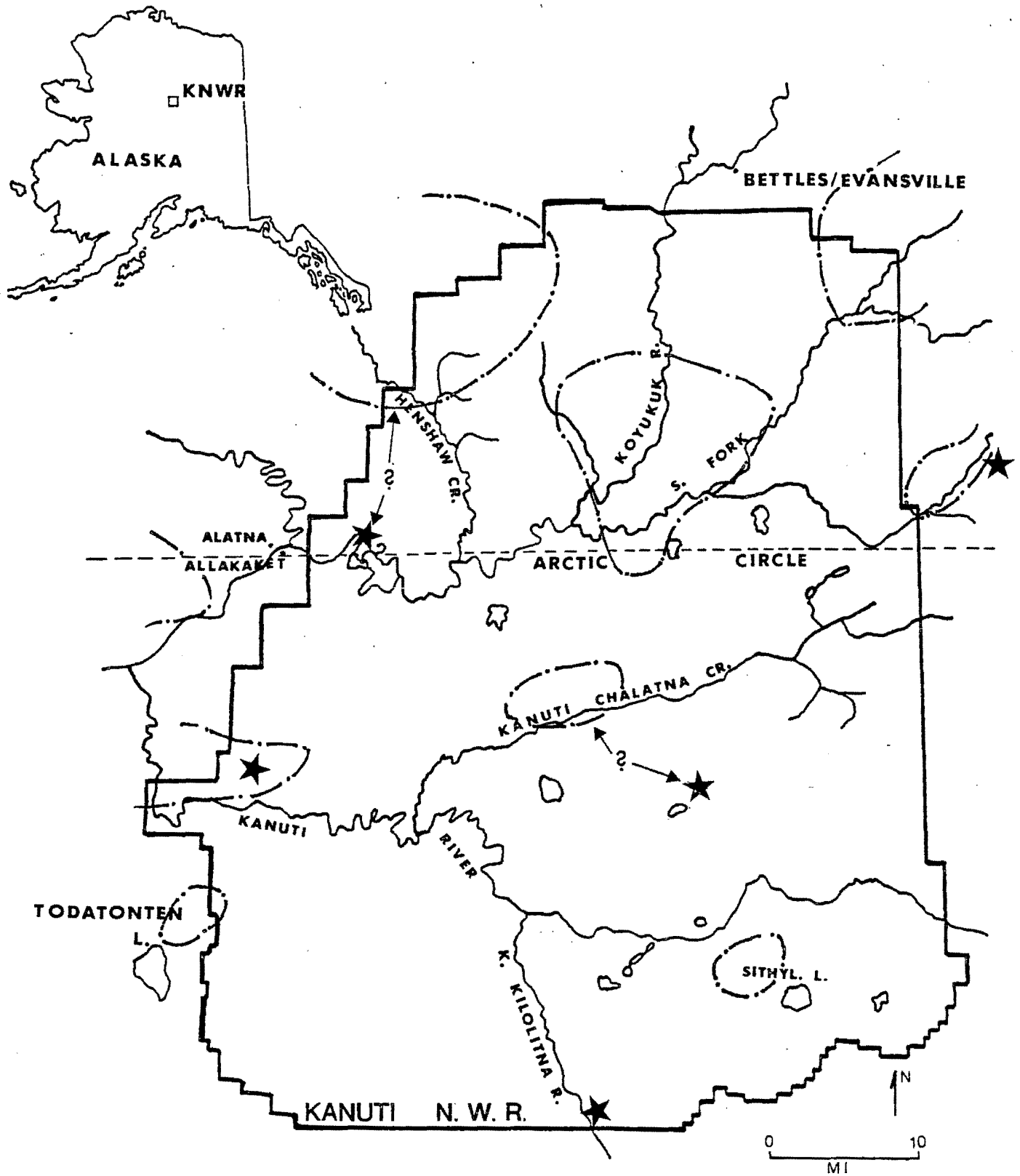


Table 1. Gray wolf packs and estimated harvest^a.

Pack name	Known/estimated number in pack March 1990 (n)	Pre-hunt number March 1989 (n)	Harvest March 1990 (%)
Kanuti Canyon - North ^b	4	15	?
Bonanza Creek ^b	3	3	33
Taclodahten Lake ^b	≥6	5 ^c	?
Upper Kilolitna River ^b	3	?	?
Stout Island ^b	2	?	?
Sithylemenkat Lake	8	11	45
Todatonten Lake	?	15	40
Koyukuk - Central	?	9	11
Henshaw Creek ^d	6 ^e	11	64
Upper South Fork ^f	?	?	?
Means or Totals	5.0	9.9	31

^aBased on information provided by A. Greenblatt, Bettles, Alaska (pers. commun.).

^bPack collared in March 1990.

^cObserved in Kanuti Chalatna drainage in Mar 1989; probably the same pack.

^dStout Island pack probably part of this pack.

^eData from Jan 90 (B. Dale, pers. commun.).

^fThis pack and Henshaw Pack have members radio-collared in Park Service study.

Appendix 1. Gray wolves captured and radio-collared in the Kanuti Refuge and vicinity, 18-21 March 1990.

Date	ID no.	Original pack affiliation	Age ^a	Color	Sex	Weight (lbs)	Original number observed in pack
18 Mar	001	Kanuti Canyon - North	Pup	Gray	F	66	3 gray, 1 black (4)
	003		Pup	Black	F	74	
19 Mar	002	Bonanza Creek	Adult	Gray	M	112	3 gray (3)
	004		Adult	Gray	M	114	
	005		Adult	Gray	F	92	
	006	Taclodahten Lake (F)	Adult	Black	F	108	lone (1)
	007	Upper Kilolitna River	Adult	Gray	M	109	2 gray, 1 black (3)
20 Mar	008		Adult	Black	F	89	
	009		Adult	Gray	M	129	
	010	Stout Island	Pup	Black	F	49	2 black (2)
	011	Taclodahten Lake	Adult	White ^b	F	90	3 gray, 2 white, 1 black (≥6)
	012		Adult	White ^b	F	86	
21 Mar	013		Adult	Black	M	122	
21 Mar	014	Kanuti Canyon - North	Pup	Gray	M	83	

^aPup <12 months; adult >12 months.

^bLight gray backs.

