

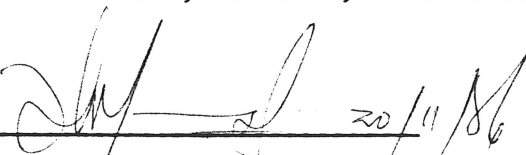
Annual Progress Report

ARCTIC FOX DEN SURVEY - HERSCHEL ISLAND

JULY 24 - 28, 1986

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The 19 arctic fox dens identified by Smits and Jessup (1985) on Herschel Island were examined for fox use during the period July 24-28, 1986. Dens were classified as active if foxes were sighted or if fresh tracks or faeces were present. The presence of juveniles was determined by actual sightings, the presence of small faeces or tracks, or the sound of characteristic barks emitted when disturbed within the dens. The survey was conducted flying low level in a Bell 206-B helicopter, landing at all known or suspected den sites.

Two of the dens were not located, probably due to mapping errors, and an additional 17 dens were identified (Figure 1). No. 43 was no longer recognizable as a den, since all burrows have caved in. The re-calculated den density was 29 dens\*/115 km<sup>2</sup>, or 0.252 dens/km<sup>2</sup>. This is one of the highest reported densities of arctic fox dens in North America. Thirteen dens were classified as "active", and two litters (of 4 and 2 juveniles) were present. In contrast, four natal dens (3 arctic fox and 1 red fox) were identified in each of 1984 and 1985. At least one adult is assumed to have been present at each natal den (nos 37 and 72\*\*). An estimated 6 to 12 single foxes occupied the remaining dens (depending on home range size, which is reflective of prey abundance). Several adult foxes were observed, including 2 pairs, earlier in the summer. Their litters either were not located or failed before the survey. The estimated total arctic fox population was 14 to 20. Descriptions of the newly located dens are given in Table 1.

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\*Not including dens not re-located (nos. 49 and 54), one ruined den (no. 43) and dens located within 200 m of others (i.e. 64 and 65; 66 and 67; 40, 41 and 42 all represent only 3 den "sites").

\*\*A pair of foxes exhibited parental behaviour (barking near den) at den no. 72 in early July. Two kits, probably from the same litter, were observed at the Herschel townsite in September 1986.

The prey base was indexed during and after the survey by snap-trapping small mammals on traplines in characteristic vegetation types (eg. coastal lowland meadow, lower and upper elevation ravine meadows, and xeric upland tundra). The results are presented in Table 2. The small mammal density was significantly lower than that noted in 1985.

Common prey for arctic foxes on the island also includes ptarmigan and other avifauna. Ptarmigan have shown a marked increase in density since 1985 (D. Mossop, in prep.). The foxes presumably depend to a large degree on small mammals, and the decline of the latter has caused a concurrent decline in the number of successful litters. Food habits are presently being determined from an analysis of scats collected during the 1985 survey.

Long time resident and trapper, Elizabeth MacKenzie was interviewed for local wildlife knowledge. She has resided on the island since 1975, staying summers only since 1983. Mrs. MacKenzie noted that the arctic fox population cycle was inverse to that experienced further east (eg. Sachs Harbour). This may indicate that the Yukon offers less than optimal arctic fox habitat, experiencing an influx of foxes only after the population has crashed in the prime habitat to the east and west. She believes that most foxes are present in winter (rather than summer) and are found primarily on the coast and north of the island on open leads. They also frequent ships' garbage dumps (on the ice) and marine mammal carcasses. She once observed up to 30 foxes feeding on hunter-killed caribou carcasses on the island. A beached beluga whale, found on "Osborne Point", had not been discovered by foxes while the author was present on the island. With regard to the lemming cycle, the last year of obvious abundance was 1979. Other fur species she has noted on the island

include ermine, wolverine, red fox, and wolves (pack of 19 pursuing caribou). The author observed approximately 15 caribou and 1 wolverine during aerial surveys. A sub-nivean wolverine den, littered with crushed caribou bones and wolverine faeces was found on the south (leeward) side of den no. 42. Wolverine typically den in snowdrifts in the Arctic.

### **Acknowledgements**

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The author thanks field assistants Marcus Waterreus and Dave Ladret, who also coordinated the project logistics. Darielle Talarico ran the snap-trap lines in the author's absence and made several valuable fox and prey observations as did Richard Ward. The piloting skills of Brian Dougherty (Kenn Borek Air) and Jeff Huntston's camp management were also appreciated.

### **Reference**

Smits, C.M.M. and R.H. Jessup. Den distribution, harvest and management of arctic fox in northern Yukon Territory. Yukon Fish and Wildlife Branch, Department of Renewable Resources. Prepared for Project G-15, Northern Oil and Gas Action Program. 44 pp. and appendix.

Table 1. Descriptions of dens discovered in 1986.

<u>Den No.</u>	<u>Description</u>
56	4 holes
57	2 holes
58	1 hole
59	den in steep peat bank
60	about 20 holes
61	many entrances
62	2 holes
63	"many entrances", old den
64	2 holes, could be new den
65	3 holes, old den 200 m SE of 64
66	8 entrances, 3 of which were destroyed by bear
67	about 35 entrances
68	3 holes
69	one hole, freshly dug
70	one hole
71	one hole, den in steep peat bank
72	several holes

Table 2. Relative abundance of small mammal species (catch per 100 trap nights) on Herschel Island 1985 and 1986. Based on 3104 trap nights. Numbers of captures (n) in parentheses.

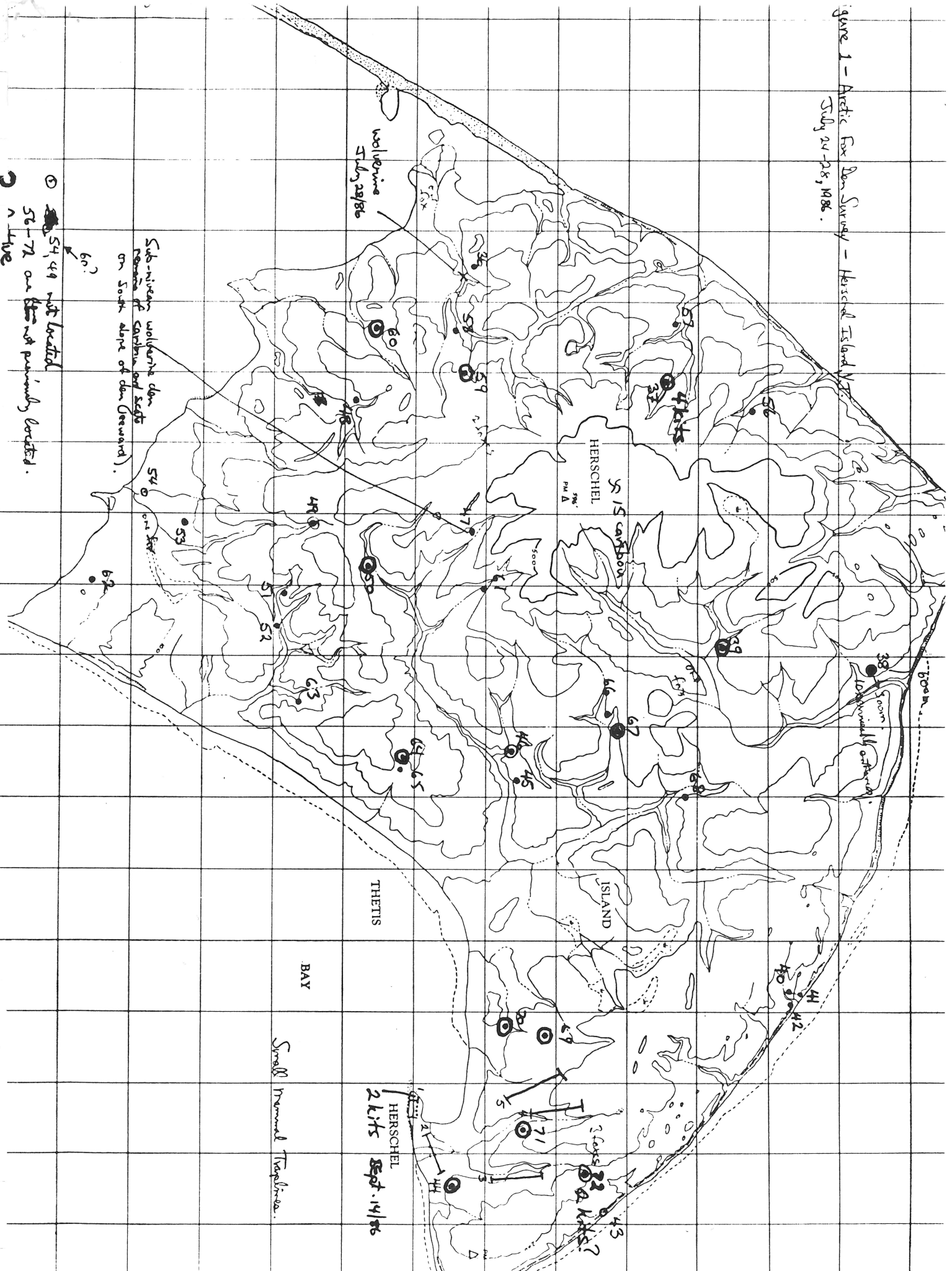
	1985				1986			
	D.g.	L.s.	M.e.	Trap-Nights	D.g.	L.s.	M.e.	Trap-Nights
Townsite	1.67 (1)	3.33 (2)	10.0 (6)	60	0	0	0	0
Coastal lowland meadows	0	1.18 (1)	0	118	0.54 (3)	0.18 (1)	0.18 (1)	552
Low elevation ravine	1.72 (4)	0.43 (1)	3.88 (9)	232	0	0.49 (3)	0.33 (2)	612
High elevation ravine	0.63 (3)	0	0	477	0.42 (2)	0	0	480
Eric upland tundra	2.82 (5)	0	0	177	0.51 (2)	0	0	396
TOTAL OVERALL:	1.22 (13)	0.38 (4)	1.41 (15)	1064	0.34 (7)	0.20 (4)	0.15 (3)	2040

D.g. = Dicrostonyx groenlandicus

L.s. = Lemmus sibiricus

M.e. = Microtus oeconomus

Figure 1 - Arctic Fox Den Survey - Herschel Island N.T.  
 July 20-28, 1986.



① 54, 49 not located  
 56-72 are ~~den~~ not primarily located.  
 n live