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progress report, February 1 - July 30, 1960.  
Yellowknife, CWS, 1960.

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CANADIAN WILDLIFE SERVICE.

Progress Report  
Barren Ground Caribou - Wolf Interrelations.

February 1 - July 30, 1960.

by

Ernie Kuyt.

Yellowknife, November, 1960.

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## INTRODUCTION.

The Barren Ground Caribou herds on the Arctic mainland have been under close surveillance for several years. The caribou is still a most important factor in the economy of many Northern Indians and Eskimos. The purpose of the writer's research is the gathering of information about the interrelationships between the Barren Ground Caribou and the wolf, after man, the caribou's chief predator.

The research will consist of the study of food habits of wolves from stomach and scat analyses and from actual feeding observations near occupied wolf dens and away from dens. The information will also be collected about the wolf itself in order to understand better the biology of the predator. Foremost should be the study of reproductive material from wolves in order to become acquainted with the course of reproductive events. Included in the study also will be the collection of measurements, weights and other data from wolves, collected at Predator Control Stations. Material suitable for the study of internal parasites will also be collected. It is expected to have this material identified by Parasitologists.

It is hoped that a sufficient number of young wolves can be tagged and recovered to illustrate the supposed migration routes of wolves and whether or not these routes are parallel to those of the supposed main prey species, the Barren Ground Caribou.

The attached report is in the form of a Progress Report covering the period January 20 until July 30, 1960. The bulk of field studies were

carried out in this period. The work has been of an exploratory nature in order to help decide on the location of a suitable study area and<sup>on</sup> the methods of study to be employed.

#### ITINERARY

The writer began his employment with the Canadian Wildlife Service on January 1, 1960 and, after attending field staff meetings in Ottawa, including a symposium on wolf-caribou relationships (the writer's assigned study - project) I reached my Headquarters in Yellowknife on January 20, 1960.

On February 21 a flight was planned to visit predator control officers in the Northwest Territories. The writer accompanied Messrs. P.X. Mandeville and W. McNeill, Department of Northern Affairs and National Resources employees on the flight in the Beaver aircraft, piloted by Mr. Pat Carey. After refueling at Contwoyto Lake, the plane's skis came in contact with rocks upon takeoff, and were damaged. The flight was discontinued and the aircraft carried the passengers back to Yellowknife.

After another unsuccessful attempt on February 23, we finally got away on February 25 in an "Otter" aircraft. Predator Control Officers Magrum, D'Acoust and Riddle were visited at their trapping cabins. The flight also touched Baker Lake and Eskimo Point where Eskimo predator<sup>y</sup> animal hunters were contacted by Mr. McNeill, and Stony Ridge, Saskatchewan.

On February 28, several camps of native hunters and trappers in the border area between Saskatchewan and North West Territories were visited and information on caribou distribution and utilization were obtained. Some of this information has already been reported to Head Office in letter form. Additional information was obtained by the writer March 1 when the writer accompanied Mr. John Mc Gilp of the Dept. of Indian Affairs on a trip to visit the same Chipewyan Camp as on February 28 in order to distribute some buffalo meat and fishnets. It had been observed on the February 28 flight that caribou meat was being fed to sled dogs. I returned to Yellowknife on March 2.

Strychnine Bait Station checks were made on March 16, 17 and on 21 in connection with caribou surveys. A short report is included on the results of examinations of stomach contents.

On May 9 I accompanied by field assistant G.B. Kolenosky I chartered to Pat Lake, Manitoba for preliminary field studies in that area between May 9 and June 6. We returned to Yellowknife on June 9. The report on the findings at Pat Lake is included.

On June 16 we chartered to a camp on the Thelon River where field studies were carried out until July 24. The writer returned to Yellowknife on July 25 and went on leave on July 26. Fieldnotes and other data have been written up in a preliminary form.

PAT LAKE REPORT.

The Northwestern portion of Manitoba from past reports has for years been a favourite denning area of wolves. These wolves are reported to be "caribou-wolves" or "barren ground wolves", not the so-called "timber wolves". After corresponding with Mr. J.D. Robertson, Manitoba Enforcement and Predator Control Officer it was decided to accept the offer of the Manitoba Game Branch and use their cabin at Pat Lake, Manitoba. Assistant G.B. Koleno and the writer spent the period of May 9 to June 6 at the cabin. The chief purpose of the fieldtrip was to evaluate the area as a future study area.

It had been planned to locate several wolf dens and measure and eartag the whelps as part of a wolf tagging project, in the hope of learning more about the migratory movements of these wolves. It has been suggested that the wolves from the North West part of Manitoba follow the caribou herds into the Northwest Territories after the denning season, as soon as the young wolves are able to keep up with the adults.

The absence of wolves in the North West Territories over large parts of the area has been commented on by several observers during the last year or so. The writer made a long flight from Yellowknife via Baker Lake, Eskimo Point, Ennadai Lake, Stony Rapids, Fort Smith to Yellowknife in February-March, 1960. Not one wolf was spotted by any

of the six observers during the long flight, although we passed over some of the more important winter concentrations of caribou.

It was therefore that it was decided to work from the Pat Lake cabin in Manitoba, where at least a fair population of wolves is reported to be denning each Spring.

From the outset we were troubled by unfavourable weather. Indeed an early breakup had the entire field trip in doubt until the last possible moment. Due to deteriorating ice conditions, charter aircraft in the Uranium City - Stony Rapids area had already been taken off the ice on April 25-30. After checking with several airlines it was finally decided to charter in from Yellowknife in a ski-wheel equipped aircraft.

During the entire stay at Pat Lake the weather was deplorable. Freezing rain, sleet, snow (4" fresh snow fell on June 2 and 3) and strong winds were the order of the day.

The results of our trip were quite disappointing. Although Northward moving caribou were observed (in decreasing numbers as the season progressed) as late as May 22, in vain did we look for any sign of wolves among the eakers and through the forests where deep snow made the going very difficult. Two bait stations of the Manitoba Game Branch on Pat Lake were examined. Skulls, bones, fur of at least six wolves were found near the two baits. According to Mr. J.D. Robertson 14 wolves were taken on these 2 baits. It is doubtful that these 14 included all of the 6 wolves we found, however it is felt that the estimated 14-20 wolves

killed at the 2 baits probably represent a large segment of the breeding population of the area.

Two survey flights were made on June 1, after the caribou had left the area. On the first flight most of the large eskers North of Pat Lake were covered, while on the 2nd flight areas other than eskers to the South of the camp were surveyed. Several wolf tracks were observed well North of the cabin at Pat Lake, but no wolves or other wildlife was seen except three or four black bear.

One of the local trappers near Pat Lake, Mr. Horace McCallum was interviewed on May 24 and May 29. McCallum and his son are energetic trappers and have in the past submitted the largest number of wolf pups for bonus payment. When we talked with McCallum he mentioned having collected only 8 young wolves to date as compared with about 40 the previous year. Although McCallum had hopes of increasing his take of wolf pups (and most likely he succeeded), he felt that the number of wolves in the area of his trap line had decreased materially.

Mr. McCallum was able to give us the approximate location of three wolf dens he had found occupied in Spring of 1959 and 1 den from which he had collected 7 young during our stay at Pat Lake.

Comments:

The decrease in wolf numbers as pictured from reports by trappers and from personal observations in all probability is a result of effective predator control programs in the North West Territories



and the provinces of Saskatchewan and Manitoba. This will make it difficult to find an area with suitable numbers of wolves for study purposes. The Pat Lake area may be suitable, although a great deal of difficulty will be encountered in finding sufficient wolf dens in close proximity. The country is difficult to travel through in the denning season and a dog team and toboggan would be required for groundwork. Far better would be to have a light aircraft at the camp for the duration of the denning season, if continued work is contemplated in the Pat Lake area. The aircraft would have to be equipped with radio and ski-wheels (floats may be necessary towards the end of the denning period) and would have to be capable of being manoeuvred at low altitude and low speed. (Two types of aircraft are suitable for this kind of work the "Supercub" and Aerona "Champion")

It is my feeling that, for various reasons (economical, *et*) it may be better to relinquish the Pat Lake region as a study area if another and perhaps better suitable area can be located.

Thelon River Report.

During the period June 16 until July 26, 1960 the writer and assistant G.B. Kolencsky were engaged in carrying out preliminary studies in connection with the prey-predator relationship between barren ground caribou and wolves.

Investigations were carried out from a base camp on the Thelon River, approximately 30 m. West of Beverly Lake. Travel was mainly on foot and by canoe. A light aircraft was used in surveys on only one occasion.

Purposes of the investigation include the acquisition of information about feeding habits and behaviour of wolves, singly and as a family unit, the location of wolf dens (occupied or vacant), the collection of information in respect to the young occupants of the dens, the collection of data in respect to the wolf's chief prey species, the barren ground caribou and the acquisition of ecological data.

Results.

A. Foodstudies.

The amount of biological data collected during our Thelon River stay, I feel has been encouraging, considering the short duration (June 16 - July 26.) Unfortunately, in a way, the writer's period of field study was cut short because of prior commitments. Our departure from the Thelon Area at the time that young wolves are beginning to leave the dens precluded our collection of any data in connection with the

hunt for foods of the wolves as a family unit. Indeed, practically no observations were made of hunting wolves. One has to be fortunate in seeing a wolf hunt and it must be remembered that during the entire Cooperative Barren Ground Caribou Survey only one or two isolated instances of hunting wolves were observed.

In order to learn more about the food habits then, we must study the evidence left by the wolf, carcasses and droppings. A number of droppings were collected near wolf dens and on trails away from dens. At the time of writing these have not yet been analyzed - facilities are lacking in Yellowknife for this sort of work.

Remains of four different caribou were found, all of them near dens. A skull of a 6 year old caribou unidentified as to sex was found near an unoccupied wolf den as well as remains of several Ptarmigan.

Remains of three other caribou were found near a suspected den. A large bull, approximately 5 years old had been killed by a wolf or a barren ground grizzly. Tracks of both animals were observed near the kill with the grizzly apparently having eaten the lion's share. The caribou had its right femur broken; it could not be determined whether the wolf or the bear had done the actual killing.

A second caribou had been killed within 1 mile of the first kill. Also a month old calf had been killed recently. The wolves had not yet fed on the still warm carcass.

No wolves were collected and therefore no stomachs were examined.

In connection with food studies a start was made in the field with the collection of reference material for analyses of scat and stomach contents - mainly skeletons of small mammals and some birds.

B. Denning Studies.

On June 28 and July 24 two occupied dens were located.

A suspected third den even after a long search could not be found, although both parents were in the vicinity and evidence of much recent activity (caribou carcasses, tracks and dens) was noted. Since my return to Yellowknife I have obtained the location of another occupied den, further upstream <sup>on the Thelon?</sup> in the Grassy Island area.

Six young wolves, estimated age 3 weeks were found in a den on an island in the Thelon. The island also harboured a pair of denning wolves in the Spring of 1957. The young wolves were sexed, measured and weighed and particulars about their pelage noted. Five of the cubs were ear-tagged and returned to the den.

Weights and measurements are tabulated in the accompanying chart.

(den I).

*when collected*

The sixth cub, a large female is now in Yellowknife and Mr. Douglas, Game Management Officer, who is looking after the animal has weighed the animal on several occasions. The cub was weighed and measured by me on November 8 and at that time weighed only 38.5 lbs. which is considered below normal. The cub is fed almost exclusively on fish.

Three young wolves (age estimated at 6 or 7 weeks) were captured after some difficulty at a den near the Back River. The three cubs were measured, weighed and eartagged. The results are tabulated in the accompanying chart (Den II).

C. Observations.

In order to secure additional data on wolf biology, sightings of wolves are recorded, the kind of activity the wolf is engaged in and the time wolves are under observation noted down in minutes in order to build up a collection of "wolf-hours".

Only eight or ten different wolves were observed during our month stay in the Thelon River. Most of these wolves were seen as pairs in the vicinity of their dens. The "wolf-hours" collected would be more valuable if the wolves under observation are unaware of the observer's presence. This is almost impossible to accomplish - wolves have extremely keen eyesight and probably are aware of the observer at all times even if they may not show it.

Every one of the wolves sighted along the Thelon River <sup>were</sup> ~~were~~ of a similar very light grey, almost white colour. Several of them had a light grey dorsal band. The young cubs were greyish with many brown patches. The ears, neck and feet were quite brown. The captive cub in Yellowknife has lost a good deal of its brown colour and is now predominately light grey with light creamy-yellow legs.

Ecological data.

A. Mammals.

As part of the ecological study of the area, records were kept of observations of mammals and birds. A total of 28 mammals was collected

and the skulls and skins as well as pertinent data were donated to the National Museum of Canada. At time of writing no word has yet been received about the identification of the specimens.

B. Birds.

The nests or broods of 59 birds were found during regular field duties. Information about the nests and broods has been submitted to the Saskatchewan Museum of National History, Regina, Saskatchewan, on special "Nest Record Cards" provided by the Saskatchewan Museum for that purpose. It is contemplated to compile an annotated list of the birds observed near our camp. A short report, dealing with the recovery of a 3 year old non-breeding banded Canada Goose near our camp, has been written up in a preliminary form. It is hoped to have this report published at a later date.

C. Plants.

A collection of 86 plants made in the vicinity of camp and on regular field trips was submitted to the National Museum of Canada. The plant collection was identified by Dr. D.E. Forsild, Chief Botanist who informed me in an accompanying letter that the collection is valuable in that it was made in an area comparatively unknown botanically, and that several of the plants submitted extend the known range of some species.

It is planned to continue the collection of mammals and plants in order to learn more about the ecology of the area.

Observational data were collected on movements, numbers, sex and age, wherever possible of caribou. Caribou were present in small numbers during our stay on the Thelon River. They appeared to be

increasing in number towards the end of our stay, perhaps as a result of westward movements of animals occupying the area North of Beverly Lake.

Muskoxen were seen only on two or three occasions. They appear to move into the area towards the end of the summer from farther upstream where they are much more common than in the vicinity of the base camp.

Weights and Measurements of 6 Young Wolves. (Den I)

July 1, 1960.

		WT.	TL.	TV	RHF	EFN	HT	Tag.			Tattoo	
								Girth	L. Bar	R. Bar	R. Bar	Bar
1.	♂	9.5	700	170	145	70	315	-	203	204	13	
2.	♀	9	750	185	140	65	320	-	205	206	14	
3.	♂	10	720	170	140	70	300	-	207	208	15	
4.	♂	10	700	180	135	70	300	-	209	210	16	
5.	♀	7	680	130	135	65	275	-	211	212	17	
6.	♀	9.7	700	170	130	65	310	-	-	-	12	
		38.5	1395	345	245	105	565					

620-These are weight and measurements of Wolf # 6, taken on November 8, 1960.

July 24, 1960. Weights and Measurements of 3 Young Wolves (Den II)

1	♀	15	820	200	185	86	-	470	217	218	-
2	♂	20.5	980	230	200	95	-	510	219	220	-
3	♀	18.5	940	230	185	85	-	465	221	222	-



General Discussion.

From preliminary studies in the Thelon River Area during a period of 5 weeks it appears that many factors would favour the area as a site of continued wolf research.

Two, and perhaps three pairs of denning wolves were located in a small area near camp. An additional occupied den was found by Mr. Dalton Muir of the National Film Board further upstream on the Thelon River. With a longer period of fieldwork, more extensive aerial support by a small aircraft and a larger canoe enabling all-weather travel on the river I feel that a considerably larger area can be covered and consequently more information can be gathered about wolf-biology, especially during the denning season and immediately following the time the young wolves leave the den.

Food Studies.

Mr. Muir has indicated that he plans to return to his campsite and continue shooting of movie film near the wolf den located by him. He plans on building a blind near the den which will serve as a shooting platform. Mr. Muir has informed me that if the wolves are not frightened away, he would like to share the platform with me for a period of time. This would be an excellent opportunity to obtain valuable information on the family life of wolves and perhaps feeding habits.

In line with studies of foodhabits I anticipate continuing the collection of wolf droppings. These necessarily will have to be stored until such time as proper laboratory facilities are available. In all likelihood the present small collection from the Thelon River will be

analyzed this winter.

The collecting and analyzing of stomach contents will continue wherever and whenever possible. Efforts will be made to collect stomachs from wolves on baits this winter. Frequently material other than bait is found in the stomachs which will be an indication of prey taken prior to death. In the stomachs examined so far (see separate report and table) it has been fairly easy to separate the bait from other stomach contents.

#### Biology.

#### Reproduction.

Knowledge of the reproductive activities of the wolf is highly desirable.

The writer does not have much experience in the proper methods employed for the preparation of histological material. The techniques involved and the organization of a reproductive study will have to be discussed with a University professor or biologist experienced in this kind of work. Until such time or until the material is "farmed out" whatever appears to be best, reproductive material will be collected. Some material already has been collected from wolves killed at predator control bait stations. The writer collected reproductive material during the Cooperative Barren Ground Caribou Survey and the reproductive material from wolves is gathered following the previous instructions. It is realized that the effect of the tissues' prolonged freezing and subsequent thawing on the histology of the animals is not accurately known. If these effects are negligible then reproductive material collected at bait stations during the winter and very early spring would be particularly

useful since almost the entire reproductive cycle in wolves in all probability takes place in the period from December to May.

Blood Parasites.

Upon request by Dr. L.C. Choquette, pathologist with the Canadian Wildlife Service, blood samples have been collected whenever possible. Only a small number of samples has been collected so far and no report on the findings will be forthcoming from Dr. Choquette until a suitable number of specimens are collected.

Other Internal parasites.

It is planned to collect for identification specimens of the internal fauna of wolves. From work done recently in Alaska it appears that quite satisfactory results can be obtained from frozen carcasses. The Alaska findings show the presence of only a small number of species of parasites, indicating perhaps much more restricted feeding habits in wolves than in other carnivores (e.g. Arctic fox),

Report on stomach analyses and other information obtained from wolves collected at bait stations North of Yellowknife.

During flights on March 16, 17 and 21, 1960 made in order to check predator control bait stations in the area North and East of Yellowknife, a total of five dead wolves was carried into Yellowknife for closer examination than would have been possible in the field. Stomachs of four other wolves killed on baits closer to Yellowknife were also examined.

As is to be expected bait represented the greatest part of the contents of the stomachs. The amounts of bait meat ranged from 125 gr. to <sup>3625</sup> 1350 gr. The <sup>five</sup> four largest amounts of bait were found in the <sup>five</sup> four wolves taken near Yellowknife on baits set by the local warden. The amounts of bait present in the other five stomachs was considerably less. The baits on which these five wolves were taken were set by a Predator Control Officer based at Fort Smith. It is not known whether or not the two men used different amounts of strychnine in their baits.

One stomach contained Snowshoe hare and <sup>one</sup> Ptarmigan, two stomachs contained hairs of what appeared to be wolverine. A wolverine was taken on the same bait and it appears that wolves had fed on the carcass. Two stomachs contained what appeared to be carrion or garbage. One of these wolves was taken at a bait near Yellowknife. The animal in company of ~~two~~ or ~~three~~ others had been observed on occasion feeding on the Giant Mine nuisance grounds. The other stomach, besides containing a small amount of bait and <sup>12</sup> carrion, contained several vertebrae and ribs of a small fish. The material was submitted to the National Museum of Canada and identified by Mr. D.A. McAllister, Curator of Fishes as the

bones of *Catostomus catostomus* (long nosed sucker) or *Catostomus commersoni* (white sucker).

The stomach analyses were carried out on an experimental basis with limited facilities. The results are not significant, since they pertain to only a very small number of specimens killed on strychnine baits, and therefore do not give a picture of the true food habits.

Results are tabulated in the accompanying table. In the table are also incorporated weights and measurements of the wolves.

Stomach Contents of Wolves.

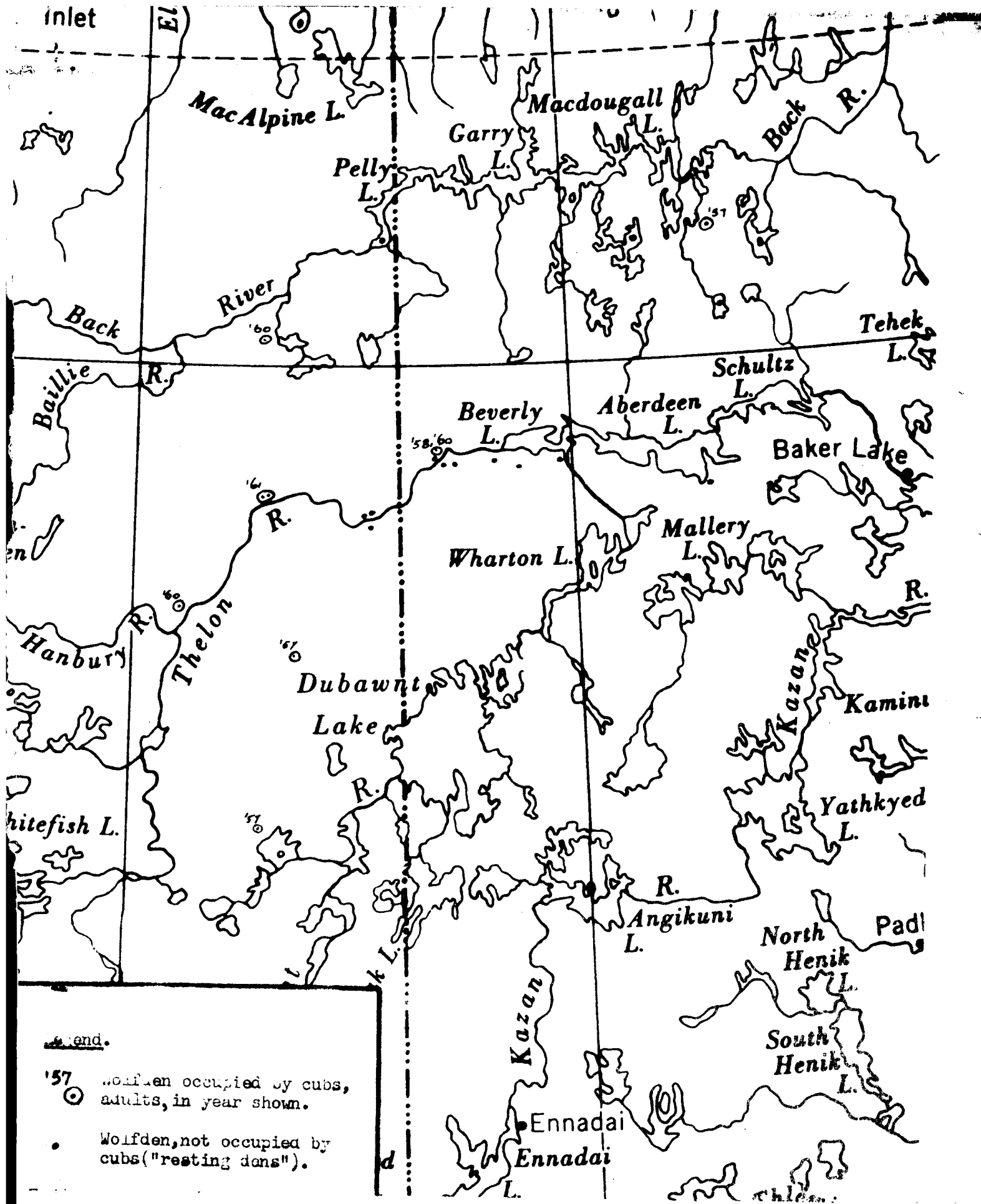
Stomach +  
(contents +  
food)

Catalogue #	Date	Location	Sex	WEIGHTS										STOMACH CONTENTS		
				TL	TW	HEP	SPN	HT	Girth	WT	lbs	oz	grs			
EK 173603	17 March, 1960	Bonaih Lake, 112°10'W, 63° 28'N	♀	1430	390	260	100	780	-	77	-	-	-	-	-	Not ex.
EK 173604	" "	" "	♂	1745	430	315	115	890	-	112	-	-	-	-	-	Not ex.
EK 223603	22 March, 1960	Snare River, 114°035'W 64°12'N	♂	-	415	265	125	-	-	-	-	-	-	-	-	Not ex.
EK 223604	" "	" "	♂	1610	415	310	130	835	825	86	450					Stomach contained mostly bait meat, several Bl. spruce cones.
EK 223605	" "	" "	♂	1585	430	305	130	815	800	89	550					Stomach contained bait, 150 gr. of furberer, probably wolverine.
EK 223606	" "	" "	♂	1455	380	295	125	-	735	72	725					Stomach contained bait, 2 gr. of ptarmigan feather.
EK 223607	" "	" "	♀	1520	415	295	125	-	750	76	225					Stomach contained bait, carrion (incl. Castorinus)
EK 223608	" "	" "	♀	1570	410	305	120	800	780	80	125					Stomach contained bait (20 gr.) hair, wolverine, fluid.
EK 1224601	12 April, 1960	English Lake, 114°18'W 62°34'N	♂ ♂	1730 1880	500 520	330 320	120 125	835 860	730 780	90 98	975 825					Stomach contained all fresh bait Stomach contained bait and greyish matter (garbage ?)
EK 1224603	" "	" "	♀	1690	450	300	120	790	700	85	1350					Stomach contained bait, S.S. Hare (10 gr.)
EK 23460	23 April, 1960	Great Slave Lake 115° 15'W, 62°21'N	♀	1530	410	290	120	800	820	88	1050					Stomach contained bait, fish (200 gr.) killed near fish camp.
EK 55601	5 May, 1960	Grant Lake, 116°49'W 64°51'N	♀	-	420	102	-	-	-	-	-					Not examined
EK 55602	" "	Lo. Grapponu, 116°32'W, 64°51'N	♀	1410	410	110	125	830	795	75	-					Not Examined
EK 105601	10 May, 1960	Pat Lake, Man. 100° 03'W, 58°50'N	♂ ♂	-	-	-	-	-	-	-	-					Not Examined
EK 105602	" "	" "	♂	-	490	305	-	-	-	-	-					Not Examined
EK 211160	21 Nov. 1960	Yellowknife. 115°20'W, 62°40'N	♂	1470	385	280	110	710	600	57	3625					Stomach contained bait, parts of 5 S.S. hares, 2 Ptarmigan, 1 muskrat, 1 red squirrel 1 spruce grouse, whitefishbits of rag and leather.

\* Measured by G. Kolomoisky.

Bacula.

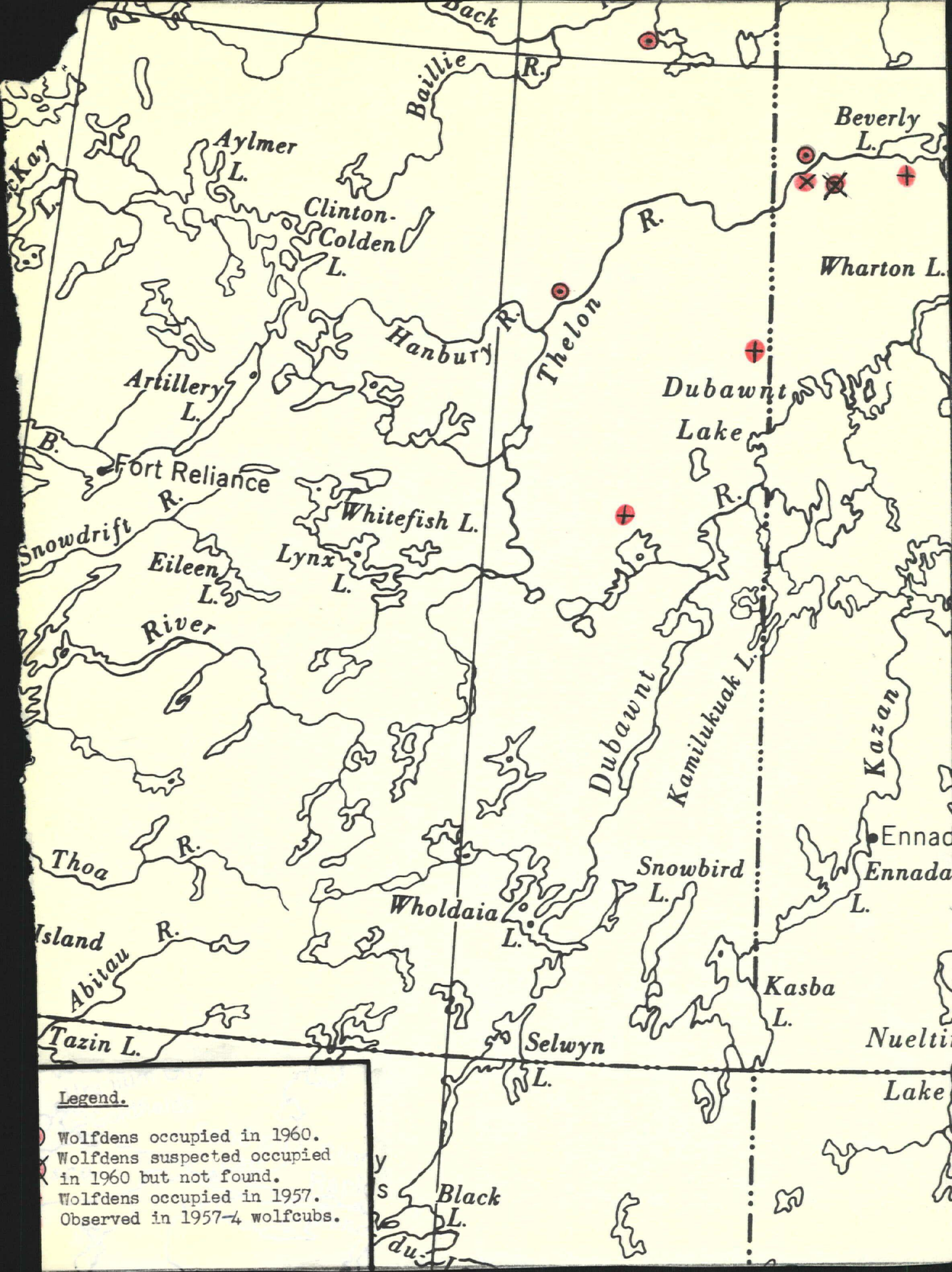
	L.	W.	d.	wt.
EK 223604	95	6	6	1.09
EK 223605	93	6.5	7	1.48
EK 223606	90	6.5	7	1.11
EK 124601	120	8	8.5	2.35
EK 124602	131	11	12	8.0
EK 105601	116	8	8	2.92
EK 105602	119	10	9	5.20
EK 211160	76	6	6	0.75



Legend.

- '57 Wolfden occupied by cubs, adults, in year shown.
- Wolfden, not occupied by cubs ("resting dens").





Legend.

- Wolfdens occupied in 1960.
- ⊗ Wolfdens suspected occupied in 1960 but not found.
- ⊕ Wolfdens occupied in 1957.
- Observed in 1957-4 wolfcubs.

CWS

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Kuyt, Ernie

Barren ground caribou-  
wolf interrelations.

DATE	ISSUED TO
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