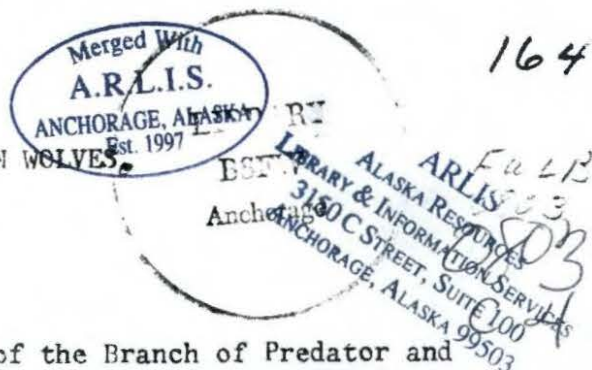


OBSERVATIONS AFIELD ON ALASKAN WOLVES

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The assignment to Alaska of personnel of the Branch of Predator and Rodent Control Fish and Wildlife Service in 1948 and the employment of Mammal Control Agents in 1953 under a Cooperative Program with the Territory of Alaska presented the opportunity to obtain field data on Alaskan wolves. Observations reported here, in addition to the author's, include those of Assistant District Agents Bob L. Burkholder, D. B. Harris, Jay S. Hammond, Frank S. Glaser, Joe E. Miner, Doyle E. Cisney, Lee S. Ellis, the late Hosea R. Sarber and other Service personnel. For comparative purposes, there are included data from the Predator Control Reports of the Manitoba Game and Fisheries Branch prepared by Ass't. Inspector of Registered Trap Lines, Joe D. Robertson.

DISTRIBUTION AND MOVEMENTS

The distribution of wolves can be said to be general throughout the Territory and their absence from specific localities is due either to physical barriers or a lack of big game animals as prey. Wolves are not found in the Aleutian Islands beyond Unimak. Although Nunivak Island has been virtually wolf-free, reindeer herders killed a female wolf there in March 1951 and there have been no further reports of occurrence. The 28 mile barrier consisting of Etolin Strait - though occasionally jammed with ice - prevents crossings.

In Southeastern Alaska with the exception of the A.B.C. Islands - Admiralty, Baranof and Chichagof - wolves are found on all of the islands and the mainland. It can be presumed that the physical water barriers of Stephens Passage, Icy Strait, Chatham Strait and Frederick Sound have been too great even though wolves are excellent swimmers and readily overcome lesser barriers in their inter-island movements.

In the Arctic, the distribution and movements of wolves follow closely the migration pattern of the wandering caribou. In all of our observations, we have found that wolves in any numbers have been closely associated with the caribou. To illustrate: from March 21 to May 8, 1952, there were about 12,000 caribou within a radius of 80 miles of Umiat on the Colville River. During this period, 334 wolves were observed within the area occupied by the caribou. As these caribou moved to the west and out of this area, it became devoid of wolves or wolf sign.

Again, to illustrate the close association between caribou and wolves, in January and February of 1950, the Arctic caribou in considerable numbers wintered in the lower Noatak Valley in the Kotzebue Sound area. Wolves were very prevalent and serious predation on the domestic reindeer herds was reported. In March, at the request of the Governor of Alaska, who was being



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pressured to declare a "state of emergency", this situation was investigated. However, the problem resolved itself when the caribou moved out of the area and the wolves moved with them. During the next four years, few wolves were reported around Kotzebue, and the caribou did not enter the area in any numbers. However, in December 1953, the caribou again moved into the Noatak and Squirrel River Valleys and wolves were reported to be present in great numbers. During the next four months, before the caribou moved out of this area, three teams of aerial bounty hunters killed over 200 wolves and others were taken by Eskimos and federal control agents.

The same close association between wolves and caribou has been noted on the range of the Steese-Fortymile, Nelchina and Alaska Peninsula caribou herds.

In Southeastern Alaska, wolf movements are more definite and predictable than in the Interior. Well-defined wolf trails showing generations of use can be located by the experienced hunter. These are purposeful trails leading from one point to another and are not influenced by the supply or abundance of deer or other animals. Our observations are that wolves on the islands do not generally travel in a circuit as has often been reported by other observers, or by observers elsewhere. Instead, the animals use certain resting spots in the interior of the islands, often around some beaver pond or a lake, and remain in such areas for considerable periods or make trips back and forth to the beach. Again, on reaching a small island, the pack or an individual wolf will probably remain on the island until the deer present have been killed or chased off.

Arctic wolves are extensive travelers. After making a kill they will often remain at the carcass until it is devoured. This time will depend on the number of wolves in the pack and the size of the animal killed. Then they may start traveling and cover 25 to 40 miles before making contact with the moving caribou herd. Wolves have often been trailed up to 35 miles before being sighted, and there is seldom any sign indicating they have stopped to rest.

COLOR

Wolves vary greatly in color and individuals of the same pack or litter may range in color from coal black through all the intermediate shades of gray to white. In the Arctic, a preponderance of the wolves observed were light colored. Of 259 wolves tabulated north of the Brooks Range in 1952, but 30 or 9% were classified as dark. Although records were not complete on the more than 200 wolves bountied at Kotzebue this year, the available data show a high percentage of gray wolves to blacks. Actually the percent of grays may be even higher because dark wolves show up prominently against the snow while the light-colored wolves can be overlooked or missed entirely.

In Southeastern Alaska, the dark-colored wolves outnumber the grays. The exception to this is Kuiu Island where of 15 wolves classified, all

were gray. On Etolin Island, of 18 classified, 15 were black. This is the general trend for this area.

SIZE OF PACKS

Throughout Alaska a total of 975 wolves have been observed and tabulated as to the number associated together to form the pack. This does not include all wolves that have been noted the past six years, but only those on which definite records have been kept. Pairs of wolves were observed more frequently than any other combination. This may be due to the fact that most wolves were observed during the mating season in the late winter and early spring. Lone individuals were observed next in frequency. Packs numbering five wolves were most common while the largest pack observed consisted of 12 animals.

In regular field operations, we have yet to encounter one of the large wolf packs of 25 or more animals reported by other observers. It is likely that such large packs are temporary associations of several wolf families temporarily united during their travels. We have three times observed packs of 12 wolves. Tracks of a rather loose pack believed to have numbered 14 animals was noted on the north slope of the Brooks Range by Burkholder and Hammond. However, this could have been two or more packs hunting or traveling in close proximity to each other. There is no reason to doubt the authenticity of the large packs that have been reported, but in six years of field work covering much of Alaska, we have yet to observe a compact group consisting of more than 12 animals.

The 975 animals tabulated comprised the following size packs or lone individuals:

SIZE OF PACK	1	2	3	4	5	6	7	8	9	10	11	12
OCCURRENCE	75	87	39	26	28	13	15	10	9	4	1	3

FOOD HABITS

Food habit reports have been obtained on 161 wolves - 156 examined by field men and 5 by the Coop. Wildlife Research Unit. The 156 stomachs examined in the field were collected largely during the months of November, December, January, February, March and April and are representative of that season rather than the entire year. As many of the stomachs were in a frozen condition, it was often difficult to examine minutely the contents and it is possible small items were overlooked. However, in the majority of cases, the contents consisted of a single item which was easily identified. This was particularly true on the caribou, deer and reindeer ranges.

Results are tabulated on a frequency of occurrence basis and broken down for the Arctic, Alaska Peninsula, Southeastern Alaska and 14 miscellaneous areas. (Table I). The detailed analysis of five stomachs from the Fairbanks District by the Cooperative Wildlife Research Unit is shown in Table II, and comparative data from Manitoba in Table III.

Table I. Wolf Stomach Contents in Four Alaska Localities.

	ARCTIC AREA	ALASKA PENINSULA	SOUTHEASTERN	OTHER AREAS	TOTAL ALASKA
Stomachs examined	82	16	44	14	156
Stomachs empty	17	0	3	5	25
Caribou	40	6		4	50
Reindeer				3	3
Moose	13	7	1	2	23
Deer			30		30
Wolf	6				6
Goat			3		3
Beaver			12	1	13
Muskrat			1		1
Mink			1		1
Ground Squirrel				2	2
Rabbit				1	1
Salmon		2		2	4
Ptarmigan	1	1			2
Geese				6	6
Sedge	1				1
Garbage	2				2
Station Material (Bait)			5		5
Other	Paper Noodles Burlap		8 inch length tarred 5/8 rope	wolverine claw	

TABLE II. WOLF STOMACH CONTENTS - FAIRBANKS DISTRICT

ANALYSIS BY COOPERATIVE WILDLIFE RESEARCH UNIT

Male	Taken Oct. 6, 1951	Eagle Summit	Stomach Contents: Moose hair 200 c.c. Moose bladder 400 c.c. Moose intestine (?) 184 c.c. Vegetable matter 16 c.c.
Male	Taken Jan. 21, 1953	Big Delta wt.	Contents of Intestine: 55 c.c. of which 15 c.c. were tapeworms and the balance unidentifiable. Contents of Stomach: Caribou 99% Ptarmigan 1% Total Volume: 2500 c.c. (of stomach)
Female	Taken Jan. 20, 1953	Big Delta wt. 50 lbs.	Contents of Intestine: Snowshoe hare 25 c.c. Tapeworm 30 c.c. Stomach Contents: Ptarmigan foot and feathers and snowshoe hare Total volume of stomach 950 c.c.
Female	Taken Jan. 16, 1953	Big Delta wt. 60 lbs.	Contents of Intestine: Ptarmigan, snowshoe hare and egg shells. Total volume of intestine: 360 c.c. of which 35 c.c. were tapeworms Contents of stomach: snowshoe hare 90% Ptarmigan and <u>Microtus</u> or <u>Clethrionomys</u> 10% Total volume of stomach: 1200 c.c.
Female	Taken Feb. 27, 1953	Big Delta wt. 80 lbs.	Contents of intestine: Moose hair Total volume of intestine: 60 c.c. of which 6 c.c. were tapeworms Contents of Stomach: Moose hair and meat 95% Wolf hair 5% Total volume of stomach: 1100 c.c.

TABLE III. STOMACH CONTENTS OF MANITOBA WOLVES
FROM REPORTS OF MANITOBA GAME & FISHERIES BRANCH

No. examined: 79 Empty: 4 Caribou: 44 Moose: 16 Fish: 14 Rabbit: 7 Deer: 1
Fox: 1 Mouse: 1 Wolf: 6 Dog: 1 Raven: 1 Grass: 2 Feathers: 1 Ptarmigan: 1

Wolves, when feeding from a caribou carcass, may feed on any part of the carcass during a single feeding. The contents of one wolf stomach was estimated to weigh between 15 and 18 pounds, and consisted of an ear, tongue, lip, two kidneys, liver, windpipe, hair and large chunks of meat.

The frequently reported observation that wolves often eat only the tongue from an animal killed was further substantiated by the finding of an intact tongue of a reindeer in a wolf stomach examined on the Kotzebue Sound reindeer range. Two whole caribou tongues were found in a wolf examined on the Colville River.

Livers, kidneys, ears and eyeballs were other items found almost intact. Wolf hair and flesh were found frequently enough to show that wolves are cannibalistic. Beaver was recorded 13 times. Miscellaneous items of unusual interest were mink, muskrat, wolverine claw, calf moose hoof, deer dew claw, burlap, paper, noodles and two pieces of 5/8 inch tarred hemp rope about 8 inches in length.

WEIGHTS

The actual weights of 15 wolves were obtained. The lightest of these weighed 50 pounds while the heaviest was 112 pounds; the latter wolf was killed near Kotzebue and weighed on an airline scales.

The average wolf, exclusive of pups, weighs between 70 and 90 pounds with the males averaging around 20 pounds heavier than the females. It is our opinion that any wolf weighing over 100 pounds is a large wolf. We have investigated several reports of wolves alleged to weigh from 150 to 200 pounds, but in each case the animal was only an average-sized wolf. Though we do not question that an occasional extra large wolf is killed, we believe them to be the exception rather than the rule.

The following are actual weights of fifteen Alaskan wolves:

TABLE IV. WEIGHTS OF 15 WOLVES

<u>Wt. in lbs.</u>	<u>No. of males</u>	<u>No. of females</u>
50		1
60		2
64	1	1
70		2
72		1
76		1
79	1	
80		1
84	1	
98	1	
104	1	
112	1	

Average male 90 lbs.

Average female 67 lbs.

Of 17 wolves weighed by the Manitoba Game and Fisheries Branch in 1952 and 1953, the heaviest male weighed 123 pounds and the lightest 97 pounds. The largest female weighed 91 pounds and the smallest $49\frac{1}{2}$ pounds.

From this small sample it appears that the Manitoba wolves average somewhat heavier than the Alaskan wolves.

SEX RATIO

The sex ratio of the Alaska wolves, classified as to sex, ran fairly even; of 122 wolves, 58 were males and 64 females.

During 1952-1953, the Manitoba Game and Fisheries Branch sexed 162 wolves and of these 96 were males and 66 females.

During the joint Saskatchewan-Northwest Territories wolf control program in 1953, a total of 159 wolves were sexed and of these 67 were males and 92 females.

DENS

During this five year period we have located but one wolf den occupied by pups. This den was on the Alaska Peninsula on May 29, 1949 and contained six small pups whose eyes were not yet open. This den had several openings as have other old dens we have located on the Peninsula, whether a characteristic of most wolf dens, we do not know, but reports from others indicate this may be generally so.

A wolf den with 7 pups was located on the Stikine River by a hunter in early June 1951. A resident of the village of Kake and Kupreanof Island found a den of three pups in early June 1954; all of the pups were males.

REPRODUCTION

We have no evidence that female wolves breed until the spring of their second year. Of the females examined, but 20 have contained embryos or fetuses recognizable through field examination. The earliest date a pregnant wolf was examined was April 7, and the latest date was May 4. It is our opinion that most wolves do not breed prior to March 15, and many not until early April. Of the females examined during February and early March, we have found no evidence of oestrus, the earliest date being March 15 which was a wolf on the Alaska Peninsula.

The largest sample of female wolves examined was 31. These were between the period March 21 and May 8, 1952, north of the Brooks Range. Of the 31 females, 13 were pregnant with an average of 5.69 embryos per wolf. The number of embryos or fetuses recorded was:

Number of embryos:	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>	<u>8</u>
Occurrence	3	2	5	2	1

Average 5.69 per litter

Of the 20 pregnant females examined throughout Alaska, the following sized litters were determined:

Size	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>	<u>8</u>
Occurrence	3	5	7	4	1

The average for these twenty females was 5.75 pups per female.

Two lactating female wolves were taken; one was killed at Clear in the Tanana Valley on May 15, 1953, and the other at Anita Bay, Etolin Island, on May 21, 1954. We were unsuccessful in locating either den and have no knowledge of the age of the pups or the size of the litters.

SUMMARY

Widespread observations of wolves and their habits in Alaska during the period 1948-1954 generally confirm published reports of these phenomena elsewhere. Significant findings in Alaska include: the late pupping season May and June; the predominance of black wolves in the forested sections and of gray wolves on the Arctic tundra; the well defined wolf trails on the islands of Southeastern Alaska and their movements in the arctic governed by the pattern of caribou migrations; distribution limited by physical barriers and the presence of big game animals, principally caribou; wolves occur most frequently in pairs and the average pack numbers five animals; the largest wolf weighed was 112 pounds with the average weight of males being 90 lbs. and females 67 pounds.

Though these observations may appear confined to a limited number of wolves, they likely represent the largest sample from which data are available on the habits of Alaskan wolves, and are a basis for continued study and recording of data.

Presented at Fifth Alaska Science Conference
September 7-10, 1954 - Anchorage, Alaska