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McEwen, E.H.

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Canis lupus bernardi Anderson, Banks  
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1. Wolves - Population distribution -  
Banks Islands - Title.

Canis lupus bernardi Anderson, Banks Island Wolf.

WLT-266

From 1951 to 1955, a high population of wolves has been reported on Banks Island. The relative abundance of the species prior to this period could not be ascertained. The abundance of wolves has become a major problem to the trapping activities and large economic losses have been suffered by the trappers. Wolf predation on caribou and arctic foxes could be important, but little supporting data could be collected during the present field studies on this subject.

Seven wolves were seen during the field work. Two wolves were seen on April 24, 1955 on Egg River, two on April 9 near Raddi Lake, one light-cream coloured wolf in the Egg River on June 24, 26 and 28. In late October, or November, 1954, Noah Elias saw a pack of 12 wolves in the Sea Otter area. On the Kellett River, A. Carpenter saw a pack of 11 wolves. On the east coast, in the De Salis Bay area a pack of 11 and two packs of three wolves were seen by C. Grubin. From field observations, it appeared that wolves tended to remain, or persist in certain areas, such as: on the Sea Otter River, on Big River, inland from Big River, Egg River area, and Kellett River area. Sets of tracks, numbering seven and eight, were seen on the Egg River and north of Big River. These packs of wolves may have been following the major northward movement of caribou.

According to the trapper's observations, a pack of wolves, or a single wolf, remain in the area of their traplines throughout the trapping season. The wolves follow the trapline eating the trapped foxes, or tearing the animals apart, or pulling them out of the traps and leaving them untouched. If the trapped fox is not eaten, the legs may be torn off and large patches of fur torn off the sides of the body or back. Three foxes were found which had been carried by wolves away from the trapping station but left entire except for damage to the pelt. The wolves prefer living foxes to those dead in traps and fat to thin. It was observed on one occasion that a pack of four wolves had passed by a thin, living, trapped fox but had eaten other trapped foxes on the trapline. In considering that about 20 to 30 percent of the total number of foxes trapped may be damaged or eaten by wolves and that about 15 percent of the fox population is fat

the belief of the trappers that the wolves take only the fat foxes is not entirely true. From observations the wolves do not seem to have discriminate tastes. It should be pointed out also, that foxes eat other trapped foxes. The total amount of damage and loss of fur is attributed to wolves, while a certain percentage is caused by foxes. An evaluation of these two sources of damage was not attempted in this report because discriminating data were not kept by the trappers.

In the 1951 and 1952 season, the number of foxes damaged or eaten by wolves was high but actual figures were not kept by the trappers. In the 1952-53 season, about 315 foxes were lost by eight of the ten trappers. The number lost by the two remaining trappers could not be obtained. At an average price of nine dollars per pelt, about 2835 dollars had been lost by the trappers. In the 1953-54 season, the damage caused by wolves was higher than the previous year. Some of the trappers lost 30 to 50 foxes, while one trapper reported that on one visit 50 foxes had been lost. The trappers estimated that about 20 to 30 percent of their total number of trapped foxes had been destroyed or damaged by wolves.

In order to obtain accurate figures on the wolf damage in the 1954-55 season, trappers were requested to record the number of foxes lost on each visit. The response to this request was weak, with only two trappers keeping a fairly complete record. The losses suffered by nine of the 18 trappers amounted to about 800 foxes, with individual losses ranging from 70 to 133 foxes. This estimate includes only one of the four trappers at De Salis Bay and none of the four at Jessop Bay. The estimated loss of all the trappers would be about 1,000 foxes. The individual fox catches on the east coast were less than on the west coast, and the number of foxes lost was less.

Since the average price per pelt varied from 10 to 20 dollars, it is difficult to assess the total economic loss. If the average price is considered about 13 dollars, the wolves caused about 13,000 dollars damage. Because of the numerous factors involved in an evaluation of wolf damage, such as the approximate estimate of individual losses, type and grade of fur lost, arriving at an estimated average price, the resultant estimated loss should be considered as an approximation, but not the actual loss.

In Table 1, the monthly losses of one trapper have been analyzed.

Table 1. Monthly record of the number of foxes trapped and lost.

<u>Period</u>	<u>Trapped</u>	<u>Lost</u>	<u>Ratio</u>
Nov. 27 - 30	19	7	2.7:1
Dec. 3 - 30	67	11	6.0:1
Jan. 4 - 31	42	6	7.0:1
Feb. 6 - 28	67	32	2.0:1
Mar. 1 - 31	120	19	6.3:1

From November 27 to March 31, 19.2 percent of the total number of foxes trapped had been damaged by wolves ( $75/390 \times 100$ ). The ratio of the number trapped to lost varied from 7.0:1 in January, to 2.0:1 in February. The lowest ratios of trapped foxes occurred in November and February. The monthly ratios of foxes trapped to those lost by another trapper were, 1.3:1 in December, 10.3:1 in January, 1.5:1 in February and 3.4:1 in March. Greater numbers of foxes were lost in December and February than in January and March. In both analyses, high losses occurred in November or December and February. The ratios were not entirely comparable because the traplines were in different areas.

Other factors which may influence the ratios of trapped to lost foxes are the varying relative abundance of foxes and wolves in different areas, the period of time between visits on the traplines as heavy losses occur if traps are not attended frequently, the length of the trapline, whether the trapline is between other lines and whether the lines have been moved to other areas during the trapping season. Some of the trappers moved their traplines to other areas in order to reduce their losses. Most of the trappers set out short lines rather than long lines. When three trappers had lines in the same area, usually the trapper in the middle lost fewer foxes than the trappers on either side.

One phase of the investigation was devoted to wolf control studies. As the investigation commenced about two weeks before the termination of the trapping season, the assistance of the trappers on this project was very limited. The trappers forgot about the wolf problem at the end of the trapping season so that it was not possible to secure their assistance. It was necessary to limit the amount of time allotted to this part of the

investigation. During the control programme, six wolves, four of which were males and two females, nine foxes, of which five were males and three females, one raven and one rough-legged hawk were poisoned. One fox was eaten.

The wolf control programme was conducted from Sea Otter Harbour from March 24 to May 16. On March 22 and 23, Sam and I travelled from Sachs Harbour to Sea Otter Harbour. On March 24, seven wolf baits, consisting of pieces of caribou meat containing strychnine pellets, were placed on 12 miles of a tributary of the Sea Otter River, (fig. 1). The baits were wired to a stick of wood which was pushed into the snow. A. Elias had a short trapline on this tributary. A number of foxes had been lost by him and two other trappers in the area. On our bait-setting trip the remains of ten trapped foxes which had been eaten by wolves were found. A fox which had been carried away from a trap by a wolf was found almost intact. Wolf tracks were found from the middle to the end of the creek. At two snowhouses, wolves had stopped and walked about them. They may have been attracted by the smell of skinned fox carcasses, or cached blubber and meat inside the snowhouse. The activity might also be the result of pure curiosity on the part of the wolf.

On March 25, two stations, eight and nine, were set out between Sea Otter and Storkerson Bay. Number eight consisted of an entire caribou carcass which had been found dead, and number nine of a caribou liver. At station nine, the tracks of four wolves were seen. The baits were set on N. Elias' trapline, who accompanied us. In 70 of his traps, 14 foxes had been trapped and five foxes lost. Four of the five foxes had been eaten by wolves and one had escaped with the trap. The following day, 22 foxes were trapped on another part of the line and four foxes had been eaten by wolves. Two foxes had escaped with the trap. From Storkerson Bay to Sea Otter, following the coast, seven foxes were trapped with no losses.

On March 25, two trappers, A. Elias and P. Sydney, went to visit their traplines north to the Adam River. Three baits were given to Elias to set out near Adam River (Stations 10, 11 and 12). The total number of foxes trapped by the trappers was 88 plus 16 which had been eaten by wolves. Near the Adam River, three wolves were seen, two grey and one red. One of

the wolves was shot at but escaped. These wolves had started to follow the trapline from the direction of Adam River.

On March 29, stations one to seven were visited. The baits were intact, although at two stations the tracks of wolves and foxes were seen. The animals seemed to be suspicious of the baits.

From April 4 to 10, a trip was made to De Salis Bay and return to Sachs Harbour. No stations were established because it would not be possible to make a second trip in this area. Two wolves were seen near Raddi Lake and tracks were seen along the Masik River and near Raddi Lake. Wolves had destroyed a number of trapped foxes of the trappers on the east coast. C. Grubin claimed that he had lost over 100 foxes on his traplines on Big River and Nelson Head River. Later in the trapping season, he had moved part of his trapline from Big River to the Nelson Head River, to try to reduce his losses from wolves. On two visits to his line on Big River, he lost 53 foxes. After the first visit to his line along the coast and Nelson Head River, he lost 15 foxes and trapped 60. He reported that wolves not only bothered the traplines but were capable of attacking and killing other foxes. He had found five foxes which had been caught and eaten by wolves.

On March 29, stations eight and nine, were visited by N. Elias who reported that nothing had taken the baits. At station eight, a wolf had walked around the bait.

On April 17, stations one and eight were visited. At station one, an arctic fox was found 23 yards from the bait. The other bait was not touched. On April 19, stations two to seven were checked. At station two, a male arctic fox was found 37 yards from the bait. The fox had only chewed a small part of the bait around the edges. The baits at stations three and four were untouched. At station five, the bait had been eaten by a fox but the animal could not be found. The fox might have been poisoned and covered by drifting snow. Although it is difficult to pick out a dead white fox on the snow, a thorough search was made, without success. At station six, one male fox was found eight feet from the bait. The animal was still fairly soft and had been dead about three days. The bait at station seven had been

taken away. Wolf tracks were seen at the station and presumably a wolf had pulled the bait, broke the wire and carried off the bait. No animals were found in the area. Stations one to six were removed and another bait was placed at station seven. From the head of this creek a line of stations was set out towards Big River. On April 19, station 13 was set out, four miles south of the creek. On April 20, stations 14 to 17 were established. One bait was set four miles north of Big River and three at the mouths of creeks along the river. On April 24, stations 18 to 22 were set out along Egg River. Station 19 consisted of a fresh caribou liver and a joint of meat. During the operation, two wolves were seen on the east side of the river. On April 26, two stations 23 and 24, were set out on the Kellett River.

On May 2, a complete check of the stations, shown in figure 1, was undertaken. On May 3, stations 23 and 24 were removed. Between the Kellett and Egg Rivers, the tracks of three wolves were seen. A wolf scat was examined and found to contain caribou hair and bones. On May 4, stations 19 to 22 were checked. The bait at station 22 had been chewed by a fox but the animal could not be found. No animals had approached station 21. A fox had walked about the bait at station 20. At station 19, a female wolf was found 75 yards from the bait. It had eaten a piece of liver before it had frozen. Near Egg River, the tracks of one fresh, three old, and seven fresh wolves were found. On May 5, nothing was found at station 18. One wolf track was seen near the mouth of Egg River.

On May 8, stations 10 to 12, near the Adam River, were visited. At station 10, two wolves, one grey and one red, were found. The grey wolf was buried under the snow so that only the tip of the ear remained uncovered. At station 11, a grey-coloured, female wolf was found about half a mile from the station. It had carried the bait to this site and eaten it. At station 12, a male and female arctic fox were found. Only the edges of the bait had been eaten by the animals. On May 9, the fresh track of a wolf was seen on the north side of Storkerson Bay. On May 10, three fresh tracks made by a single and a pair of animals were found on the Sea Otter River. On May 13, the two baits at station 17 were buried under a foot of hard-packed snow. One of the baits had been chewed by a fox. A fox which had died of poisoning

was found on May 5, between Big and Sea Otter Rivers, about eight miles from this station. At first, it was considered that the fox might have died from rabies. An internal examination indicated that the animal had died from strychnine poisoning because of the characteristic dilation of the subcutaneous blood vessels and visceral blood vessels.

On May 14, stations 16 and 15, along Big River and 14, 13 and 7 north of Big River, were visited. At station 16, one raven and a fox tail were found. The fox fur was found about 70 yards from the bait. A male arctic fox was found between one-half to three-quarters of a mile from the station. The stomach contents consisted of fox fur, meat and bones, probably of the poisoned fox. At station 15, two grey male wolves were found. One was at the station and the other about 50 yards away. The bait had been completely eaten. At station 14, a female fox was found a few yards from the bait. It was unfrozen and had been dead a few days. At station seven, the bait was untouched. Between the two stations, the tracks of 12 wolves were found - one old track, a set of eight fresh tracks and a set of three old tracks.

On May 15, a rough-legged hawk was found at station 18 and nothing at stations 19 and 20. On May 16, stations 21, 22, 25 and 26 were checked but no animals had been taken. Stations 25 and 26 were set up in Egg River on May 4. All the stations had been removed except 9 which was south of Storkerson Bay. Returning from Storkerson Bay, this station was missed and it was not possible to travel back to the bait.

On May 28, a wolf bait, station 27, was placed about one mile inland from the 'Climb'; it was removed on June 3, untouched by any animals. Wolf tracks had been found along the west coast between Sachs Harbour and the Masik River. Two single tracks were found on the ice about three miles off the coast.

In Table 2, the weights in pounds and measurements in centimeters of the six wolves are listed. The female wolf, number 88, taken on the Egg River on May 4, contained seven foeti which were near term. The sexes of the foeti were five males and two females. The female wolf, number 94, taken near the Adam River, possibly in early April, contained six small foeti. The sexes of the foeti were not determined.



Table 2. Weights in pounds and Measurements in centimeters of six wolves and three foet

No.	Date	Area	Total Length	Tail Vertebrae	Hind Foot	Ear	Lb. Weight	Sex
88	May 4	Egg R.	--	--	120	110	71	Female
92	Early April	Adam R.	1624	425	110	116	88	Male
93	" "	Adam R.	1500	395	117	114	84	Male
94	" "	Adam R.	1485	368	111	113	82	Female
111	May 7?	Big R.	1515	420	122	--	92.5	Male
112	May 7?	Big R.	1500	425	120	112	86	Male
	status of 88		128	32	18			Female
	" " 88		125	32	19			Male
	" " 88		125	32	19			Male

The heaviest wolf, weighing 92.5 lbs. was very fat. A layer of fat, about one-quarter inch thick, was found on the hindquarters. A thinner layer of fat covered the forequarters and along the ribs. The mesenteries were enlarged with fat. Fat was also found in the pelvic region and over the kidneys. The wolves taken at the Adam River were thin with few fat deposits.

The stomach and intestinal contents of one wolf contained caribou and fox fur, and caribou hair was found in two other wolves. Three of the stomachs were lost in the Sachs River. The parasites found in the intestines of these specimens have not yet been identified.

#### Discussion

The main reasons favouring a continued wolf control programme would be to try to reduce the wolf damage on traplines and to protect the caribou population against heavy predation. From the results of the control programme, it has been shown that the use of poison is an effective method to destroy wolves which prey upon trapped foxes. The methods of shooting and trapping used by the trappers was not successful. Poison stations set out on part of the trapline destroy wolves which are following the line. It is not necessary to set out stations along the whole of the trapline. Setting the baits at a distance from the trapline would be probably less effective than setting the baits near the trapping stations.

The frequency of poisoned foxes taken at the stations was higher than wolves. This result could be expected because foxes occur in larger numbers than wolves. As foxes are a valuable fur-bearer, methods to reduce the accidental poisoning of this species should be employed. The method of placing the strychnine pellets in the baits and the time of year the control is conducted might reduce the number of foxes poisoned. It was observed that foxes

ew the edges of a frozen bait, while wolves devour the whole bait. If the pellets were placed about two inches from the edges of the baits, it is possible that some of the foxes might feed upon the baits without being poisoned.

A seasonal difference in the density of foxes usually occurs, so that the population will be higher in November and December than in March and April. Thus a greater number of foxes would be poisoned in the early part of the trapping season than at the end of the season. During November and December, the trappers have found that foxes are attracted to baits such as blubber, meat or viscera, but are not attracted in January and February. During the cold months of the trapping season, the trappers set urine baits beside the traps to trap foxes. If you waited until spring to poison wolves, they would be allowed to bother the traplines throughout most of the trapping season. Therefore, the optimum time to conduct a control programme would be in November and December. April and May also were found to be good months to conduct a control programme. In January, February and part of March, the reduced amount of daylight and low temperatures would hinder such an operation.

If a person to supervise the operation was appointed, the assistance of the trappers could be procured. If the trappers were allowed to set poison stations on their traplines without supervision, the results and recording of reliable data might be misleading. Some of the trappers might be tempted to use the poison indiscriminately to kill foxes. The trappers could assist in the operation by reporting the location of wolves and checking the stations on their lines, reducing the amount of work and travel by the supervisor.

#### Recommendations

1. An organized and supervised wolf control campaign should be undertaken on Banks Island in areas where Eskimos trap.
2. Poisoned baits, preferably strychnine, should be set out along part of the individual traplines to destroy wolves which are following the lines. The bait stations should be near the lines.

3. Care should be taken to ensure that a minimum number of foxes are poisoned. This might be accomplished by placing strychnine pellets about two inches within the baits.
4. The best months to poison wolves are November and December. April and May also were found to be good months for a control programme.
5. Any poison operation on Banks Island should be closely supervised to obtain maximum efficiency and information, and to discourage possible attempts to poison foxes.

E.H. McEwen

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McEwen, E. H.

Canis lupus bernardi

Anderson, Banks Island  
wolf.

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