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**Inter-island movements of Peary caribou in
the Prince of Wales Island - Somerset Island
- Boothia Peninsula complex, Northwest
Territories, June 1980**by F. L. Miller¹ and H. P. L. Kiliaan¹**Abstract**

Locations, directions, and origins and destinations of the trails of Peary caribou (*Rangifer tarandus pearyi*) across the sea-ice of (1) Peel Sound between eastern Prince of Wales Island and western Somerset Island and (2) northern Franklin Strait between northwestern Boothia Peninsula and southeastern Prince of Wales Island were obtained during helicopter flights from 14 to 22 June 1980. Totals of 588 caribou trails and the tracks of at least 1799 individual caribou were located on the sea-ice. The direction of inter-island movements was predominantly from east to west, as in other years, from Somerset Island and the Boothia Peninsula to Prince of Wales Island. Caribou appeared to more frequently cross from the southwest coast of Somerset Island to Prince of Wales Island than they had in the springs of 1978 and 1979. Otherwise, the patterns of springtime movements in the study area agreed with those observed in 1977, 1978 and 1979.

Introduction

This report is the last of four on our observations of springtime inter-island movements of caribou in the Prince of Wales Island - Somerset Island - Boothia Peninsula complex. The previous reports are Miller and Gunn 1978, 1979; Miller and Kiliaan 1980.

Knowledge of caribou movements in the above complex has allowed wildlife agencies to better evaluate previous aerial surveys of the area and past hunter-kill statistics. An aerial survey by the Northwest Territories Wildlife Service (NWTWS) in July 1980 was designed and timed on the basis of our knowledge of such movements in the area. Thus, they avoided a likely error in estimating caribou numbers that would result from surveying only one island in the complex each year.

Study area

In June 1980 the search area encompassed only the coastal land areas of eastern Prince of Wales Island, western Somerset Island and northwestern Boothia Peninsula; and the sea-ice of Peel Sound and northern Franklin Strait (Fig. 1). The search area in Peel Sound included Lock, Vivian, Prescott, Pandora, Wadworth and Bear islands. The search area in northern Franklin Strait included Dixon, Gibson and the Tasmania

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No. 120**Methods**

We used a Bell 206B turbo-helicopter either out of Resolute Bay, Cornwallis Island, or our field camp on Savage Point, Prince of Wales Island, to search for caribou and their trails on the sea-ice within the study area, following the same procedures as in 1979 (Miller and Kiliaan 1980).

In this report, as before, a "trail" is a series of tracks produced by one or more caribou; a "track" is a series of footprints put down by one caribou only. When trails separated into individual tracks, we counted the minimum number of individual caribou that travelled along them. In some instances, however, because of the caribou's habit of walking one behind the other and stepping in each other's footprints, we often could not readily discern how many caribou actually had made a trail, and we only attempted to do so when it did not take too long. We assume in this report, lacking contrary evidence, that they were Peary caribou that crossed the sea-ice from northwestern Boothia Peninsula to southeastern Prince of Wales Island, but they could have been barren-ground caribou (*R. t. groenlandicus*) or crosses of the two sub-species.

Results and discussion

We flew a total of 2263 km over the sea-ice of Peel Sound and Franklin Strait, making aerial searches of 4.9 h on 14 June, 5.8 h on 16 June, 1.0 h on 19 June, and 7.5 h on 22 June. We also flew along caribou trails between their origins and termini on 19 June (575 km, 4.8 h). As the aerial tracking on 19 June was not directly comparable to the aerial search on the other dates, the 575 km flown and the 26 caribou trails seen are not given in Table 1.

We used the distance flown per caribou trail seen as a general measure of searching effort that seemingly reflected the relative frequency of sea-ice crossings by caribou within the searched area during that period (Table 1). On 14 June we flew 479 km and saw 73 trails for an average effort of 6.6 km/trail; 16 June, 450 km, 298 trails, 1.5 km/trail; 19 June, only 91 km applicable to this evaluation, 44 trails, 2.1 km/trail; and 22 June, 668 km, 147 trails, 4.5 km/trail. According to these data, sea-ice crossings by caribou were relatively most frequent on or about 16 June (Table 1).

Totals of 588 caribou trails, 1799 tracks of individual caribou and 15 caribou were seen on the sea-ice of Peel Sound and northern Franklin Strait between 14 and 22 June (Tables 1-4, Figs. 1-3). We located 408 and 1250 of those trails and tracks while searching the west side of Peel Sound and northern Franklin Strait (Table 2, Fig. 2), and 180 trails and 549 tracks on the east side (Table 3, Fig. 3). Because of possible double counting of some trails and tracks on opposing coastlines in the same latitudinal zones (Figs. 2 and 3) we can only say that a minimum of 414 trails and 1261 tracks of individuals were discrete. However, because of the caribou's

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Figure 1
Area searched by helicopter in June 1980 included the sea-ice and small islands of Peel Sound and northern Franklin Strait, and the adjacent land areas of Prince of Wales Island, Somerset Island and the Boothia Peninsula, Northwest Territories

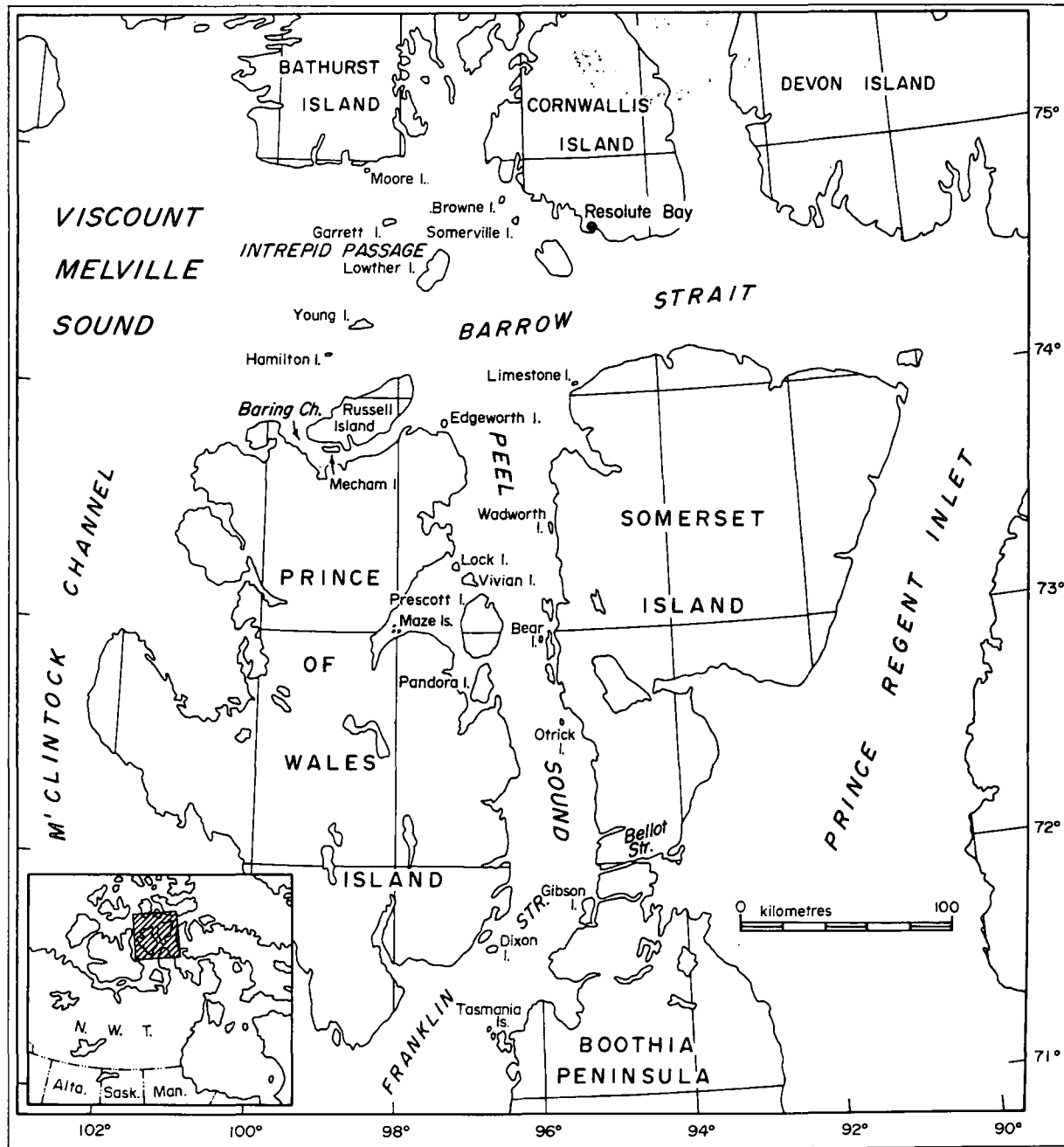


Table 1
Aerial searching effort by helicopter for evidence of inter-island movements by Peary caribou, Peel Sound and Franklin Strait, NWT, June 1980.

Date (June)	Zone*	Flights† (km)	Trails†	km per trail seen
			seen	
14	7	114	7	16.3
	8	114	46	2.5
	9	164	20	8.2
16	10	87	0	—
	5	89	21	4.2
	6	203	153	1.3
19†	7	158	124	1.3
	8	39	18	2.2
22	5	52	26	2.2
	7	98	13	7.5
	7	118	43	2.7
	7	161	47	3.4
	8	120	28	4.3
	9	145	15	9.7
	10	26	1	26.0

*See Figures 2 and 3.

†A total of 575 km flown and 26 trails seen while following caribou trails from origins to termini were not used in this evaluation of searching effort.

habit of following in each other's tracks, the track count was most likely well below the actual number of caribou crossing the sea-ice. We suggest that the majority of caribou estimated by the NWTWS on Prince of Wales Island in July 1980 (about 5000 head) had crossed the sea-ice from Somerset Island and/or Boothia Peninsula in the spring.

We found 406 trails and 1270 tracks of individuals on the sea-ice of Peel Sound, 62 trails and 165 tracks at northern Franklin Strait (Tables 2 and 3, Figs. 2 and 3). We saw 89 trails and 249 tracks of individuals between Prince of Wales Island and its eastern satellite islands (Table 2, Fig. 2). Of those trails and tracks, 78.6% (70) and 80.3% (200) respectively were produced by caribou travelling westward, and the remainder by those going eastward. Only 33 trails and 115 tracks of individuals were found between the eastern satellite islands (Table 2, Fig. 2); all except three trails and three tracks were generally travelling from east to west.

As in 1978 (Miller and Gunn 1979) and 1979 (Miller and Kiliaan 1980), most caribou trails and tracks were seen in Zone 6 (196 trails, 641 tracks) and Zone 7 (196 590) (Tables 1 and 2, Figs. 2 and 3). Proportional increases were seen in Zone 8 in 1980 — 100 trails, 285 tracks, comparable with those found in 1977 (Miller and Gunn 1978) — over those found there in the springs of 1978-79. Thus, if no searching bias exists, relatively more caribou came off the southeast coast of Somerset Island, or more from the Boothia Peninsula swung north onto Somerset Island before crossing to Prince of

Table 2
Summary of evidence for inter-island movements of Peary caribou within Prince of Wales Island - Somerset Island - Boothia Peninsula complex, NWT, June 1980, along west sides of Peel Sound and Franklin Strait

Zone*	Date (June)	Trails seen on sea-ice	Tracks of individuals discerned
Peel Sound			
Between Somerset and Prince of Wales islands			
Westward crossings:			
5	16	6	25
5	22	9	33
6	16	15	36
6	22	2	4
7	14	2	4
7	16	15	54
7	19	18	40
7	22	8	18
8	14	39	134
8	19	26	70
8	22	18	37
Between Somerset and Lock islands			
Westward crossings:			
6	16	3	8
6	22	3	8
Between Somerset and Vivian islands			
Westward crossings:			
6	16	5	11
6	22	2	3
Between Somerset and Prescott islands			
Westward crossings:			
6	16	21	98
6	22	19	55
7	16	12	44
7	22	10	27
Between Somerset and Pandora islands			
Westward crossings:			
7	16	11	55
7	22	11	31
Between Prince of Wales and Lock islands			
Westward crossings:			
6	16	22	57
Between Prince of Wales and Vivian islands			
Westward crossings:			
6	16	3	11
Between Prince of Wales and Prescott islands			
Westward crossings:			
6	16	20	65
7	16	12	42

Table 2 (cont'd)

Zone*	Date (June)	Trails seen on sea-ice	Tracks of individuals discerned
Eastward crossings:			
6	16	1	1
7	16	1	2
Between Prince of Wales and Pandora islands			
Westward crossings:			
7	16	25	69
Eastward crossings:			
7	16	5	7
Between Prescott and Pandora islands			
Westward crossings:			
7	16	3	12
Eastward crossings:			
7	16	3	3
Between Prescott and Vivian islands			
Westward crossings:			
6	16	17	67
Between Vivian and Lock islands			
Westward crossings:			
6	16	10	33
Franklin Strait			
Between Prince of Wales Island and the Boothia Peninsula			
Westward crossings:			
8	19	2	8
9	14	16	44
9	19	8	29
9	22	5	5

*See Figures 2 and 3.

Wales Island in the springs of 1977 and 1980 than in springs of 1978 and 1979. All crossings by caribou were from east to west with Prince of Wales Island as the final destination, except for 31 trails and 78 tracks of individual caribou (Tables 1 and 2, Figs. 2 and 3).

Seven of the 15 caribou that we saw making inter-island crossings were on Peel Sound and eight on northern Franklin Strait (Table 4). All 15 were travelling westward toward Prince of Wales Island.

The 4 years of observations of springtime inter-island movements of caribou, usually from Somerset Island and/or Boothia Peninsula to Prince of Wales Island, indicate at least that most of the caribou of the area function as an inter-island population within the Prince of Wales Island - Somerset Island - Boothia Peninsula complex. Prince of Wales Island serves as the major summering island for most of the caribou that winter

on Somerset Island and some that winter on the northern Boothia Peninsula. The various wintering segments appear to stay discrete even though they may share some ranges, especially in summer. The springtime inter-island movements in the area appear to be traditional seasonal, annual migrations, probably established in the distant past under environmental stresses when the caribou occurred at higher densities than at present.

A knowledge of the existence of inter-island populations of Peary caribou and their dynamics throughout the High Arctic is mandatory to their proper management on an island basis. Such an understanding should be the ultimate goal of the responsible wildlife agencies.

Table 3

Summary of evidence for inter-island movements of Peary caribou within Prince of Wales Island - Somerset Island - Boothia Peninsula complex, NWT, June 1980, along east sides of Peel Sound and Franklin Strait

Zone*	Date (June)	Trails seen on sea-ice	Tracks of individuals discerned
Peel Sound			
Between Somerset and Prince of Wales islands			
Westward crossings:			
5	16	15	51
5	22	4	9
8	14	7	28
8	22	10	16
Eastward crossings:			
6	16	1	3
Between Somerset and Prince of Wales islands (or the satellite islands of Lock, Vivian, Prescott and Pandora)			
Westward crossings:			
6	16	35	131
6	22	17	50
7	14	5	24
7	16	37	103
7	22	18	55
Franklin Strait			
Between Prince of Wales Island and the Boothia Peninsula			
Westward crossings:			
9	14	4	8
9	19	15	43
9	22	10	19
10	19	1	7
10	22	1	2

*See Figures 2 and 3.

Table 4

Caribou seen making inter-island movements on sea-ice of Peel Sound and Franklin Strait, Prince of Wales Island - Somerset Island - Boothia Peninsula complex, NWT, June 1980

Date (June)	Zone*	Caribou	Distance from coast	Direction of travel
Peel Sound				
14	8	1 male & 3 fem.	6 km Prince of Wales	westward
	9	1 fem.	6 km Prince of Wales	westward
19	8	1 male	6 km Prince of Wales	westward
	8	1 fem. & 1 juv.	7 km Prince of Wales	westward
	9	1 male	13 km Prince of Wales	westward
Franklin Strait				
19	9	3 fem.	16 km Boothia	westward
	9	1 male	10 km Boothia	westward
22	10	2 males	1 km Boothia	westward

*See Figures 2 and 3.

Acknowledgements

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References

- Miller, F. L.; Gunn, A. 1978. Inter-island movements of Peary caribou south of Viscount Melville Sound, Northwest Territories. *Can. Field-Nat.* 92(4):327-333.
- Miller, F. L.; Gunn, A. 1979. Inter-island movements of Peary caribou south of Viscount Melville Sound and Barrow Strait, Northwest Territories, May-July 1978. Unpubl. Rep. Can. Wildl. Serv. Edmonton, Alta. CWSC-2760. 74pp.
- Miller, F. L.; Kiliaan, H. 1980. Inter-island movements of Peary caribou in the Prince of Wales Island - Somerset Island - Boothia Peninsula complex, Northwest Territories, May - July 1979. *Can. Wildl. Serv. Prog. Notes* No. 107. 7pp.

Figure 2
Zonation of western section (Prince of Wales Island area)
of area searched by helicopter in the Northwest Territories,
June 1980

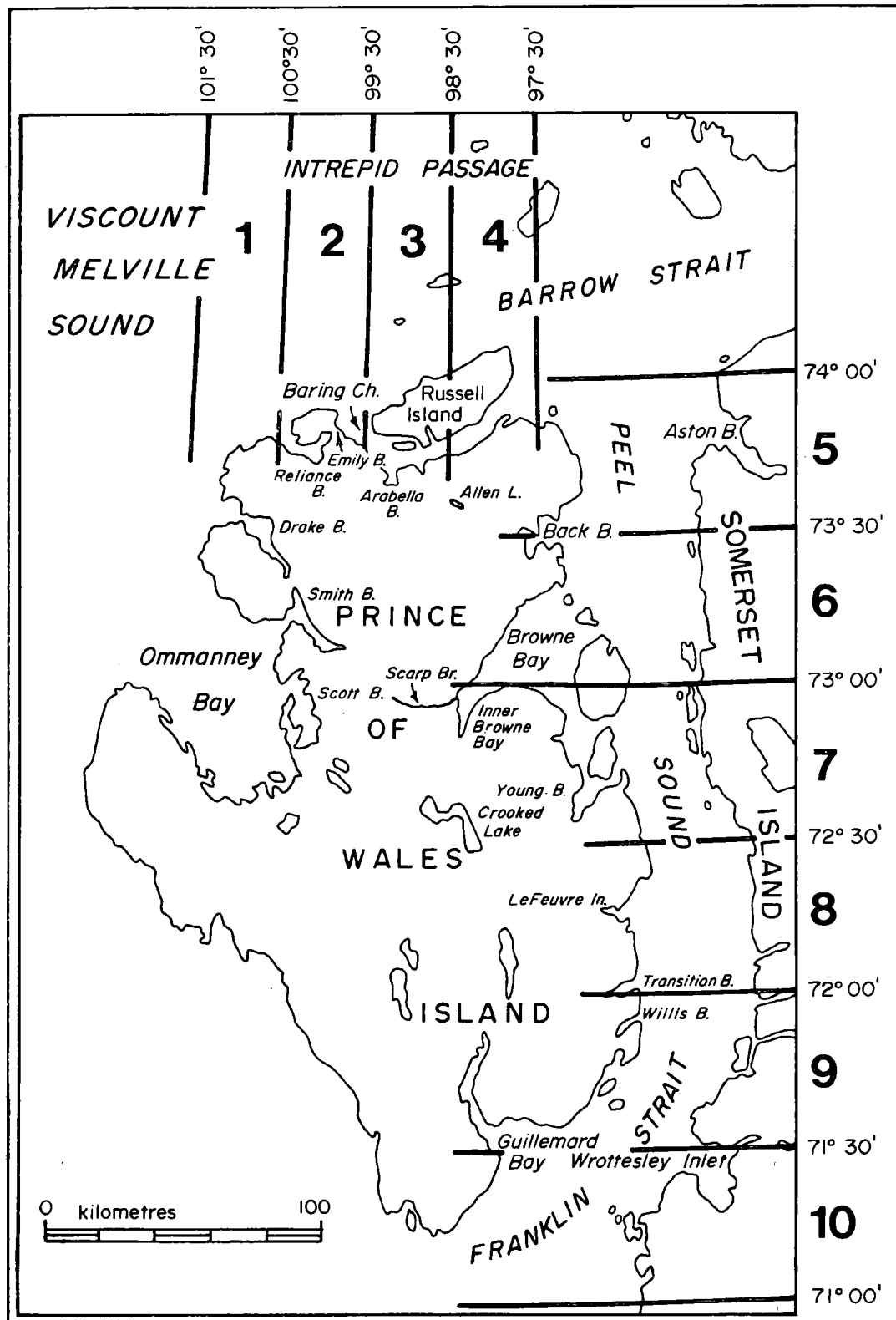


Figure 3
Zonation of eastern and southern sections (Somerset
Island and Boothia Peninsula area) of area searched by
helicopter in the Northwest Territories, June 1980

