1999 and Y2000 WILDLIFE FIELD STUDIES DATA REPORT, JERICHO DIAMOND PROJECT

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EXECUTIVE SUMMARY

The Jericho Diamond Project is located near the northwest apex of Contwoyto Lake which is coincident with the Willingham Hills. Both geographic features have a strong influence on the wildlife populations that frequent the Project area. Contwoyto Lake shapes and funnels caribou movements and the rugged Willingham Hills provide nesting habitat for raptors.

Summer field studies of wildlife in the Jericho Diamond Project area in 1999 and 2000 examined birds, caribou, raptors, small mammals in a systematic manner, and documented carnivores as these were encountered in the course of other studies at the Project site and in areas slated for Project infrastructure. These studies were supported by a very diligent effort of all Jericho personnel in recording wildlife observations in the Project Wildlife Log. No wildlife population declared to be "threatened" by the Committee on the Status of Wildlife in Canada has been found in the Project area.

Raptor studies confirmed observations made in work done in 1995 - 1997. There are numerous nest sites in the Project area and adjacent lands but in no year have more than 12 (in Y2000) of the 22 known nest sites been occupied. The number of rough-legged hawks varied from three active sites in 1995 to seven in 1996 while peregrine falcons ranged from two active sites in 1995 to six in Y2000. It may be that small mammals, the primary prey of rough-legged hawks are more variable than the prey of peregrine falcons. Four known nest sites are located near Project facilities and of these three are near the winter road which will not be active during the nesting period. One nest site is one km from the Jericho pipe. No concentrations of other bird species were noted during any of the field studies in the Project area. Small mammal studies in both 1999 and 2000 documented relatively low population levels of tundra red-backed vole and Greenland collared lemming. The magnitude of population cycles of these small mammals can only be determined by continued annual sampling. Such sampling may show a relationship between small mammal abundance and raptor nesting. Larger carnivores are present in the general area but no dens of fox, wolf, wolverine or grizzly bear are known to be within the Project footprint. Each of these carnivores is active throughout the Project area. Muskox are present in low numbers throughout the Willingham Hills but none have been noted within the Project footprint.

The most effort of the 1999 studies was on caribou with systematic aerial surveys over the Project area, aerial surveys of the surrounding lands to a distance of 50 km or more, on-the-ground transects for mapping the caribou trail network in the Project area, and an examination of telemetry data generously provided by the West Kitikmeot/Slave Study and the Department of Resources, Wildlife and Economic Development, Government of the Northwest Territories. Caribou migration to the calving grounds was first documented in mid April with a steady

growth in daily movements past Lupin through most of May at which time there was an abrupt drop in daily observations until late June. In late June 1999, herds in the thousands moved past Lupin and Jericho from south to north. These herds were generally without calves. Herds with calves were first noted around the Jericho area in early July. On examining the data in the wildlife log and the data from satellite collars it seems that caribou should be expected in the Project area in large numbers at any time during the late June to mid-August period and that the animals will usually move through at a steady pace for up to periods of a full day or perhaps longer. On occasion large herds will stop to feed and rest as was observed in late June 1996. The trail mapping work in 1999 showed that these large herds will interact with the Project during seasonal mining operations. Caribou trails are incised into the tundra throughout the Project area and indicate heavy movement along the shore of Carat Lake and on the upland terrace east of the Carat camp. Recommendations for managing the Project in ways that facilitate caribou movement are made.

The text of this report reviews data assembled during and including 2000. Data on raptors and small mammals collected in 2001 are included in the appendices.

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1.0 INTRODUCTION

Exploration for diamonds and verification of their presence in the vicinity of Carat Lake has been ongoing since 1993. Land use associated with diamond exploration by Tahera Corporation and its predecessor company, Lytton Minerals Ltd., facilitated the first opportunity to conduct systematic studies of the flora and fauna of this region of Nunavut. Although Lupin Mine was built by Echo Bay Mines in 1980 - 1982, its construction, commissioning and operations from 1982 - 1998, and resuming in 1999, did not involve extensive pre-construction investigations of the regional flora and fauna around the northwest end of Contwoyto Lake.

The studies reported here cover the field work done by Hubert and Associates Ltd. in and around the Jericho kimberlite pipe and associated portal, camp and airstrip in 1999 and 2000. Data from previous studies in the area and region are incorporated where appropriate. The studies in 1999 and 2000 focused on the distribution and abundance of wildlife species in the area of the proposed Jericho Diamonds Mine operations and associated infrastructure. Study methods included aerial surveys for ungulates, carnivores and raptors, ground surveys for birds, traplines for microtine rodents, and ground traverses for mapping caribou trails. Hubert and Associates Ltd. were generously assisted in all aspects of the field work by Tahera Corporation field staff. A very significant contribution of data involved the diligent recording of incidental observations of birds and mammals in the Project area which resulted in a comprehensive wildlife observation log for the April to September period for 1999 and June to August in 2000.

This report also presents data on seasonal distribution of individual female caribou of the Bathurst Herd. Collars that are regularly monitored by satellite have been deployed on caribou cows of the Bathurst Herd since 1996. Location data for these caribou cows collected by the GNWT Department of Renewable Resources since then to mid-September, 2000 are reported here to show the relative use of the Project area in the context of the dynamic nature of caribou use over the entire range of the Bathurst Herd.
The telemetry data from 23 individual caribou cows are summarized.

The geographic area for 1999 and 2000 field studies concentrated on areas of proposed Project infrastructure (please see Fig. 1) near Carat Lake. In the case of caribou, regional surveys from time to time attempted to place caribou observations in the Project area into a regional context. Field studies in 1999 also included preliminary investigations of the lands and ponds in the immediate area of the diamondiferous kimberlite at Contwoyto 1, across Contwoyto Lake east northeast of Lupin. Both streams of the field work are reported here.

1.1 Conservation status of Project lands

The observations of wildlife in the area of the Jericho Diamond Project area reported here should be considered in the land conservation context of the geographic area of the Project. There have been numerous initiatives to classify northern lands for their ecological significance to wildlife and related values. None of the lands surrounding the Jericho Diamond Project site have been identified by either the Territorial Government (GNWT at the time; Ferguson, 1987) or the Federal Government (Alexander et al, 1991; CWS 1993) as extra-ordinary for wildlife conservation purposes. Also, none of the species of birds or mammals in the Project area belongs to a population that has been designated for special attention by the Committee on Endangered Wildlife in Canada (COSEWIC, 1999).

2.0 STUDY OBJECTIVES AND METHODS

2.1 Song Birds and Waterfowl

2.1.1 Study Objectives

Field observations were made to document the distribution and relative abundance of bird species present during the breeding period in relation to dominant habitat and proposed Project infrastructure and related operations.

2.1.2 Methods

All song bird and waterfowl investigations were conducted by way of ground reconnaissance in the late June / early July period in both 1999 and 2000. All areas proposed for Project development were examined (please see Site Plan, Figure 1) and bird species present noted.

Plots for monitoring the presence of breeding birds were established in 1997 (Canamera, 1997). Rain and windy conditions prevented a reliable survey of these plots in 1999, however the conditions between 30 June and July 3 in 2000 were ideal and the eight plots were surveyed by two persons walking along parallel transects and recording all birds species observed in the survey block. Also, three new plots were established that are closer to the proposed Project infrastructure that may allow monitoring relative breeding bird density more proximal to the Project activities as well as areas further a field.

2.2 Raptors

2.2.1 Study Objectives

The Willingham Hills bordering Contwoyto Lake and immediately adjacent to the Jericho Diamond Project host numerous territories for rough-legged hawks, peregrine falcons and golden eagles. The objective of the examination of known nest sites was to document active territories and breeding success.

2.2.2 Methods

Raptor nest sites in the Project area were documented in previous years (Hubert and Associates Ltd. 1996). These were all examined briefly by helicopter during the young bird's fledging period to document active nest sites in 1999 and 2000, species present at each active nest site, and to observe and record the number of young birds for each active site before the young have fledged. Time spent at each site was limited to as short a period as possible to avoid undue disturbance to the adult birds there.

The terrain in the immediate area of Contwoyto 1 has rolling relief and offers few if any suitable sites for raptor nesting.

2.3 Small Mammals

2.3.1 Study Objectives

Microtine (voles and lemmings) populations were sampled in dominant habitat types at both Jericho and Contwoyto 1 to determine species present and begin assembling a data set on microtine population cycles that may be relevant to raptor presence and productivity. Traplines were run at the Jericho site in both 1999 and 2000.

2.3.2 Methods

Traplines of 100 Museum Special traps in 50 trap stations of two traps per station were set out as described by Shank (1997). All traps were baited with a mixture of peanut butter and rolled oats. The three dominant habitat types in the Project area were sampled: the birch heath, the rocky upland and the sandy plain at the airport. Traps were checked daily between 0800 and 0900. Traplines were run five nights for a total of 500 trap nights per habitat type. All small mammals caught were weighed on an Acculab GS-2001 electronic scale.

2.4 Carnivores

2.4.1 Study Objectives

Efforts in 1999 and 2000 focused on documenting occupation of known den sites as well as identifying new sites in the area potentially affected by the proposed Project.

2.4.2 Methods

Wolf and fox den sites in the general area of the proposed Project area were identified in previous studies (Canamera, 1996). The sites were visited periodically during the late winter to determine occupation. Sites were also monitored during the summer period by telescope to observe the presence and number of young animals at active den sites. Contwoyto 1 was examined by aerial reconnaissance and on the ground in the course of overall field studies including the extensive field work by Project geologists.

The general Project area was also examined in late winter of 1999 by helicopter for grizzly bear emerging from winter dens.

2.5 Ungulates

2.5.1 Study Objectives

The purpose of caribou and muskox studies was to document the seasonal presence, distribution and activity of these large mammals in the immediate Project area. Also, in the case of caribou, the investigations included regional aerial reconnaissance surveys to document the geographic extent of caribou

presence in the region. Aerial surveys were intended to document caribou presence and distribution in the Project area at all periods that are significant in the annual caribou distribution and movement cycle, particularly spring migration, calving, post calving, and late summer which are the periods when caribou have historically been observed in the region. Satellite collar data courtesy of The Government of the Northwest Territories Department of Resources, Wildlife and Economic Development were used to show range wide Bathurst Herd caribou distribution and movement in relation to proposed Project activities.

2.5.2 Methods

Aerial surveys along predetermined transect lines were flown over the Project area on a monthly basis beginning in April and continuing through September 1999 (the survey for October had to be cancelled due to poor flying conditions). During the post calving and summer period surveys for caribou presence and distribution in the Project area were conducted more frequently. Figure 2 shows the survey plan. Surveys were flown 200 - 250 m agl and at a speed of 120 - 140 kmph. Regional reconnaissance surveys along the shores of Contwoyto Lake and west to Rockinghorse Lake were flown with similar flight parameters (please see Figure 3 for the regional reconnaissance survey area). All large mammal observations were recorded directly on survey maps - 1:50,000 scale for transect surveys and 1:500,000 scale for regional reconnaissance surveys.

The use of the Project area by migrating caribou in previous years was further examined by mapping the distribution of caribou trails in the Project area, and recording the number of trails crossed by selected traverses. Traverses were set out at right angles to the dominant topographic features of the Project area. These traverses were walked by two persons, one to maintain the predetermined course and to establish traverse segments by counting the number of paces, the second person in the party counted caribou trails, noting the trails' general orientation and dominant habitat and terrain features crossed by the traverse. Traverse segments were recorded by GPS locations. Figure 4 shows the traverses examined in the August 4 - 9, 1999 period. In mapping the locations of the trails recorded during the traverses (Figure 8), mapping software projected the mean trail density of a particular traverse segment to adjacent areas including the integration of data from adjacent traverses.

The satellite collar data provided by the Government of the Northwest Territories were organized by caribou and season (several caribou received successive collars and so provided uninterrupted location data from the spring of 1996 to summer Y2000). The seasonal units used were the "annual life cycle periods" as described by The Beverly and Qaminirjuaq Caribou Management Board (1999). The telemetry collar provides a location signal for the caribou cow ranging from once per day to once every seven days. The resulting data set provides a profile of the seasonal movement and geographic distribution of the animal. It also provides a basis for calculating the straight-line distance between telemetry signals traveled during the five day interval. These data enable an estimate of the minimum

distance traveled season by season and in the course of the overall annual migratory cycle. The locations of the signals also allow mapping the seasonal and annual geographic range of the herd to which these caribou cows belong. Dates for data points from telemetry collars did not always match the dates for the end of one season and the start of the next. In these cases the interval was split and the "distance traveled" estimate pro-rated accordingly.

The aggregate distribution of all the collars also offers an approximate seasonal distribution of the overall herd in those seasons that the herd is mixed with all cohorts present (summer, fall migration and rut, and winter; August through March). In those seasons that the herd is not mixed, the distribution of the collars provides a distribution of adult females with calves "at foot" (spring migration, calving, and post-calving - March through July). The resulting distribution maps do not necessarily capture the geographic distribution of the entire herd, but they provide a much better picture than can be obtained from aerial surveys and the anecdotal observations of isolated field observations which was the case prior to the use of telemetry (see Kelsall, 1968).

3.0 RESULTS

3.1 Wildlife Log

The Project field staff maintained a field observations log for the duration of the study. In 1999 field staff were active both in the Lupin/Contwoyto Lake area as well as the Carat Camp area. The Carat Camp was also occupied full time by a security/maintenance person. Wildlife observations by all Project staff were recorded: pilots, geologists, and environment investigators. The observations provide a valuable inventory and profile of bird and mammal activity in the Project area. All observations are reproduced in a location specific log as Appendix 1a for Jericho and 1b for Lupin.

3.2 Birds

3.2.1 Introduction and regional overview

The pulse of increased energy that comes with longer daylight hours and warmer temperatures during the spring also signals the return of migratory birds to their tundra breeding ranges. Ptarmigan return from treeline and the boreal forest; waterfowl return from Atlantic and Pacific coastlines; raptors return from the prairies, deserts and savannahs of the southern United States, Mexico and Central and South America. Summer conditions in the Arctic provide optimum breeding conditions for many migratory species. Long daylight hours combined with abundant food provide summer residents in the region more time to feed the young at the time when food is most in demand (Welty, 1962).

Species range maps of birds in northern Canada like those prepared by the National Museum of Canada (Godfrey, 1966) show that the Jericho Diamond Project is located within the ranges of 64 bird species (see Table 1). Three species on the list are considered transients as their observation in the Project area is outside the known breeding range from the species: bald eagle, northern harrier, and greater scaup. All but eleven species in Table 1 are included in the Migratory Birds Conventions Act (Canada) and so are a federal responsibility. The species which are the responsibility of the Government of Nunavut are ptarmigan (2 species), raven, and birds of prey including owls (8 species). The common names of birds used in this discussion follows the names used by the American Ornithologists Union (National Geographic Society, 1987).

Table 1. Bird species of the central mainland tundra of northern Canada. Species observed at or near the Jericho Diamond Project during the course of work and studies there are shown in bold.

Red-throated loon	***Gavia stellata***	Pectoral sandpiper	*Calidris melanotos*
Arctic loon	***Gavia arctica***	Stilt sandpiper	*Calidris himantopus*
Yellow-billed loon	***Gavia adamsii (Gray)***	Common snipe	*Gallinago gallinago*
Tundra swan	***Cygnus columbianus***	**Red-necked phalarope**	***Phalaropus lobatus***
White-fronted goose	***Anser albifrons***	Pomarine jaeger	*Stercorarius pomarinus*
Canada goose	***Branta Canadensis***	**Parasitic jaeger**	***Stercorarius parasiticus***
Green-winged teal	*Anas crecca*	**Long-tailed jaeger**	***Stercorarius longicaudus***
Pintail	***Anas acuta***	**Herring gull**	***Larus argentatus***
Canvasback	*Athya valisineria*	Sabine's gull	*Xema sabini*
Greater Scaup	*Aythya marila*	Arctic tern	*Sterna paradisaea*
Oldsquaw	***Clangula hyemalis***	**Snowy owl**	***Nyctea scandiaca***
White winged scoter	***Melanitta fusca***	Short-eared owl	*Asio flameus*
Black scoter	***Melanitta nigra***	Common nighthawk	*Chordeiles minor*
Surf scoter	*Melanitta perspicillata*	**Horned lark**	***Eremophila alpestris***
Red-breasted merganser	***Mergus serrator***	**Cliff swallow**	***Hirundo pyrrhonota***
Common merganser	***Mergus merganser***	Bank swallow	*Riparia riparia*
Golden eagle	***Aquila chrysaetos***	**Raven**	***Corvus corax***
Bald eagle	***Haliaeetus leucocephalus***	Northern wheatear	*Oenanthe oenanthe*
Northern harrier	***Circus cyaneus***	**Gray-cheeked thrush**	***Catharus minimus***
Gyrfalcon	***Falco rusticolus***	**American robin**	***Turdus migratorius***
Peregrine falcon	***Falco peregrinus***	**Water pipit**	***Anthus spinoletta***
Rough-legged hawk	***Buteo lagopus***	**Yellow warbler**	***Dendroica petechia***
Willow ptarmigan	***Lagopus lagopus***	Yellow-rumped warbler	*Dendroica coronata*
Rock ptarmigan	***Lagopus mutus***	Blackpoll warbler	*Dendroica striata*
Sandhill crane	*Grus Canadensis*	**American tree sparrow**	***Spizella arborea***
Lesser golden plover	***Pluvialus dominica***	Savannah sparrow	*Passerculus sandwichensis*
Semipalmated plover	***Charadrius semipalmatus***	**White-crowned sparrow**	***Zonotrichia leucophrys***
Lesser yellowlegs	*Tringa flavipes*	**Harris's sparrow**	***Zonotrichia querula***
Ruddy turnstone	*Arenaria interpres*	Lapland longspur	*Calcarius lapponicus*
Sanderling	*Calidris alba*	Smith's longspur	*Calcarius pictus*
Semipalmated sandpiper	***Calidris pusilla***	Snow bunting	*Plectrophenax nivalis*
Least sandpiper	*Calidris minutilla*	**Common redpoll**	***Carduelis flammea***
White-rumped sandpiper	**Calidris fuscicollis**	Hoary redpoll	*Carduelis hornamanni*
Baird's sandpiper	***Calidris bairdii***		

Local observations

3.2.2 Song Birds

The group of birds discussed as “song birds” includes all species other than waterfowl and raptors. These latter two groups are discussed separately below.

Weather conditions at the time of the ground reconnaissance for examining bird species’ distribution in 1999 were not conducive to “bird watching”. Cool, blustery and cloudy conditions with frequent showers, including snow showers, prevailed every day of the 1999 bird reconnaissance work in the Project area. These conditions notwithstanding, numerous birds were observed which confirmed observations reported for previous field work in the area. In addition to recording the species present in the areas slated for development, particular attention was also paid to terrain and habitat conditions that may require special attention for impact mitigation measures. Observations made in 1999 at each of the areas of infrastructure proposed for the Project are discussed separately.

Winter Road between the Jericho pipe and Contwoyto Lake
The habitat and terrain along the route varies between lush riparian willow growth 1-2 m in height in the lower reaches between Lynne Lake and Contwoyto Lake, through wetlands to upland tundra where it meets the all weather road near the portal. The entire route is bordered by dry rocky uplands. White-crowned sparrow and robins were found in the riparian shrubbery. This is the only location where robins were observed. Redpolls and savannah sparrows were common, as were tree sparrows. Lapland longspur, horned lark, savannah sparrows and least sandpiper were observed along the upper portion of the route along with tree sparrows and redpolls.

Waste rock sites 1 and 2
Area 1 lies east of Carat Lake, is generally well drained and covered with a birch heath. It hosts bird species that are otherwise found in both upland and shrub habitats. The most common bird observed was the Lapland longspur with both white-crowned and tree sparrow also being common. The ubiquitous savannah sparrow and horned lark were also present. Area 2 is planned for the upland between the pipe and Key Lake; this is rocky upland tundra where Lapland longspur and horned lark are common. Harris sparrow were also observed in this area.

Tailings pond - Long Lake
Long Lake lies immediately adjacent the plant, camp, offices and related storage areas including ore stockpiles. It was examined in both 1999 and 2000 by walking the entire shoreline. In neither year were any water fowl observed. It is characterized by rocky upland tundra habitat with the typical passerine species present - Lapland longspur and horned lark being the most common; least sand piper and pipit were also observed here.

Plant and ore stock pile site
The plant site covers the upland east of the waste rock area 2. It was examined in both 1999 and 2000 by walking. It is characterized by rocky upland tundra habitat with the typical passerine species present. Lapland longspur and horned lark are the common species observed.

Road and airport
This terrain is a combination of rocky upland and a fluvial outwash plain. Bird species here were similar to those in the other upland well drained terrain type discussed above with all upland species present including the American pipit. Least sandpiper and semipalmated plover were observed in the lowlands east of the airstrip. Cliff swallows were frequently observed in the area of the camp and airstrip.

Contwoyto 1
The terrain around the Contwoyto kimberlite is less rugged and varied than around Jericho. It offers no cliffs and ledges for raptor nesting, nor are there any

willow thickets like those along the winter road up from Contwoyto Lake. Reconnaissance conditions on July 5 were blustery and overcast. The same species that were abundant at Jericho were also observed in abundance at Contwoyto 1: Lapland longspur, savannah sparrow, horned lark and Harris sparrow were common. Ptarmigan and their sign were present and a lesser golden plover was observed; the latter has not been observed at Jericho.

Incidental observations of birds in the Project area made by Project personnel were recorded in the Wildlife Log. The first migrant noted in the Project area for the spring of 1999 was a parasitic jaeger on 12 April. The first 1999 migrants recorded for Lupin were snow buntings on 1 May.

Y2000 Breeding Bird Surveys

The breeding bird survey conducted June 30 - July 3, 2000 provided relative densities of song birds in 11 different locations in and around the Project area. Results are provided in Table 2; field data sheets are provided in Appendix 2. Locations of breeding bird transects are shown on Figure 4.

Table 2. Results of Breeding Bird Surveys: Jericho Project area June 30 - July 3, 2000

Site #	Location	Area (ha)	Bird Species Present
1	Carat Lake outflow	2.6	2 Lapland longspur
			2 red polls
			1 horned lark
2	Jericho River	3.5	4 Lapland longspur
	wet meadow		1 horned lark
			1 red polls
			1 Savannah sparrow
3	rocky upland	5.0	2 least sandpiper
			6 Lapland longspur
			1 Savannah sparrow
			1 horned lark
4	airstrip east Kame/Delta	6.7	2 horned lark
			1 Savannah sparrow
			1 herring gull
5	rocky uplands east of camp	9.3	2 horned lark
			1 Savannah sparrow
			1 pipit
			1 raven
			2 cliff swallow
6	Carat Lake beach	n.d.	2 semipalmated plover
			2 parasitic jaeger
7	cliff east of airstrip	2.9	2 red polls
			3 Lapland longspur
			1 white-crowned sparrow
			1 golden eagle
8	east shore Jericho Lake	3.2	1 Savannah sparrow
9	north of lake near road	2	3 Lapland longspur
			2 Savannah sparrow
			2 horned lark
10	heath south of camp	2	2 Lapland longspur
			1 ptarmigan
11	Airport	2	2 Lapland longspur
			1 horned lark
			1 Savannah sparrow

Note: Sites 1- 8 were set out in 1997 - See Canamera, 1997.
Sites 9-11 were set out in 2000 - see Appendix 2.

3.2.3 Waterfowl

Waterfowl are uncommon in the Project area. No waterfowl were observed on Lynne Lake (winter road route) or Long Lake. A pair of Arctic terns and two red throated loons were a common sight in the outflow of Carat Lake all summer long; a pair of long-tailed jaeger also nested here in 1999. It is noteworthy that Carat Lake was still 60 percent ice covered on July 3, 1999. A pair of red-breasted mergansers were observed on the lowland pond immediately east of the

airstrip on July 3. On August 9, 1999 two adult oldsquaw with six ducklings were seen on the pond adjacent to the road immediately south of the airstrip.

Canada geese and white-fronted geese were seen on Contwoyto Lake while conducting caribou trail traverses in early August, 1999. No goslings were observed in any of these goose sightings. Pairs of both oldsquaw and white-fronted geese were observed on different ponds in the area of Contwoyto 1 on July 5, 1999; nesting could not be confirmed.

Incidental observations of birds in the Project area made by Project personnel in 1999 were recorded in the Wildlife Log. Selected observations are repeated below. For a complete listing of all bird observations please see Appendix 1.

9 May	a mallard observed NE of Lupin
10 May	the first geese of 1999 observed at both Jericho and Contwoyto 1
20 May	the first white-fronted geese recorded at Jericho
24 May	a green-winged teal observed near north end of airstrip at Jericho
	pintail observed near north end of airstrip at Jericho
25 May	two tundra swans observed near north end of airstrip at Jericho
4 June	first herring gull of the season noted
6 June	first loon of the season noted
23 June	Arctic terns nesting near Carat Lake outflow
5 Sept.	eight loons including young on Carat Lake

3.2.4 Raptors

The Willingham Hills and the Peacock Hills to the east of Contwoyto Lake provide more nesting habitat for raptorial birds and ravens than does the surrounding rolling countryside adjacent to most of Contwoyto Lake and the area west of the Project toward Rockinghorse Lake. It is for this reason that raptors are a significant element in the fauna of the Project area.

The raptors present in the Project area show similar nest site requirements and it is for this reason that a site may be occupied by different species in successive years. Golden eagles, ravens and rough-legged hawks build stick nests and may add more material every season the site is used. These sites may be used by falcons in some years. Falcons do not seem to do any nest building other than scrape the nest site in preparation for egg-laying.

The first inventory of raptor nest sites in the Willingham Hills was completed for the Jericho Diamond Project in 1995 when a thorough and comprehensive inventory was completed (Canamera, 1995 unpublished). Nest sites were assigned location codes in 1996 (please see Figure 4; Canamera, 1996). The 1999 and 2000 nest site surveys were conducted on July 16 and 20 respectively. In 1999 three sites were occupied by peregrine falcons. At J1 the adult bird would not leave the nest so productivity observations could not be made there. At J9 one peregrine chick

was observed and at J19 there were four eggs. Rough-legged hawks occupied four sites. J3 had at least 2 chicks, J8 had at least 1 chick, J15 had 1 chick and J18 had 2 chicks. In 2000, roughlegs occupied J2, J3, J9, and J21; peregrines were in J1, J5, J7, J15, J19 and J20; golden eagles nested at J4 and J11.

Surveys in 1995, 1996, 1997, 1999, and 2000 showed the following nest site/territory occupancy.

Species / year	1995	1996	1997	1999	2000
rough-legged hawks	3	7	5	3	4
peregrine falcons	2	2	2	3	6
Gyrfalcon	1	0	1	0	0
golden eagles	1	0	0	0	2
Total active	7	9	8	6	12

Ravens were observed in the area in all years of field studies; their nesting is initiated in late winter. Active raven nests of the year would probably be abandoned by mid-summer when the raptor surveys were done. That notwithstanding, birds of the year stay together and are attended by their parents well into July near Yellowknife (author's observations at Prosperous Lake, NT); this was also observed by the author during a survey of the proposed Ulu winter road on July 31, 1996. No clutches of fledged young ravens have been observed in the Project area during any of the studies by the author nor reported by others. Appendix 3 provides a complete nest site activity summary for all raptor surveys reported since 1995.

Selected observations of raptors in the Jericho area as provided in the 1999 Wildlife Log appear below.

2 May	two gyrfalcons observed south of the portal
29 May	two peregrines observed east of airstrip; first peregrine recorded for 1999
11 June	rough-legged hawks observed east of portal; first recording for 1999
4 August	a single golden eagle east of at the airstrip

Please see Appendices 1 and 3 for more field observations and raptor nesting data.

The terrain in the immediate area of Contwoyto 1 has rolling relief and offers few if any suitable sites for raptor nest sites. A single peregrine falcon was observed flying over the area near the pipe on July 5, 1999.

3.2.5 Previous bird studies

The observations reported here complement those of previous studies conducted in association with the Jericho Diamond Project since 1995. Several additional

observations are noteworthy. Bird counts along the watercourse between Carat and Jericho Lakes (adjacent to the airstrip) in 1995 were dominated by white fronted geese and herring gulls. Unfortunately, dates of the observations are not provided. In 1996 two bald eagles were observed 8 km north of the Project area soaring over the esker there. A northern harrier was observed in the Project area in 1996. In both cases nests and other evidence of breeding for these latter two raptor species have not been found in the Project area.

3.2.6 Summary - birds

Some 67 species of birds can be expected to be observed in the greater area of the Jericho Diamond Project based on compendia and range maps of bird species of northern Canada, and observations made during the course of work related to the Project. Of these, 42 species have been observed in the Project area since 1995 (please refer to Table 1 above). None are listed as "endangered", "threatened", or "vulnerable" by the Committee on the Status of Endangered Wildlife in Canada. Also, none have been observed to be breeding in the Project area in concentrations that would place special significance on the habitat in the Project area for any population of bird species observed here.

3.3 Mammals

3.3.1 Introduction and regional overview

The mammal species of the region represent the full assemblage of mainland tundra mammals. All have adapted to the sub-arctic climate in which the winter is a period of reduced food availability. The ground squirrel hibernates. The grizzly goes into a long period of torpor when its metabolic rate is much reduced so it does not need to hunt and scavenge when food is very scarce. Caribou migrate to the boreal forest. True year round residents are the muskox which searches for snow conditions favorable for winter grazing, the microtines and ermine which live under the snow, and the hare which lives in areas that offer both shelter and windblown vegetation. The remaining carnivores (fox, wolf and wolverine) hunt and scavenge over very large areas for winter food. Wolves also follow caribou herds to the boreal forest.

The Project area hosts 16 mammal species (indicated on Table 3). The names of mammals in this discussion follow the naming and classification provided by Banfield (1977).

Table 3. Mammals of the Canadian central mainland tundra.
Names in bold indicate that the species has been documented to occur in the Project area.

Masked Shrew	***Sorex cinereus***
Arctic hare	***Lepus arcticus***
Arctic ground squirrel	***Spermophilus parryii***
Tundra redback vole	***Clethrionomys rutilus***
Brown lemming	*Lemmus sibericus*
Greenland collared lemming	***Dicrostonyx torquatus***
Tundra vole	*Microtus oeconomus*
Wolf	***Canis lupus***
Arctic fox	***Alopex lagopus***
Red fox	***Vulpes vulpes***
Grizzly bear	***Ursus horribilis***
Short-tailed weasel	*Mustela erminea*
Least Weasel	*Mustela nivalis*
Wolverine	***Gulo luscus***
Barren-ground caribou	***Rangifer tarandus***
Muskox	***Ovibos moschatus***

3.3.2 Small Mammals

Small mammals are a significant item in the diet of most tundra predators, both bird and mammal. Tundra raptor populations fluctuate in response to mammal prey abundance (Shank, 1997) as do the populations of Arctic foxes (Macpherson, 1969). In this context small mammal refers to all mammal species up to the size of Arctic hare (incl.).

Systematic studies of microtine rodents were initiated in the Jericho Project area in 1999 to determine their relative abundance in the major habitat types of the Project area. Only two species were collected by snap trapping: the tundra redback vole and the Greenland collared lemming. Table 4 shows the results of these collection efforts. Data are presented in the format established by Shank (1997).

Table 4. Summary of small mammals trapped: Jericho Diamond Project August 1999-2000

Habitat/Sp.	TN	RBV	CL	NT	TCap	MIS*	ETN	Index
1999								
Birch heath	500	33	0	0	33	21	479	6.9
Rocky upland	500	14	0	0	14	48	452	3.1
Sand plain	500	0	1	0	1	125**	375	0
2000								
Birch heath	500	41	0	7	41	87	413	9.9
Rocky upland	500	13	1	6	14	84	416	3.4
Sand plain	500	1	1	0	2	218**	282	0.71

TN - trap nights	TCap - total captures
RBV - redback vole	MIS - misfires
CL - collared lemming	ETN - effective trap nights (TN - MIS)
NT - non-target	Index - (Tcap/ETN X 100)*

* Most misfires were caused by ground squirrels raiding the bait from traps

** Please see notes on data sheets in Appendix 4 for explanation of the high number of misfires.

Shank (1997) reports a positive correlation between active rough-legged hawk nests and the microtine trap index. Highs in nesting activity at Hope Bay coincided with highs in the microtine trap index. Microtine index values that coincided with highs in nesting activity were 7.8 in 1984; 5.5 in 1987; 9.9 in 1990; 5.9 in 1996. Each represented a "high" in the microtine cycle and coincided with an increased number of rough-legged hawk nests over the year previous. At Hope Bay microtine index values of 3.0 were associated with "lows" in observed rough-legged hawk nesting activity.

In the case of the Project area, it is premature to know what the microtine index for each of the habitats sampled would be in a "high" year. Also, two consecutive year's do not show if the microtine populations in the different habitat types cycle in synchrony. A multi year small mammal monitoring program in Alaska which sampled tundra redback voles concurrently in riparian and open canopy shrub habitats showed synchronous population dynamics (US Parks Service, 1996). In the Jericho Project area, the rocky upland habitat is the dominant habitat type and so the microtine abundance in that type would be the principle factor influencing absolute vole abundance in the Project area. The relatively high index (9.9) for the birch seep in Y2000 coincided with one more rough-leg nest over the total in 1999. Only repeated sampling and coincident raptor surveys in the Project area will tell us that microtine indices and active raptor nest site values coincide in the course of local microtine and raptor population cycles.

The lemmings captured tell us only that the species is present. Presumably it is at a low point in the cycle, but without more data it is premature to draw conclusions about collared lemming populations and cycles in the Project area. Adult body weight for lemmings ranges from 56 - 112 g. (Banfield, 1977). All specimens in

the 1999 collection weighed less than that. A female lemming can come into breeding condition at 30 g which can be attained within 40 days (Banfield, 1977).

Tundra red-backed voles' adult body weight ranges between 30 g. and 42 g. (Burt and Grossenheider, 1964). The tundra red-backed vole breeds continuously from late winter throughout the snow free period (Banfield, 1977). It is therefore possible for a female of the year to produce offspring late in the summer of the year that she was born (Whitney, 1976). These reproductive properties provide the species with a capacity for eruptive population dynamics (Rexstad, 1994). The weight ratio showed by the redback voles trapped in the Project area in 1999 suggests that at least two cohorts were produced in both 1999 and 2000; the <20 g and the 20 - 30 g groups of voles.

Table 5. Body weights of microtines captured in Project area habitats. (voles unless indicated)

Habitat / weight	<20 g	20 - 30 g	>30 g
Jericho			
1999			
Birch heath	11	16	6
Rocky upland	1	9	4
Sand plain		1 lemming	
2000			
Birch heath	8	18	15
Rocky upland	5	51 lemming	3
Sand plain		1	1 lemming
Contwoyto 1			
Birch heath	1	3	1
Rocky tundra		1	
		2 lemming	1 lemming

Data sheets for the trapping program are provided in Appendix 4.

The tundra red-backed vole was the most common microtine captured in environmental baseline studies at Diavik. They were most abundant in boulder field and tall shrub type habitat. This was attributed to the greater snow accumulation characteristic for these habitats (Diavik, 1998).

Ground squirrels

Ground squirrels are the most commonly observed mammal throughout the summer months in the Project area. They seem to occur wherever ground conditions permit burrows and so are very common in areas where the landscape includes fine soil deposited by glaciers. Ground squirrels are common in the three major habitats sampled for microtines. In addition to digging burrows in granular terrain, it is not uncommon to encounter them in rock piles as well. This tundra mammal seems to adapt quickly to camps as they burrow under buildings and

tent frames and can be observed packing nesting materials and other provisions to their burrows in preparation for hibernation.

No systematic observations of ground squirrels or their relative abundance within the Project area were made during the course of studies reported here. The first observation of a ground squirrel in the 1999 Wildlife Log is dated May 10.

Arctic hare

Arctic hare are not as common as the ground squirrel but are found in the Project area. Hare feces were frequently observed while conducting the caribou trail traverses which suggests they occupy all terrestrial habitats within the Project area. Studies in 1996 reported hare feces in rocky upland tundra, grassy birch meadow, outcrop highland and esker terrain types (Canamera, 1996).

No systematic studies of Arctic hare were conducted in 1999 or 2000 but incidental observations were recorded in the wildlife log. Please see Appendix 1.

Summary - small mammals

The Project area hosts the normal assemblage of small tundra herbivores. The numbers and abundance of lemmings and voles fall within the range reported for these species elsewhere on Canada's mainland tundra (Shank, 1997).

3.3.3 Carnivores

The mammal species for the Project area show that it is within the geographic range of seven carnivore species: least weasel, short-tailed weasel, wolverine, Arctic fox, red fox, wolf and grizzly bear. Active searches were made throughout the Project area for carnivore dens; also, all carnivore activity observed was recorded in the Wildlife Log for the Project area.

Least weasel

None were observed in the Project area in 1999 and 2000 nor have any been reported from previous field studies here.

Short-tailed weasel

None were observed in the Project area in 1999 and 2000 nor have any been reported from previous field studies here.

Wolverine

No den was found in the Project area but a wolverine was observed near the inflow to Carat Lake on 15 July, 1999. Wolverine were also observed at the Contwoyto 1 pipe. Wolverine tracks were occasionally seen at the portal pad both in 1999 and 2000; one wolverine approached an environmental crew (BSO and HM) within 20 m at the inlet to Carat Lake in 1999.

Arctic fox

No dens were found within the Project area and no observations were recorded.

Red fox

A den east of the airstrip was occupied (see Figure 5) near the east shore of Lake O1 in 1999 and 2000. Periodic observations of the den in July and showed at least three young fox there July 10 and again July 25, 1999. Only one was observed outside the den 30 July. Low microtine numbers would affect fox productivity as severely as it would raptor success. No sign of current year occupation was noted when this site was checked on July 3, 2000.

Wolf

No active wolf dens were found in the Project area in 1999 and 2000; observations of wolves here as recorded in the Wildlife Log are provided in Appendix 1. The GNWT RWED wolf telemetry collar monitoring program did not retrieve any wolf data relevant to the Project area in 1999 prior to collar demobilization in June (Dean Cluff, personal communications).

Grizzly bear

The first grizzly activity for the year was recorded for April 24, 1999 in the Lupin area. No maternity dens were noted during aerial reconnaissance of the Project area in April and May 1999, during the period when sows with cubs normally emerge in spring. Also, no sows with cubs were observed in the Project area in 1999. Individual bears were observed and the Wildlife Log records are provided in Appendix 1. The GNWT grizzly telemetry collar monitoring program did not retrieve any grizzly data relevant to the Project area in 1999 prior to collar demobilization in June (Dean Cluff, personal communications). Bear observations in and near the Project area in 1999 included:

1999

24/25 May	a single bear north of Carat camp feeding on a caribou carcass;
13 June	a single bear observed during aerial survey on shore of Dragon Lake 16 km WNW of portal;
1 July	a single grizzly 500 m NW of inflow to Lynne Lake;
4 July	a single grizzly bear walking SSE from the southern escarpment of the Willingham Hills 6.5 km south of the Jericho portal;
8 July	a single bear near the Contwoyto 1 kimberlite;
29 July	a single grizzly west of Carat Lake.

2000

23 July	a sow with 2 cubs observed at the Jericho portal site.

Summary- carnivores

The known fox and wolf densities are outside the Project "footprint". The active and vigilant incineration of waste by Carat Camp personnel and the electric fence there seem to be effective practices for reducing or preventing interaction with grizzly bear at the Carat camp.

3.3.4 Ungulates

Muskox

Project personnel observed muskox from time to time when flying to and from Lupin. Observations were also recorded on aerial surveys over the Project area. Table 6 shows the dates of surveys, locations and muskox observed. The table is followed by selected observations of muskox in the Project area recorded in the wildlife log.

Table 6. Muskox observed during aerial surveys over Jericho Diamond Project, 1999

Survey Date /parameters	A/C type	Sky conditions	Muskox observed	Location(s)
11 April	C-185	clear	0	
9 May	C-185	partly cloudy	25 5	highlands, 6.5 km northeast of portal, 13 km north of portal
18 May	B206	Overcast	0	
13 June	C-185	Clear	1	a single muskox on the western edge of the Contwoyto survey block near the shore of Contwoyto Lake.
30 June	B206	partly cloudy	2	a cow with calf; highlands 6.5 km SE of portal
10 July	C-185	Overcast	1	a single animal 6 km west of Contwoyto 1 pipe
8 August	B206	partly cloudy	0	
12 September	C-185	partly cloudy	0	

Incidental observations of muskox while commuting between the Project area and Lupin were recorded in the Wildlife Log (see Appendix 1).

2 July — single male near southeastern corner of Willingham Hills; cow with calf on highlands near Contwoyto Lake south of proposed winter road route

6 August — a single muskox near shore of Contwoyto Lake NW of winter road landfall.

Caribou

Studies of caribou in the Project area were conducted at a local and regional scale. Local studies took the form of regular aerial surveys on set transect lines plus observations of caribou activity in the Project area. Regional reconnaissance flights were completed to complement local observations to assess how local observations of caribou concentrations fit the larger pattern of caribou movements and distribution around the NW end of Contwoyto Lake; or were observations of

large concentrations singular local events? These data are supplemented by location data obtained from satellite collars on female caribou monitored by RWED-GNWT.

Project area surveys and observations

Table 7. Caribou observed during aerial transect surveys over Project Area, 1999.

Survey: Date/ Parameters	A/C type	Sky Conditions	Caribou observed	Location(s)
11 April	C-185	clear	9	• Resting on esker in southeast of Contwoyto survey block
36654	C-185	partly cloudy	150 8	• one group of approx. 150 on the ice of Contwoyto Lake 1 km south of kimberlite; • one band 5 km west and 10 north of kimberlite
18 May	B206	overcast	1000 - 1100 996	• throughout Jericho survey area in 16 groups ranging from 2-130 animals • in 8 herds throughout the Contwoyto 1 survey block ranging from 10 to 337 animals
13 June	C-185	clear	52 119	• throughout the survey area in 15 groups ranging from 1-12 animals; no calves seen; • through the Contwoyto 1 survey block in 31 groups ranging from 1-9 animals; no calves seen.
30 June	B206	partly cloudy	300+several thousand	• throughout the survey area in 10 groups ranging from 8 to 100+ animals; many calves • in three groups; two of several thousand and 500+ west and south of the kimberlite; one of 500+ 12 km northeast of the kimberlite; all herds with calves.
10 July	C-185	overcast	1582, 385+	• in highlands near Contwoyto Lake; 4 groups ranging from 7-85 animals with calves • on northwest of Contwoyto survey block in 6 groups ranging from 5-2000+ animals with calves.
8 August	B206	partly cloudy	0	
12 Sept.	C-185	partly cloudy	0	

The survey for late October, 1999 was cancelled due to poor weather for aerial surveys.

Numerous observations of caribou concentrations in the Project area have been made over the course of field studies there which add significantly to the

observations made during transect surveys. The details of these observations are taken from the Jericho Project Wildlife Log unless otherwise noted.

Selected caribou observations for the Project area, 1996 - 2000.

1996

25 - 27 June	an estimated 50,000 animals including many calves arrive from the north and spread out and occupy the site from Jericho Lake south to the Carat camp area and to the base of the highlands to the east; these animals stayed in the Project area until noon on 27 June when they moved out to the south. The time spent in the Project area by any caribou of this herd would have been around 24 hours (Anne Gunn memo to Canamera - 11 July, 1996). Their presence halted air strip construction from 20:30 26 June to 12:00 27 June.
10 - 12 July	no caribou observed by author in extensive trekking throughout Jericho area.
26 - 31 July	no caribou observed by author in Jericho area during raptor surveys and also in surveys of winter road route north of Jericho to Echo Bay Mines' Ulu Project.
16 August	no caribou observed by author in Jericho area during aerial reconnaissance and also in surveys of winter road route north of Jericho to Echo Bay Mines' Ulu Project.
5-6 September	no caribou observed by author in Jericho area during aerial reconnaissance and also in surveys of winter road route north of Jericho to Echo Bay Mines' Ulu Project.
10 September	no caribou observed by author in Jericho area during aerial reconnaissance and also in surveys of winter road route north of Jericho to Echo Bay Mines' Ulu Project.
3 October	no caribou observed by author in Jericho area during aerial reconnaissance and survey of winter road route north of Jericho to Echo Bay Mines' Ulu Project.

1997

19 June	post-calving herd of thousands moving south in the area of 66 30 N x 111 W - about 40 km north northwest of Jericho; no caribou observed in Jericho area during survey of Ulu Project winter road route.
9 July	no caribou observed in Jericho area during survey of Ulu Project winter road route.

1999

17 April	the first caribou entry in 1999 wildlife log; 20 caribou feeding near Lupin;

20 April	fresh tracks near the Contwoyto 1 site; caribou or fresh caribou tracks become a near daily occurrence from this date through late May;
21 - 22 April	fresh caribou tracks heading NE noted near southern escarpment of Willingham Hills, and on Carat Lake.
1 May	5 caribou moving NE past Carat camp
4 May	5 caribou moving NE past Carat camp
9 May	80 - 100 caribou near the south end of Contwoyto Lake
10 May	180 - 200 caribou near the Contwoyto 1 site
15 May	100 - 150 caribou feeding and resting near Carat camp.
17 May	120 caribou feeding and resting then moving north past Carat camp
18 May	600 caribou moving north past Carat camp in 5 separate observations over 12 hours.
19 May	250+ moving north past Carat camp.
20 May	450+ moving north past Carat camp in two separate observations.
21 May	450+ moving north past Carat camp in two separate observations.
24 June	several thousand caribou with no calves moving past Carat camp from the south; a steady stream many caribou wide for 1.5 hours.
1 July	mixed herd of several hundred caribou feeding and resting below southern escarpment of Willingham Hills 6.5 km south of Jericho portal.
2 July	mixed herd of several hundred caribou feeding and resting below southern escarpment of Willingham Hills 6.5 km south of Jericho portal.
3 July	mixed herd of several thousand feeding and resting from Willingham Hills to western inlet of Contwoyto Lake.
4 July	the several thousand observed south of Willingham Hills late afternoon July 3 here had moved out over night and small bands of less than 100 were passing through the hills and moving south; many of the herds did not have calves.
5 July	hundreds of caribou with calves moving south past Carat Camp in highlands bordering Contwoyto Lake.
9 August	a steady stream of caribou including calves and bulls passing Carat Camp beginning at 16:30 and continuing until after sunset at 22:00. Caribou were coming from the southwest, past the portal and moving to the north.

2000

27 June	several thousand caribou moving through Carat Camp area from the southwest to the north
29 June	three separate records of separate herds in excess of 1000 caribou with cows and calves moving from north to south past Carat Camp.

Regional surveys

Regional surveys were usually conducted in response to a change in caribou presence at Lupin and Carat as well as at the time of the transect surveys in the Project area. The observations recorded are summarized in Table 8. The distribution of animals observed on regional surveys is provided in survey specific maps in Appendix 5.

Table 8. Regional surveys for caribou around the Project Area, 1999.

Survey Date /Parameters	A/C Type	Sky conditions	Regional survey route	Caribou observed
11 April	C 185	clear	• Lupin to Pellatt Lake	0
14 April	Helicopter	clear	• Lupin West	0
15 April	Helicopter	clear	• Lupin to East Bay	22
20 April	Helicopter	clear	• Lupin to Pellatt to Contwoyto 1 pipe to Lupin	0
26 April	Helicopter	clear	• Lupin to Carat to Contwoyto 1 pipe to Lupin	21
1 May	Helicopter	clear	• Lupin to Pellatt to Contwoyto 1 pipe to Lupin	5
5 May	Helicopter	clear	• Lupin to Carat to Contwoyto 1 pipe to Lupin	0
6 May	Helicopter	clear	• Lupin to Rockinghorse Lake to Izok Lake to Lupin	46
7 May	Helicopter	clear	• Lupin to Pellatt to Contwoyto 1 pipe to Lupin	0
8 May	Helicopter	clear	• Lupin to Carat to Lupin	17
9 May	C 185	clear	• Lupin to Pellatt	0
10 May	Helicopter	clear	• Lupin to Carat to Contwoyto 1 pipe to Lupin	200
12 May	Helicopter	clear	• Lupin to Rockinghorse to Izok to Lupin	0
15 May	Helicopter	clear	• Lupin to Contwoyto 1 pipe	450
16 May	Helicopter	clear	• Lupin to Pellatt to Contwoyto 1 pipe to Lupin	90
17 May	Helicopter	clear	• Lupin to Carat to Contwoyto 1 pipe to Lupin	26
21 May	Helicopter	clear	• Lupin to Contwoyto 1 pipe to Pellatt to Lupin	130
22 May	Helicopter	clear	• Lupin to Rockinghorse Lake to Izok to Lupin	550
23 May	Helicopter	clear	• Lupin to Fry Inlet return	300
1 July	Helicopter	clear	• Lupin to Rockinghorse to Izok to Lupin • Lupin to Contwoyto 1 pipe to Pellatt to Lupin	1000's including calves; 100's with no calves
10 July	Helicopter	clear	• Lupin to Izok to Rockinghorse to Lupin; • Lupin to Contwoyto 1 pipe to Pellatt to Lupin	0 1100+ in 3 groups

16 July	Scout	clear	• Carat to Izok to Rockinghorse to Carat; • Pellatt to Carat on east side; • Carat to Pellatt west side.	0 1 50 bulls
12 September	C 185	clear	• Pellatt to Carat on east side; • Carat to Pellatt on west side; • Carat to Rockinghorse to Izok to Carat.	0

Selected 1999 Regional observations

The observations recorded in the Project Wildlife Log also provide important information on the nature and timing of significant caribou movement through the Project area.

17 April	20 caribou feeding near Lupin mine
20 April	4 caribou moving NW past Lupin caribou tracks heading east observed near Contwoyto 1 pipe.
25 April	21 caribou in 4 groups observed near Contwoyto 1 pipe.
1 May	17 caribou in 3 groups observed near Contwoyto 1 pipe
6 May	55 caribou in 2 groups observed near Contwoyto 1 pipe.
8 May	122 caribou in 4 groups observed traveling east near Contwoyto 1 pipe.
10 May	330 - 380 caribou in 3 groups observed traveling NE near Contwoyto 1 pipe.
12 May	numerous scattered groups of up to 200 animals moving north and NE past Lupin and Contwoyto 1 pipe.
15 May	numerous scattered groups of up to 300 animals moving north and NE past Lupin and Contwoyto 1 pipe.
16 May	numerous scattered groups including groups of “hundreds” of animals moving north and NE past Lupin and Contwoyto 1 pipe.
21/22 May	continuous movement of caribou north and NE past Lupin and Contwoyto 1 pipe.
25 June	5,000+ caribou with no calves move past Lupin going northwest.
26 June	10,000+ caribou with no calves move past Lupin traveling southeast.
30 June	hundreds of cows with calves north of Contwoyto 1 pipe.
1 July	several thousand caribou - no calves - west of Fry Inlet on Contwoyto Lake, southeast of Lupin; several hundred caribou - no calves - near Lupin; mixed herd with calves NW Lupin 15 km; mixed herd of many thousands with calves east, north and south of Rockinghorse Lake to NW arm of Contwoyto west of Lupin; large numbers of caribou, including calves, on the north east side of Contwoyto Lake where there were very few June 30.
5 July	several hundred caribou with calves 5 km east of Contwoyto 1 pipe;

several thousand caribou on peninsula 7 km west of Contwoyto 1 pipe;
both above groups moving SE along Contwoyto lake.

Bathurst herd range wide observations 1996 - 2000

The satellite telemetry data sets generously provided by GNWT - RWED provide an overview of the movements and distribution of the Bathurst herd on a seasonal and annual basis. Satellite collar data received provide movements of 23 individual adult caribou females. Satellite telemetry collars were first deployed on Bathurst caribou in the spring of 1996. The radio in the collar provides location signals for the caribou on a pre-programmed schedule ranging from once per day to once every seven days. These are relayed by satellite to an earth receiving station for transfer to RWED. The quality of the data varies and so all the locations are not necessarily "pinpoint" accurate. In aggregate, however, they provide the most comprehensive and economical overview of the movements and distribution of individual animals that is available. Caribou are gregarious in habit and so taken together, the locations of all the collared females is the best approximation available on the month to month and season to season distribution of the herd for those seasons when the various cohorts of the herd occupy the same range. It must be emphasized that the data are provided by collars on adult females only. For the periods of the year that herds are mixed (late summer, fall migration and rut, and winter - August to March), those data may also be relevant to the whole herd; but that is not the case for the remainder of the year when the pregnant/lactating cows may be segregated from the rest of the herd during spring migration to the post-calving period (mid-March to late July).

The telemetry data are reviewed in four different ways. The discussion below provides the average daily distances moved for all collars in each season, including the individual minimum and maximum to show the range of values that make up the seasonal averages. Map series 6.1 to 6.7 show all the data points for all caribou for each season. Map series 7.1 to 7.11 shows the seasonal distribution of each caribou individually. Appendix 6 shows the straight line distances for each collared female in line graph form. These data will be discussed in the context and for the calendar periods identified as significant in the "annual life cycle periods" for caribou by the Beverly and Qaminirjuaq Caribou Management Board (BQCMB, 1999).

Table 9. The number of adult caribou cows providing telemetry data by season, 1996-2000.

Season/year	1996	1997	1998	1999	2000
late winter 1 Jan. - 15 Mar.	0	3	3	18	12
spring migration. 16 Mar. - 25 May	3	3	9	17	11
calving 26 May - 25 June	3	3	9	13	12
post-calving 26 June - 31 July	3	3	10	14	13
late summer 1 Aug. - 15 Sept.	3	3	9	13	16
fall migration/rut 16 Sept. - 31 Oct.	3	3	19	14	12*
early winter 1 Nov. - 31 Dec.	2	2	18	13	0

* data available is not complete for the full season.

The observations by Project personnel that provide a local and regional expression of the Bathurst herd's annual cycle are discussed where appropriate.

Late winter: 1 January - 15 March

This is a season of little movement except in response to snow conditions and foraging requirements (BQCMB, 1999).

The telemetry data set provides data for the 1997 - Y2000 period (n=463 location data points for 2655 "caribou days") shows an average daily movement of 3.53 km (range 0.77 - 6.55 km/day) in late winter. This is the season with the lowest average daily movement as calculated using the straight-line distances provided by the telemetry collars. Please see Figure 6.1 for the geographic distribution of the collared animals in "late winter" 1999. It shows the caribou in a much smaller geographic distribution than that of "early winter" (Figure 6.7). None of the collar locations are in or near the Project area.

Spring migration: 16 March - 25 May

The onset of spring migration varies according to the cohort of animals within the herd. The BQCMB summarizes the sequence this way: "In spring pregnant females and yearlings from these herds are the first to migrate to the calving grounds on the tundra, followed by non-pregnant females and young males. Adult males follow up to a month later." This is a season where telemetry data on females does not represent the overall distribution of the herd.

The mean daily movement of all collared animals (n =454 data points for 2571 caribou days from 1996 to Y2000) during spring migration was 8.11 km/day (range 0.97 - 21.25 km/day). Please see Figure 6.2 for the geographic distribution of the collared animals in the "spring migration" for 1996 - Y2000. It shows that the spring migration route for the 1996 - Y2000 period was generally east and then north. The Wildlife Log from Lupin and Jericho showed spring migration beginning mid-April with peak caribou movements there 20 - 25 May. The telemetry data on Figure 6.2 shows that caribou cows passed through the Project area en route to the calving ground in 1996, 1999, and Y2000. This confirms the observations recorded in the wildlife log (Appendix 1a and 1b) for 1999.

Calving: 26 May - 25 June

The view that calving grounds are "traditional" in that the same geographic area is used repeatedly may require some modification in that the calving ground for the Bathurst herd in the 1990's has no resemblance to the geographic distribution of the calving herd in the 1960's and '70's (Sutherland and Gunn, 1996). There seems to have been a shift from the calving grounds being centered on the Ellice River east of Bathurst Inlet to the lands along the Hood River west of the Inlet. Sutherland and Gunn also review the variability in the dates for the "peak" in calving. The earliest they report is 3 - 7 June for 1984 and the latest was 11 - 15 June reported for 1966 and 1986.

The mean daily movement of all collared cows combined for the calving season for 1996 - Y2000 was 6.95 km/day (n=411 data points for 1202 "caribou days") within a range of 2.67 - 11.48 km/day. Please see Figure 6.3 for the geographic distribution of the collared animals in the 1996 - Y2000 calving seasons. Figure 6.3 also shows the distribution pattern for the cows from 26 May to the peak calving period and also the distribution immediately thereafter to June 25. Calving is also a season when the telemetry data from females does not represent the distribution of the entire herd. The points on Figure 6.3 south of the calving ground may be for barren cows or cows that dropped their calves south of the calving ground. This was probably the case that was observed at Lupin in 1999 when on June 30 a single calf was in a large herd of predominantly bulls and non breeding cows and yearlings that passed Lupin from the southeast and traveling to the northwest. Figure 6.3 shows the highest number of data points between the Burnside and Hood Rivers. The 1996 - Y2000 calving season distribution (Figure 6.3) may be similar to 1996 which was described by Gunn et al (1997). The most recent population estimate for the Bathurst herd is based on that calving ground survey.

Caribou movement through the Project area dropped drastically in the last week of May. Groups of 10's and 100's were commonplace during the period before 25 May, 1999. During the calving period group size was usually below ten with many singles being recorded in the Wildlife Log (Appendix 1). This decline coincided with the onset of the calving period. There were no calving activities

reported in the Project area by Project staff. The first calves observed there in 1999 were on June 30 when a single calf was observed as part of a herd arriving at Lupin from the southeast. There were no other calves observed in this herd of several thousand animals including many bulls, many yearlings and many adult cows.

Calving is also the period during which the non-calving portion of the herd undertakes the final portion of the spring migration to the summer range. This involves the majority of the bulls for the herd, many yearlings and the dry cows. Herds of 5,000 - 10,000+ animals were observed daily at Lupin between 27 and 30 June, 1999, moving from the south to the north along the shores of Contwoyto Lake in the area of Lupin Mine. This portion of the migration is initiated during the "calving period" and ends with these animals spreading out over the tundra in July.

Post-calving: 26 June - 31 July

Insect harassment on caribou begins with the emergence of mosquitoes soon after calving is complete. Caribou are often seen in huge dense herds during this period. Terrain that offers insect relief like a high ridge or esker will be occupied by caribou during periods of insect harassment. Kelsall describes the situation: "As a general rule caribou react to black fly and mosquito harassment as a group. A band or herd will synchronously run through a swampy area, or slow and spread out to feed on a wind-swept hilltop" (p.272). Telemetry locations for this period may be an approximate geographic distribution of the overall herd for the second half of the season: mid - end July.

The first herd with numerous calves observed in the Project area in 1999 was during the aerial survey on June 30. It appeared that the herds with calves observed on June 30 and July 1 had moved into the region around the Project area from the north or northeast. Animals observed in the Project area during this period consisted of herds on the move. Unlike 1996 when some 50,000 caribou in a mixed herd spent the evening of June 26 and most of June 27 around the airstrip and Carat camp area the animals observed during the post-calving period in 1999 did not stop in the Project area. The exception was a single female with a limp that hung around the portal and airstrip for most of July and into August, 1999.

A similar pattern was observed at Carat Camp in Y2000. It started June 26 when a herd of several hundred including calves passed the camp. This was followed by herds of several hundred to several thousand passing the camp again on June 29.

Telemetry data for this season was provided for the 1996 - Y2000 period. The mean daily movement of all collared animals combined (n= 282 data points for 1520 caribou days) for this period was 13.52 km/day (range 5.17 - 20.11 km). The average daily movement for the post calving season is the highest for the caribou year and calculated to be 40% higher than during spring migration.

Please see Figure 6.4 for the geographic distribution of the collared animals for the 1996 - Y2000 post-calving seasons. The distribution of the females (and the herd) shown in Figure 6.4 is similar to late summer (Figure 6.5). This distribution is achieved by the highest average daily movement for the year provided by the collars (Figure 9). Perhaps that explains (in part) the observations of caribou in the Project area for this season which were mostly animals "constantly on the move". Figure 6.4 shows that caribou probably moved through the Project area in the post-calving seasons in 1996, 1998, and 1999. Observations at Carat camp in Y2000 confirms that significant movements also occurred this year.

Late summer: 1 August - 15 September

Late summer sees the maximum dispersal of the caribou over the summer range. The harassment by mosquitoes may be reduced but that of the warbles and bots remains (BQCMB, 1999). The reaction of caribou to flies (other than black flies) is "individual" (opposed to as a group) in contrast to the reaction to mosquitoes and black flies. The net effect of insects on caribou is summed up by Kelsall: "Insect pests of all sorts have a profound effect on caribou during summer. Perhaps their greatest effect is to inhibit feeding. During warm summer periods, with little or no wind, the animals exist for days in near-constant, rapid movement, harried by mosquitoes and black flies on low ground, by warble and nostril flies on drier areas, and occasionally by other dipterous flies of the Tabanus group, the so-called bulldogs" (p.272).

Telemetry data for this season cover the 1996 - Y2000 period (n=300 data points for 1865 caribou days) showed a mean daily distance movement of 5.32 km/day (range 0.28 - 11.95 km/day). Figure 6.5 shows that caribou were probably in the Project area in late summer 1999.

The only significant caribou presence in the Project area during this period in 1999 occurred in the August 9 - 15 period. Mixed herds began passing the Carat camp around 4:30 pm August 9 and continued well after sundown. This pattern was observed to continue during the morning of August 10 and continued through August 15 (Appendix 1). The direction of movement was from the southwest to the north. A reconnaissance flight on August 10 to search for their destination failed in that no areas of caribou concentrations were observed north of the Willingham Hills or on the east side of Contwoyto Lake north of Contwoyto Point. Caribou in low density were observed throughout the meadows north of the Willingham Hills in the direction of Kathawachaga Lake. On the other hand the area between Carat Lake and Rockinghorse Lake showed hundreds (perhaps thousands) that were moving slowly in the direction of Carat Lake. These may have been the animals that were subsequently observed there in the 10 - 15 August period.

Fall migration and rut: 16 September - 31 October

Kelsall (1968) describes barren ground caribou distribution and movements in relation to weather and reproductive cycles from numerous observations on the mainland caribou range. "During the rut the caribou are in large herds. Such

herds are not tightly knit aggregations, such as are observed during insect harassment in summer, but are composed of numerous small bands which are constantly moving about, joining others, and splitting apart. The entire herd may be spread over thousands of square miles (p. 170). While his narrative shows that there is no failsafe predictable pattern, "the animals usually remain in the vicinity of tree-line for the beginning of the rut" (p. 171). Rutting behavior in bulls can appear as early as late September and persist into November. The peak of the rut, according to several observers' reports summarized by Kelsall, occurs the last week of October with the bulls shedding their antlers soon after. The dispersal associated with migration to the winter range seems to follow immediately that the rut is over.

The herd is generally well mixed during this season and so the telemetry data also shows the overall herd's geographic distribution. Figures 6.6 shows that the distribution of the Bathurst Herd for the rutting seasons for 1996 - Y2000. The mean daily movement of all collared animals combined (n = 274 for 1555 caribou days) for this season for the 1996 - Y2000 period was 7.78 km/day. The daily movements for individual female caribou ranged from 0.07 - 14.14 km/day. None of the telemetry locations for this season were in the Project area for the 1996 - Y2000 period.

Early winter: 1 November - 31 December

The winter distribution of a barren-ground caribou herd is highly variable from year to year except that most of the herd will almost certainly be within the boreal forest. The wintering areas are usually occupied by late November or December. Kelsall (1968) provides winter distribution maps of the Bathurst herd for 10 years of a 12 year period (1948 - 1960). The yearly distribution shown was compiled on the basis of extensive aerial census surveys flown over the entire winter range. "In most cases, however, only a fraction of an area was occupied at any given time, and the animals moved around considerably within the boundaries shown" (p.132). "None of the most frequently used areas was on the tundra. ... a great deal of the tundra was not observed in use by wintering caribou at all" (p.133).

The early winter distribution for the Bathurst herd as shown by the telemetry data for the 1996 - 1999 period confirms Kelsall's observations on winter caribou habitat as observed 40 - 50 years ago. The mean daily movement of all collared animals combined for this season was 7.44 km (n=365 for 2135 caribou days; range of mean daily movements of individual animals was 1.97 - 11.95 km/day). Please see Figure 6.7 for the geographic distribution of the collared animals in "early winter" . None of the collar locations were in or near the Project area for the 1996 - 1999 period.

Table 10 summarizes the average daily movement for each season year by year and provides the mean for the 1996 - Y2000 period.

Table 10. Average daily movement of adult caribou cows for the 1996 - 2000 period as shown by satellite telemetry.

Season	1996	1997	1998	1999	2000	All Years
Late winter	n.d.	2.92	3.47	3.49	3.77	3.53
range		1.59-3.66	2.16-4.63	1.46-4.85	0.77-6.55	0.77-6.55
n (d)		29 (219)	49 (222)	236 (1332)	149 (882)	463 (2655)
Spring migration	8.82	6.36	10.86	6.98	8.76	8.11
range	8.11-9.72	4.59-8.00	4.92-21.25	0.97-9.59	5.95-10.91	0.97-21.25
n (d)	20 (125)	33 (213)	54 (367)	204 (1092)	143 (774)	454 (2571)
Calving	8.01	10.85	5.94	6.70	6.63	6.95
range	7.32-9.17	9.98-11.48	2.67-10.13	4.28-9.53	4.64-8.39	2.67-11.48
n (d)	84 (93)	84 (93)	55 (241)	93 (403)	95 (372)	411 (1202)
Post calving	12.37	14.03	9.56	16.08	13.80	13.52
range	11.89-12.71	13.04-15.15	5.17-11.85	9.81-20.11	8.71-18.18	5.17-20.11
n (d)	27 (108)	27 (108)	44 (339)	96 (497)	88 (468)	282 (1520)
Late summer	5.39	6.56	2.81	7.39	4.49	5.32
range	5.16-5.69	2.98-8.97	0.79-4.96	4.33-11.95	0.28-6.58	0.28-11.95
n (d)	21 (138)	21 (138)	32 (352)	108 (598)	118 (639)	300 (1865)
*Fall migration/rut	9.35	10.68	5.34	9.72	3.93	7.78
range	6.25-11.53	8.56-12.95	2.26-12.23	6.19-13.43	0.07-14.14	0.07-14.14
n (d)	18(138)	18(138)	85 (442)	130 (644)	23 (193)	274 (1555)
Early winter	10.09	7.68	8.06	6.14	n.d.	7.44
range	9.46-10.72	6.11-9.25	3.05-11.95	1.97-8.06		1.97-11.95
n (d)	18 (122)	17 (122)	194 (1098)	136 (793)		365 (2135)

** Fall migration & rut: data for this season is incomplete

The variability of straight line distances moved as measured by successive between seasons and within seasons is shown graphically in Appendix 6.

Caribou Trails

The presence of caribou trails throughout the Project area shows that large concentrations of caribou have passed through this area on numerous occasions during the snow free season in the past. Caribou trails are generally oriented in a pattern parallel to the dominant topographic features of the general landscape; along a lake shore or along an escarpment. Where abrupt topographic relief is encountered however, it is not unusual for the trails to coalesce into a concentrated hard packed track that traverses the particular topographic feature. This is amply demonstrated in trails crossing the valley for the proposed winter road route. Also, it is not unusual to see the outcrops funneling trails into a track as can be observed at the east end of Long Lake where the effect can be identified on a 1:10,000 scale aerial photograph. In areas where there is little or no topographic influence on where a caribou can walk, it is not uncommon to see a large "fan" of trails crossing level terrain (Photos 6 and 7). Observations made during the life of the Project since 1995 and summarized above show that caribou movements through the area are both northerly and southerly. Herds, thousands strong, come from the southwest (June 24 and August 9, 1999) as well as from the north (June 26 / 27, 1996). Concentrations of caribou can include calves within the post-caving period (June 26 / 27, 1996 - movement from the north) or

calves may be absent in that period (June 24, 1999 - movement from the south). Herds with calves can appear from either direction (from the north - June 26 / 27, 1996; from the south - August 9, 1999).

The underlying assumption in the 1999 trail mapping effort was that the presence of trails shows the locations and routes where a significant flow of caribou should be expected during periods of high caribou numbers in the Project area. This information can help predict locations for major interactions between the Project and migrating caribou as well as point to use of caribou deflection structures, if these are found to be effective mitigation measures (CEAA, 1999).

Figure 8 shows the distribution of trails as mapped during the traverses shown on Figure 4. It shows that trails are found throughout the area between Carat Lake and Contwoyto Lake.

Summary - caribou

The information above shows the importance of scale to understanding caribou; scale in both time and space are very important. The data from the transect flights over the Project area alone could suggest that caribou are rare and infrequent visitors to the Project area. This would not explain the high density of trails that are an indelible record of their use of and movements through the Project area. When all the data are considered a picture emerges that shows caribou being absent or nearly absent from the onset of the fall migration through the winter until early to mid-April when the anecdotal record in the wildlife log and surveys showed tracks in the Project area and small bands of caribou moving through the Project area to the north and northeast. Not until May 10 were more than 100 animals observed on a regional survey. Herds of 100 or more became daily observations at the Carat camp in mid-May and lasted until late May when group size fell to single and low double digit values. A similar pattern can be seen in the wildlife log for Lupin on Contwoyto Lake. Caribou and caribou tracks there were first recorded in mid-April. The first herd of up to 100 was recorded on May 9. Herds of 100+ were recorded daily until May 25 when group size dropped to single and double digits with no large numbers recorded again until 25 June when several herds of several thousand animals without calves (except one) were observed to move through the Lupin area in a five day span. These herds were all moving in a northwesterly trend. Similarly, a large herd of “thousands” moved north through the Carat camp area on June 26; it also had no calves. This was repeated June 27 and 29, 2000.

Caribou presence in the Project area during July and August seems to be episodic. Observations of caribou at Carat camp for this period seemed to suggest that caribou moved through the Project area to get around Contwoyto Lake. At no time in 1999 and 2000 were caribou observed to fan out over the local tundra for feeding / resting cycles as would have been the case on June 26 / 27, 1996. The wildlife log for August 9 - 15, 1999 shows only three of 12 entries that indicate caribou feeding in the Project area.

Caribou presence in the Project area should be expected during spring migration, calving (for elements of the non-calving cohorts of the herd), post calving and the early days of late summer. Caribou presence in the Project area in these seasons in large numbers should be expected for short durations. Events when large numbers stay for several days will be less common.

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PHOTOGRAPHS

Photo 1. Caribou crossing water line and service road at Lupin, 30 June 1999

Photo 2. Birch heath habitat microtine trapping area showing a caribou trail

Photo 3. Rocky upland habitat microtine trapping area

Photo 4. Sandy upland habitat of airstrip microtine trapline

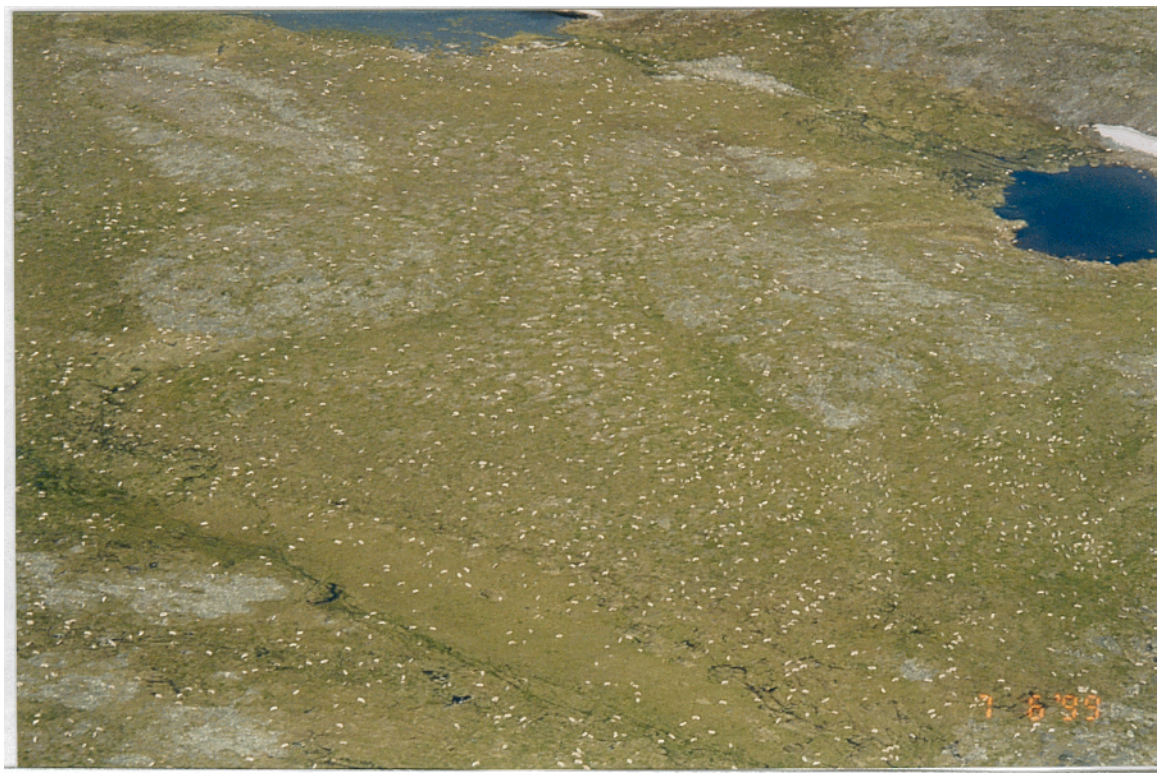


Photo 5. Calving herd near Rockinghorse Lake, about 20 km west of Jericho Project, 6 July, 1999

Photo 6. Caribou trails through wet meadow on north side Carat Lake

Photo 7. Caribou trails 1 km north of winter road route and about 2.5 km east of Carat Lake

Photo 8. Caribou trails on sandy terrain leading to mouth of canyon about 2.5 km east of airstrip

Photo 9. Caribou trails in highlands 2 km east of Carat camp

MAPS AND FIGURES

476000 mE 477000 mE 478000 mE 479000 mE 480000 mE

7323000 mN 7322000 mN 7321000 mN 7320000 mN 7319000 mN 7318000 mN

EXTENTION
EXISTING AIRSTRIP
BORROW AREA D
EXISTING BORROW AREA C
EXISTING AIRSTRIP TERMINAL BUILDING
EXISTING AIRSTRIP LAYDOWN
EXISTING TANK FARM
EXISTING BORROW AREA A
EXISTING LAYDOWN AREA
EXISTING AIRSTRIP ROAD
EXISTING CARAT CAMP

CARAT LAKE
OUTFLOW DIFFUSER (OPTIONAL)
CROWN LAND
INUIT SURFACE RIGHTS
INDUSTRIAL LANDFILL
SEDIMENT BERM
SEDIMENT CONTROL POND
WATER INTAKE
AUSEWAT
PUMP HOUSE
C4
AIRSTRIP ROAD
WASTE DUMP SITE 1 6.9 MT
ENERGY DISSIPATION POND
PIT SEDIMENT COLLECTION POND
EXPLOSIVES MAGAZINE
CONTWOYTO LAKE ROAD
AMMONIUM NITRATE STORAGE
WINTER ACCESS ROAD
C1 DIVERSION
C1 DIKE
PIT
OVERBURDEN STOCKPILE 1.6MT
EXPLOSIVES TRUCK WASH
WATER PIPELINE
SEDIMENT COLLECTION POND
C1
SEDIMENT COLLECTION POND
C2
PIT-CAMP ROAD
WATER MANAGEMENT DITCH
WINTER ACCESS ROAD (CONSTRUCTION)
FUEL FARM
POWER STATION
LOW GRADE STOCKPILE 1.7MT
WASTE DUMP SITE 2 6.0 MT
LYNNE LAKE
SETTLING POND
TAILINGS ROAD
TAILINGS DISTRIBUTION LINE
PROCESSING PLANT
CENTRAL LOBE ORE STOCKPILE 500,000T
MINING LAYDOWN
MINING SHOP
ACCOMMODATION
NORTHERN LOBE STOCKPILE 500,000T
COARSE TAILINGS STOCKPILE 2.2MT
SEDIMENT BERMS AND COLLECTION PONDS
KEY LAKE
LONG LAKE
TAILINGS CELL 2
PROCESSING LAYDOWN
RECOVERY TAILINGS
TAILINGS CELL 1
BERM AND COLLECTION POND (PUMPED TO TAILINGS)
LONG LAKE TAILINGS CONTAINMENT AREA

SITE ARRANGEMENT

Approved By:

Date:11/10/2000

Drafted By: M.J.

Figure 1

TAHERA CORPORATION

Scale: 1:20,000

Projection: UTM Zone 12 (NAD 27 for Canada)

250 0 250 500

metres

N
W E
S

7330000 mN
7328000 mN
7326000 mN
7324000 mN
7322000 mN
7320000 mN
7318000 mN
7316000 mN
7314000 mN
7312000 mN

Willingham Lake

Carat Lake

Contwoyto Lake

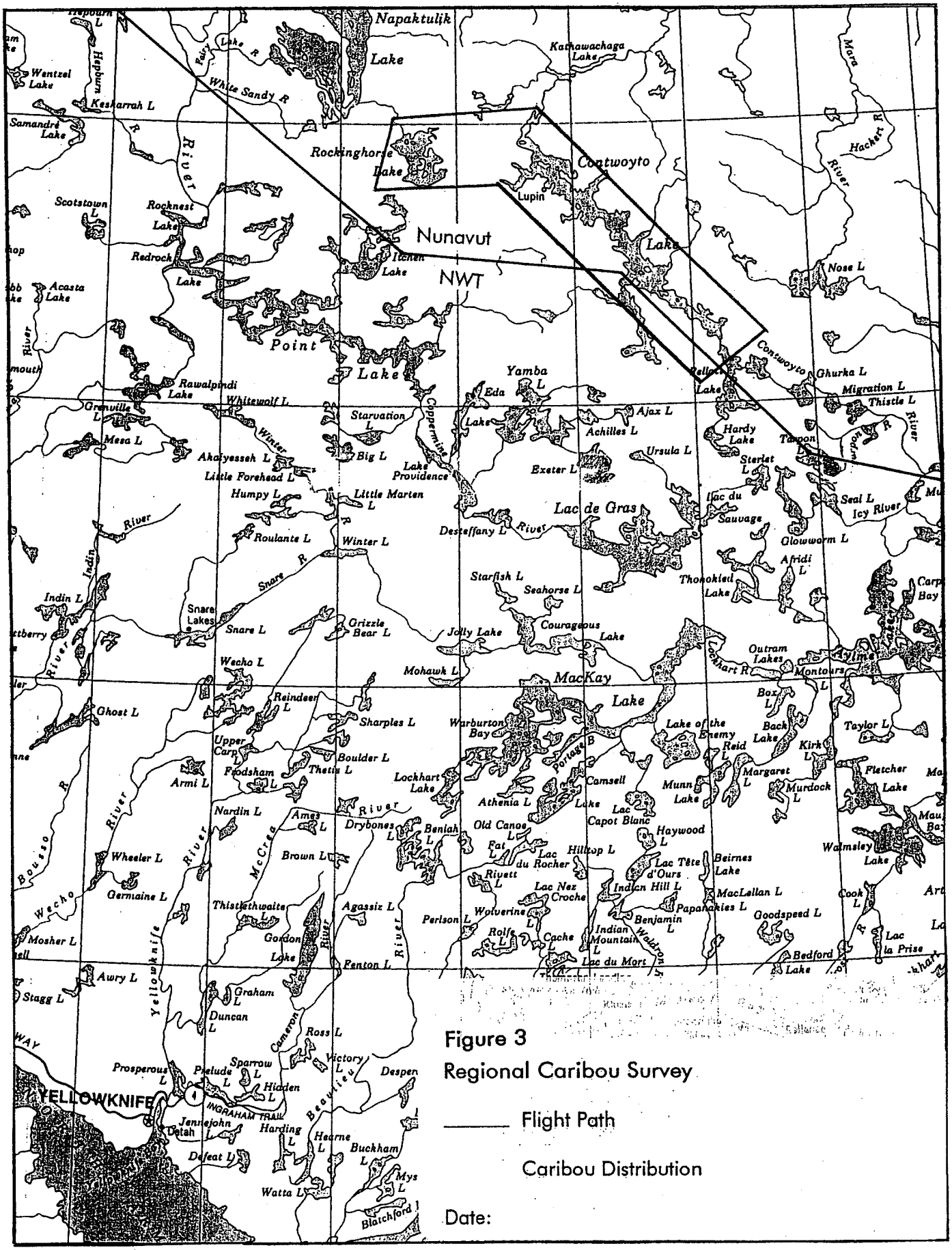
465000 mE
467000 mE
469000 mE
471000 mE
473000 mE
475000 mE
477000 mE
479000 mE
481000 mE
483000 mE
485000 mE
487000 mE
489000 mE

N
W
E
S

Tahera Corporation

Figure 2	JERICHO DIAMOND PROJECT WILDLIFE AERIAL SURVEY FLIGHT PLAN
Date:1/12/2000	
Author: BH/MJ	
Office: VAN	Altititude: 200-250m Speed: 150-175 km/h
Drawing:	
Scale: 1:75000	Projection: UTM Zone 12, NAD 27

1 0 1 2
kilometres


Napaktulik Lake
Nunavut
NWT
Point Lake
MacKay Lake
Lac de Gras
Contwoyto Lake
Rockinghorse Lake
Rocknest Lake
Redrock Lake
Rawalpindi Lake
Whitewolf L
Granville L
Mesa L
Akaiyesseh L
Little Forehead L
Humpy L
Roulante L
Indin River
Indin L
Snare Lakes
Snare L
Wecho L
Ghost L
Reindeer L
Sharples L
Upper Carp L
Frodsham L
Armi L
Boulder L
Thetis L
Nardin L
Ames L
Drybones L
Wheeler L
Germaine L
Brown L
Thistlethwaite L
Agassiz L
Mosher L
Awry L
Stagg L
Graham L
Duncan L
Gordon Lake
Fenton L
Ross L
Victory L
Despen
Prosperous L
Prelude L
Sparrow L
Hidden L
YELLOWKNIFE
INGRAHAM TRAIL
Jennejohn Detah L
Harding L
Hearne L
Buckham L
Defeat L
Mys L
Watta L
Blatchford L
Winter L
Little Marten L
Big L
Starvation L
Lake Providence
Desteffany L
Exeter L
Starfish L
Seahorse L
Jolly Lake
Courageous Lake
Mohawk L
Warburton Bay
Portage
Lockhart Lake
Athenia L
Old Canoe L
Fat L
Rivett L
Perlson L
Wolverine L
Rolfe L
Cache L
Lac du Mort
Lac Capot Blanc
Lac du Rocher
Lac Nez Croche
Hilltop L
Indian Hill L
Indian Mountain L
Benjamin L
Waldron River
Camsell
Haywood L
Lac Tête d'Ours
Beirnes Lake
MacLellan L
Papahakies L
Goodspeed L
Bedford Lake
Lac la Prise
Munn Lake
Margaret L
Murdock L
Fletcher Lake
Walmsley Lake
Cook L
Reid Lake
Kirk L
Back Lake
Taylor L
Box L
Outram Lakes
Montours L
Aylmer Lake
Thonokied Lake
Afridi L
Glowworm L
Seal L
Icy River
Sterlet L
Hardy Lake
Tarpon
Ursula L
Ajax L
Achilles L
Eda
Yamba L
Ghurka L
Migration L
Thistle L
Nose L
Lupin
Kathawachaga Lake
Wentzel Lake
Keskarrah L
Samandré Lake
Scotstown L
Acasta Lake
Fairy Lake
White Sandy R
Hackert River
Mara River
Coppermine River
Snare River
Lockhart River
Yellowknife River
Bouvo River
Wecho River
McCrea River
Beaulieu River
Cameron River
Thelon River
Hepburn L
Figure 3
Regional Caribou Survey
Flight Path
Caribou Distribution
Date:

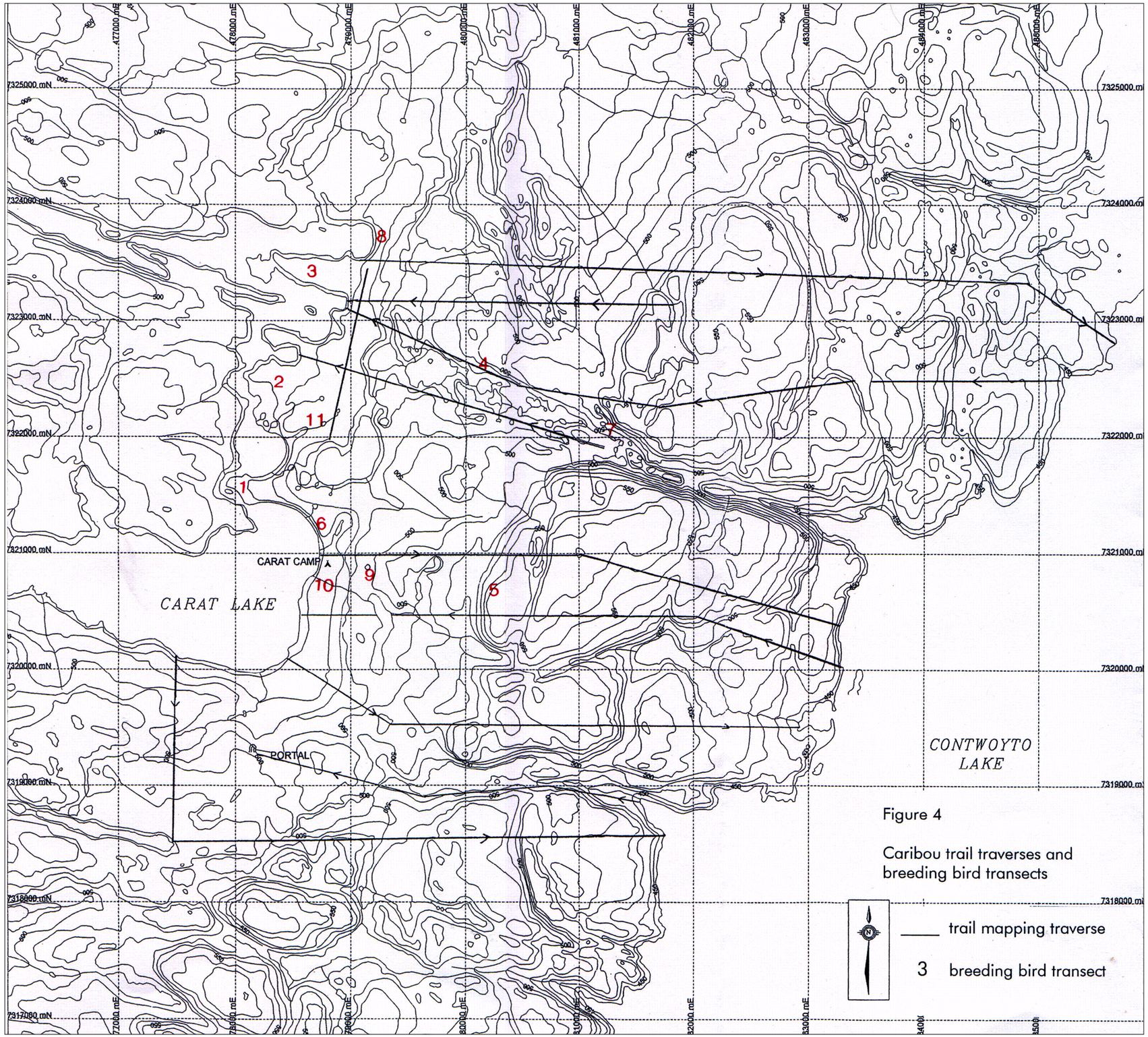


Figure 4

Caribou trail traverses and breeding bird transects

Tahera Corporation	
Figure 4	Caribou trail traverses and Breeding bird transects
Date:1/12/2000	
Author: BH/MJ	
Office: VAN	
Drawing:	
Scale: 1:35,000	Projection: UTM Zone 12, NAD 27

500 0 500 1000
metres

471000 mE
473000 mE
475000 mE
477000 mE
479000 mE
481000 mE
483000 mE
485000 mE
7335000 mN
7333000 mN
7331000 mN
7329000 mN
7327000 mN
7325000 mN
7323000 mN
7321000 mN
7319000 mN
7317000 mN
7315000 mN
7313000 mN
Dragon Lake
Jericho River
Carat Lake
Contwoyto Lake

LEGEND

- NEST
- FOX
- BEAR
- WOLF
- NESTS
- ESKER
- PROPOSED PROJECT ROADS
- EXISTING PROJECT ROADS
- PROPOSED PROJECT ICE ROAD

Tahera Corporation

Figure 5
Raptor Nest Sites And
Carnivore Den Sites
In The
Jericho Diamond Project Area

Date:31/1/2000
Author: SK/MJ
Office: Van
Scale: 1:70000
Projection: UTM Zone 12 (NAD 27 for Canada)

0 0.75 1.5 3
kilometres

-118 °
-116 °
-114 °
-112 °
-110 °
-108 °
-106 °
-104 °
-102 °

66 °
64 °
62 °

Coppermine River
Hood River
Kingaok - Bathurst Inlet
Bathurst Inlet
Takijuq Lake
Burnside River
Great Bear Lake
Jericho Diamond Project
Lupin Gold Mine
Contwoyto Lake
Point Lake
Nunavut - NWT Border
Lac de Gras
Aylmer Lake
Great Slave Lake

LEGEND
Caribou Distribution by Year
1997
1998
1999
2000

N
W
E
S

Figure 6.1

Tahera Corporation

	Geographic Distribution of Telemetry Collars for the Bathurst Caribou Herd Late Winter 1997 - 2000
Date:30/10/2000	
Author: SD	
Office: Van	
Scale: 1:3000000	Projection: Lat / Long (NAD 27)

25 0 25 50
kilometres

-118 ° -116 ° -114 ° -112 ° -110 ° -108 ° -106 ° -104 ° -102 °

66 °

64 °

62 °

Coppermine River

Hood River

Kingaok - Bathurst Inlet

Bathurst Inlet

Takijuq Lake

Burnside River

Great Bear Lake

Jericho Diamond Project

Lupin Gold Mine

Contwoyto Lake

Point Lake

Nunavut - NWT Border

Lac de Gras

Aylmer Lake

Great Slave Lake

LEGEND

Caribou Distribution by Yea

1996
1997
1998
1999
2000

N
W E
S

Figure 6.2

Tahera Corporation

Geographic Distribution of Telemetry Collars for the Bathurst Caribou Herd

Spring Migration 1997 - 2000

Date:30/10/2000

Author: SD

Office: Van

Scale: 1:3000000

Projection: Lat / Long (NAD 27)

25 0 25 50

kilometres

-118 ° -116 ° -114 ° -112 ° -110 ° -108 ° -106 ° -104 ° -102 °

66 °

64 °

62 °

Coppermine River

Hood River

Kingaok - Bathurst Inlet

Bathurst Inlet

Takijuq Lake

Burnside River

Great Bear Lake

Jericho Diamond Project

Lupin Gold Mine

Contwoyto Lake

Point Lake

Nunavut - NWT Border

Lac de Gras

Aylmer Lake

Great Slave Lake

LEGEND

Caribou Distribution by Year

- 1996
- 1997
- 1998
- 1999
- 2000

N

W E

S

Figure 6.3

Tahera Corporation

	Geographic Distribution of Telemetry Collars for the Bathurst Caribou Herd Calving 1997 - 2000
Date:30/10/2000	
Author: SD	
Office: Van	
Scale: 1:3000000	Projection: Lat / Long (NAD 27)

25 0 25 50

kilometres

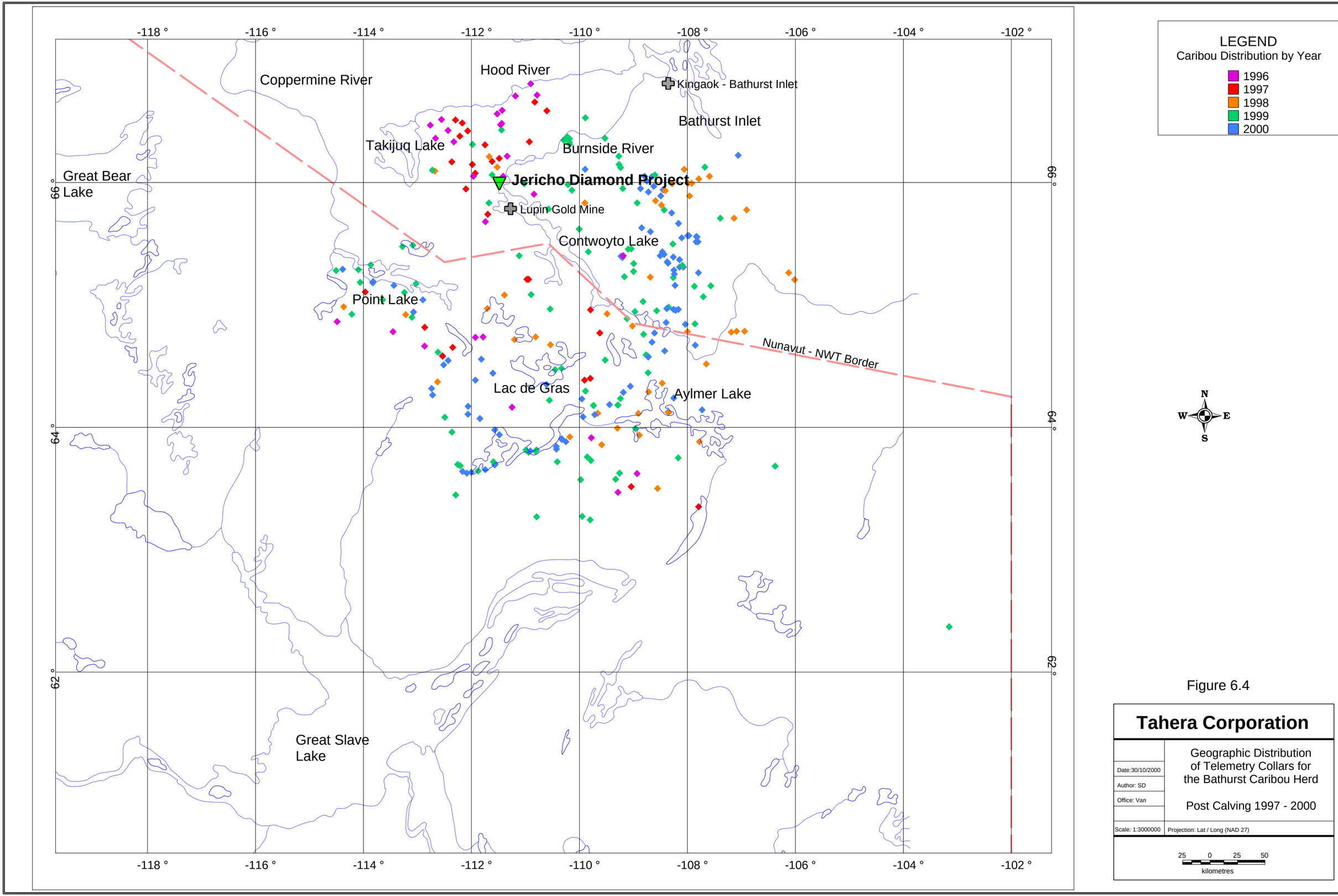


Figure 6.4

Tahera Corporation

	Geographic Distribution of Telemetry Collars for the Bathurst Caribou Herd Post Calving 1997 - 2000
Date:30/10/2000	
Author: SD	
Office: Van	
Scale: 1:3000000	Projection: Lat / Long (NAD 27)

25 0 25 50
kilometres

-118 ° -116 ° -114 ° -112 ° -110 ° -108 ° -106 ° -104 ° -102 °

66 °

64 °

62 °

Coppermine River

Hood River

Kingaok - Bathurst Inlet

Bathurst Inlet

Takijuq Lake

Burnside River

Great Bear Lake

Jericho Diamond Project

Lupin Gold Mine

Contwoyto Lake

Point Lake

Nunavut - NWT Border

Lac de Gras

Aylmer Lake

Great Slave Lake

LEGEND

Caribou Distribution by Year

- 1996
- 1997
- 1998
- 1999
- 2000

N

W E

S

Figure 6.5

Tahera Corporation

	Geographic Distribution of Telemetry Collars for the Bathurst Caribou Herd Late Summer 1997 - 2000
Date:30/10/2000	
Author: SD	
Office: Van	
Scale: 1:3000000	Projection: Lat / Long (NAD 27)

25 0 25 50

kilometres

-118 ° -116 ° -114 ° -112 ° -110 ° -108 ° -106 ° -104 ° -102 °

66 °

64 °

62 °

Coppermine River

Hood River

Kingaok - Bathurst Inlet

Bathurst Inlet

Takijuq Lake

Burnside River

Great Bear Lake

Jericho Diamond Project

Lupin Gold Mine

Contwoyto Lake

Point Lake

Nunavut - NWT Border

Lac de Gras

Aylmer Lake

Great Slave Lake

LEGEND

Caribou Distribution by Year

- 1996
- 1997
- 1998
- 1999
- 2000

N

W E

S

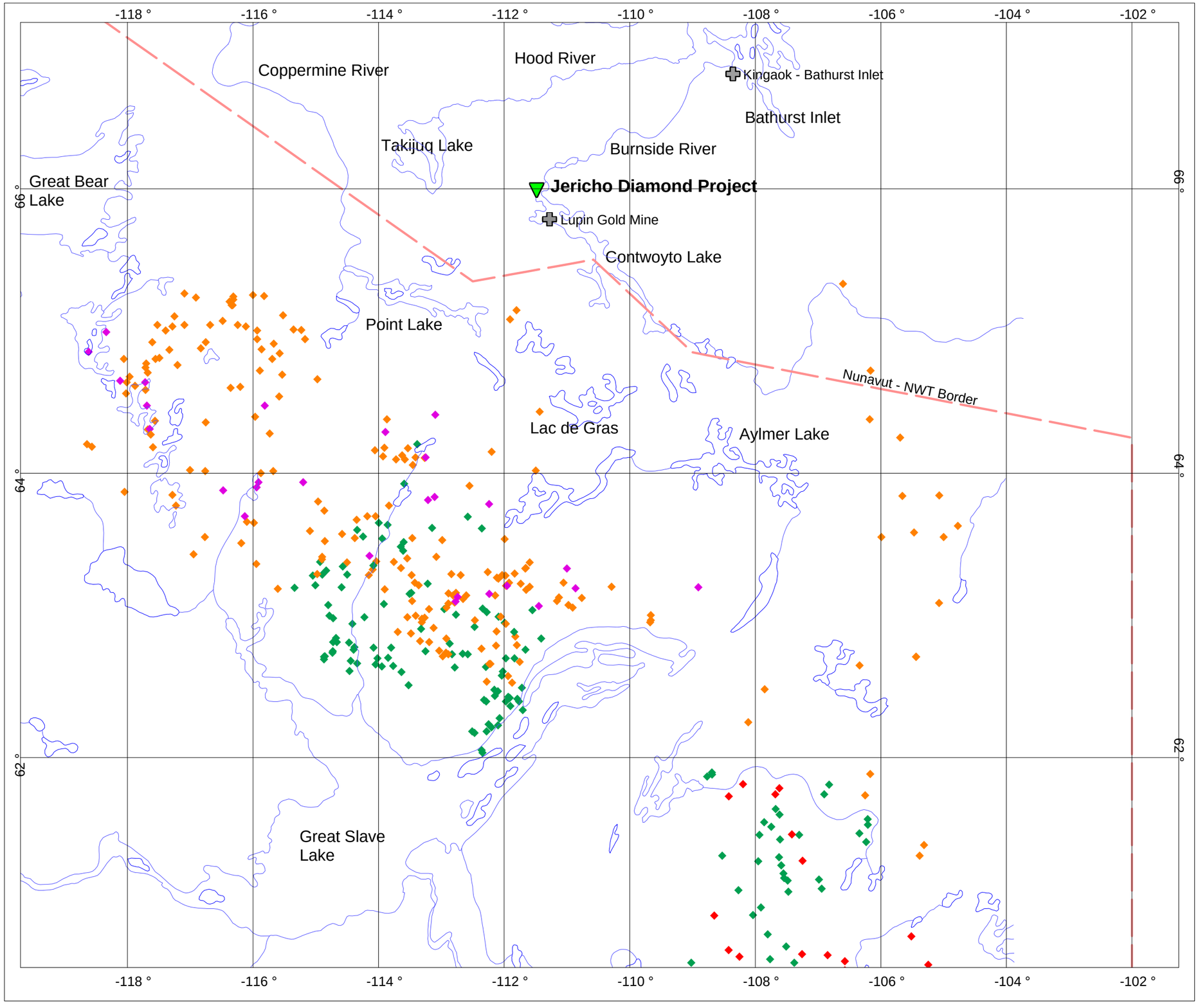
Figure 6.6

Tahera Corporation

	Geographic Distribution of Telemetry Collars for the Bathurst Caribou Herd
Date:30/10/2000	
Author: SD	
Office: Van	Fall Migration/Rut 1997 - 2000
Scale: 1:3000000	Projection: Lat / Long (NAD 27)

25 0 25 50

kilometres



LEGEND

Caribou Distribution by Year

- 1996
- 1997
- 1998
- 1999

N
W E
S

Figure 6.7

Tahera Corporation

Geographic Distribution of Telemetry Collars for the Bathurst Caribou Herd

Early Winter 1997 - 1999

Date:30/10/2000

Author: SD

Office: Van

Scale: 1:3000000 Projection: Lat / Long (NAD 27)

25 0 25 50
kilometres

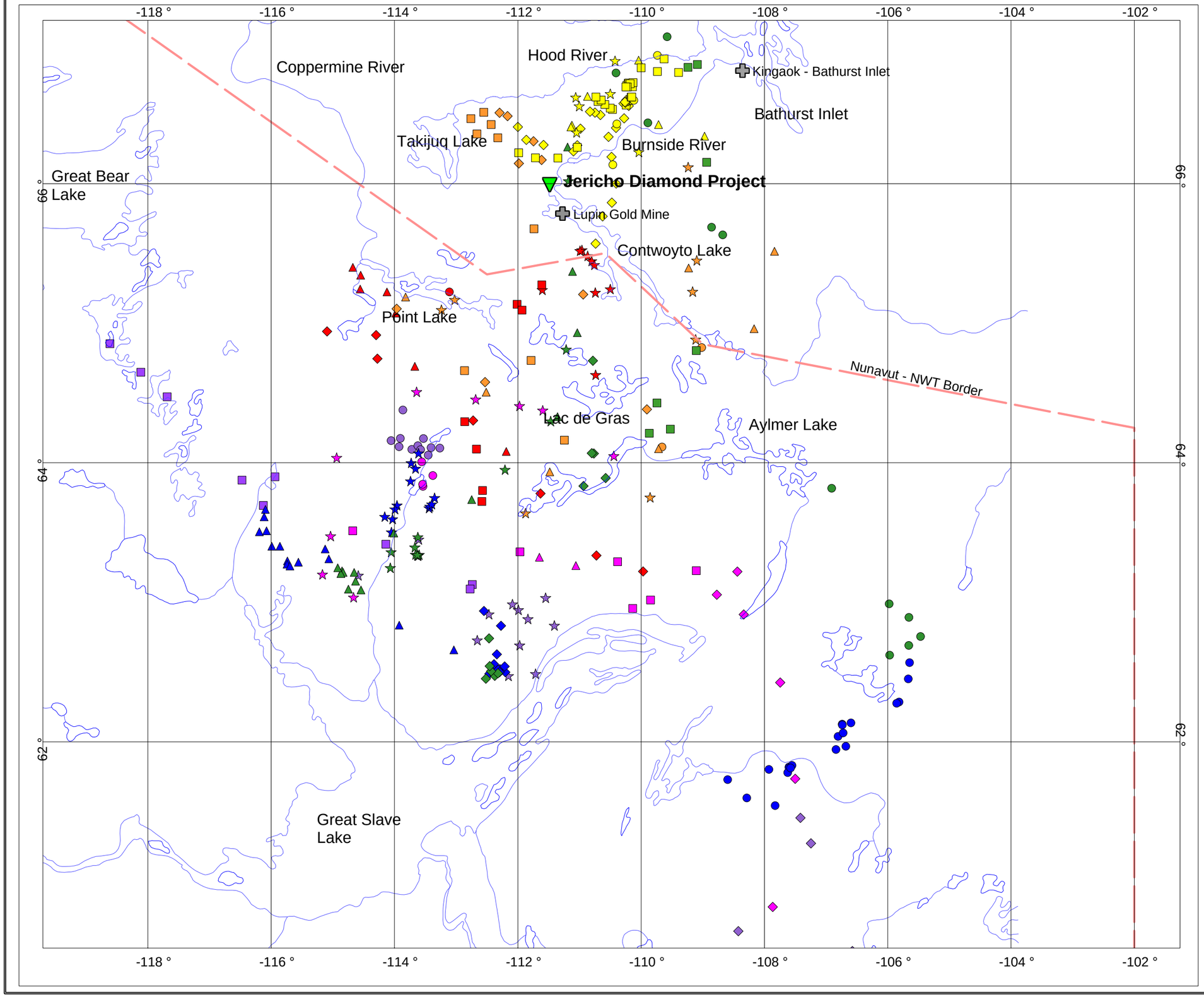


Figure 7.1

Tahera Corporation

	Seasonal Distribution of Individual Caribou
Date:1/11/2000	
Author: SD	
Office: VAN	**Caribou B19b**
Drawing:	
Scale: 1:3000000	Projection: Lat/Lon (NAD 27 for Canada)

25 0 25 50
kilometres

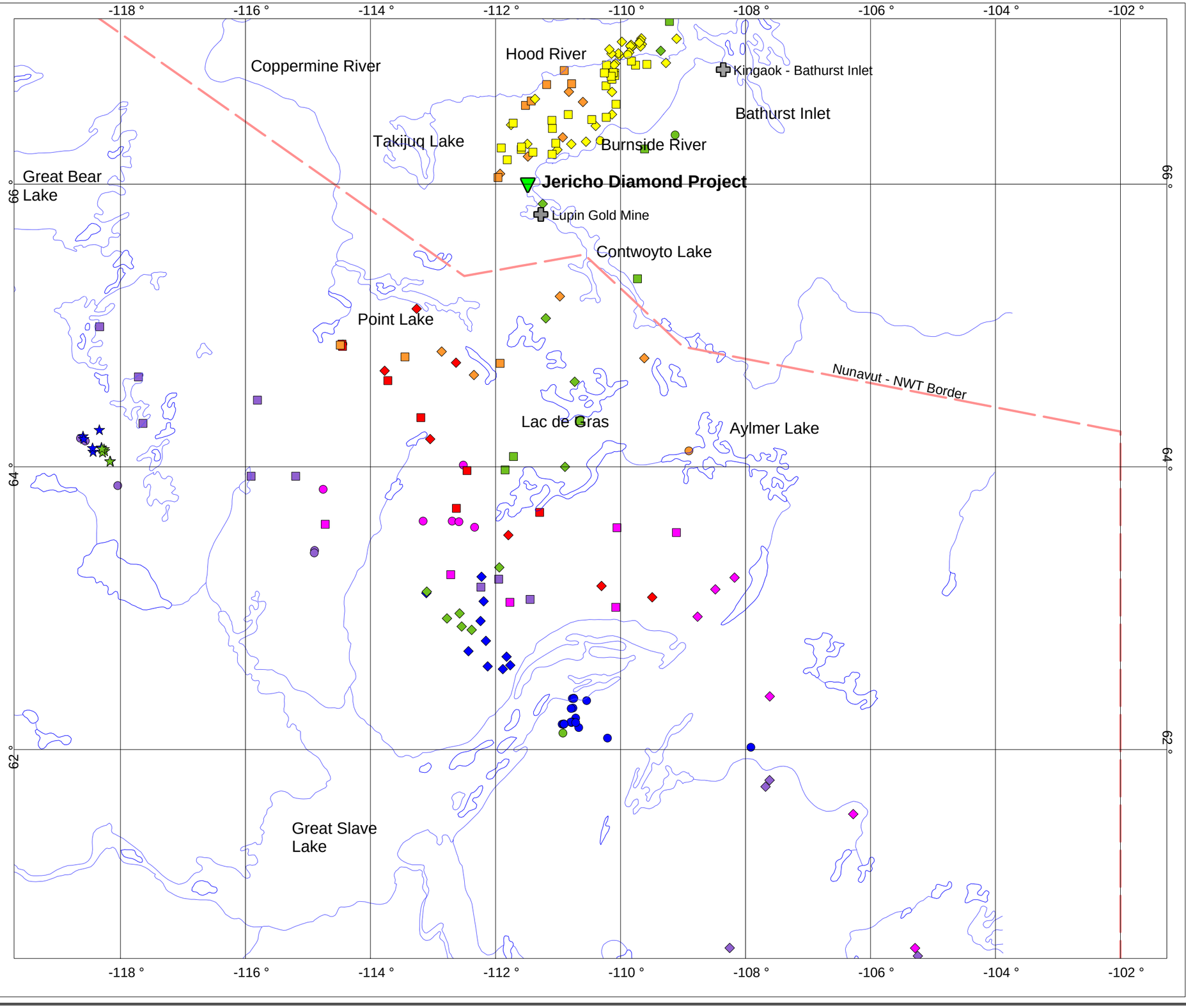


Figure 7.2

Tahera Corporation	
	Seasonal Distribution of Individual Caribou
Date:1/11/2000	
Author: SD	
Office: VAN	**Caribou B15b**
Drawing:	
Scale: 1:3000000	Projection: Lat/Lon (NAD 27 for Canada)

25 0 25 50
kilometres

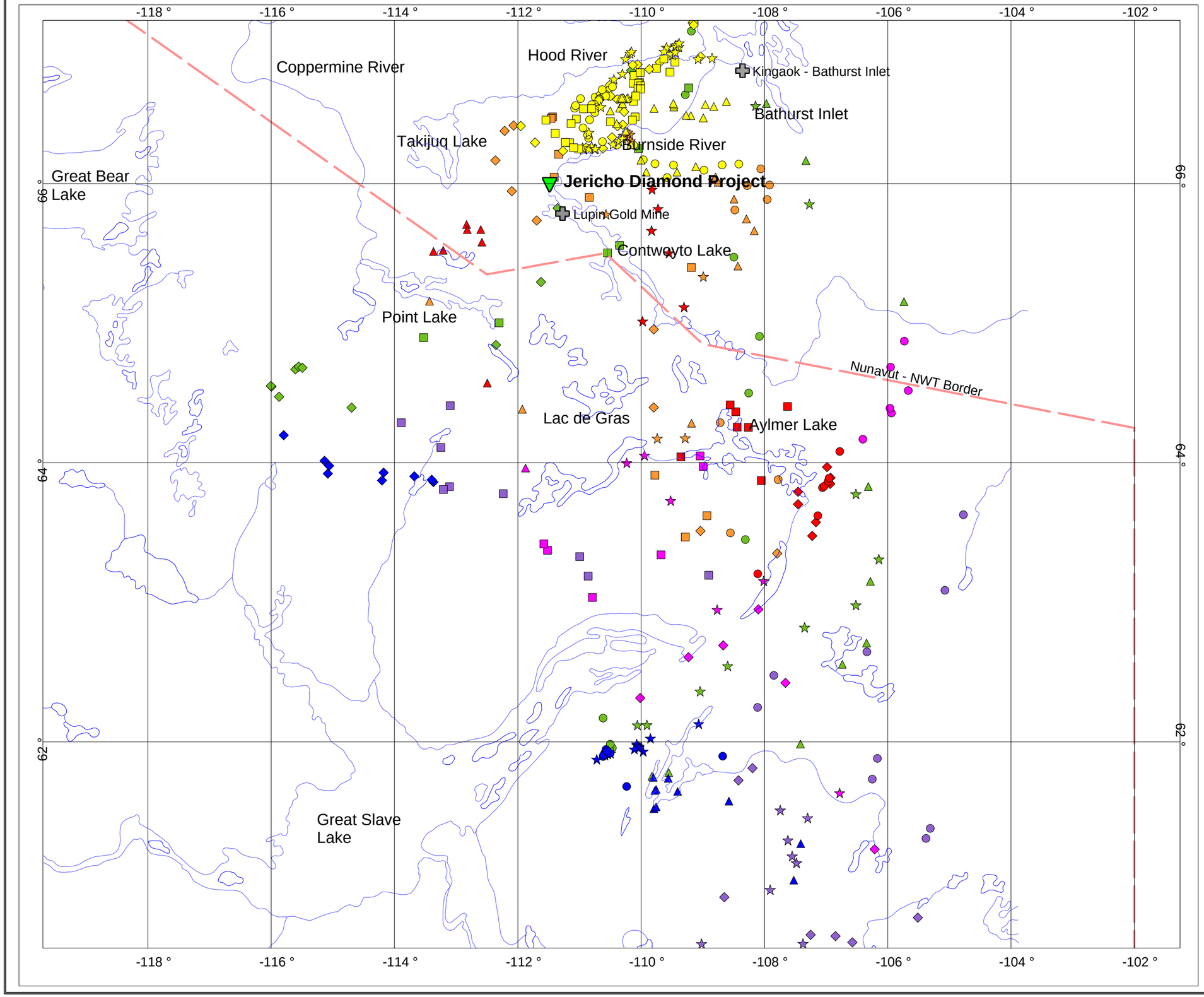
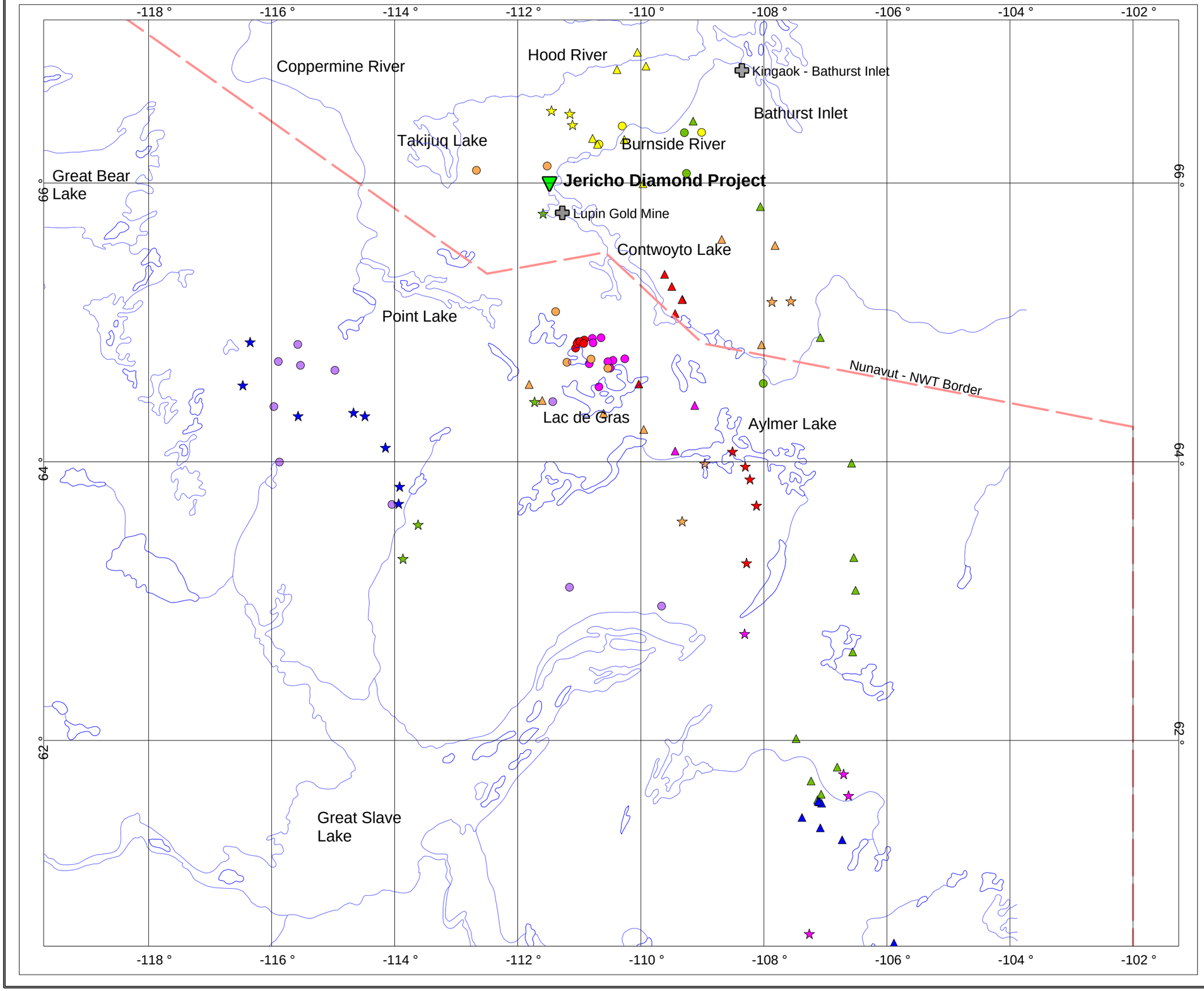


Figure 7.3

Tahera Corporation

	Seasonal Distribution of Individual Caribou
Date:1/11/2000	
Author: SD	
Office: VAN	**Caribou B32**
Drawing:	
Scale: 1:3000000	Projection: Lat/Lon (NAD 27 for Canada)

25 0 25 50
kilometres



LEGEND

Late Winter
- 1999
- 2000

Spring Migration
- 1998
- 1999
- 2000

Calving
- 1998
- 1999
- 2000

Post Calving
- 1998
- 1999
- 2000

Late Summer
- 1998
- 1999
- 2000

Fall Migration/Rut
- 1998
- 1999
- 2000

Early Winter
- 1998
- 1999

N W E S

Figure 7.4

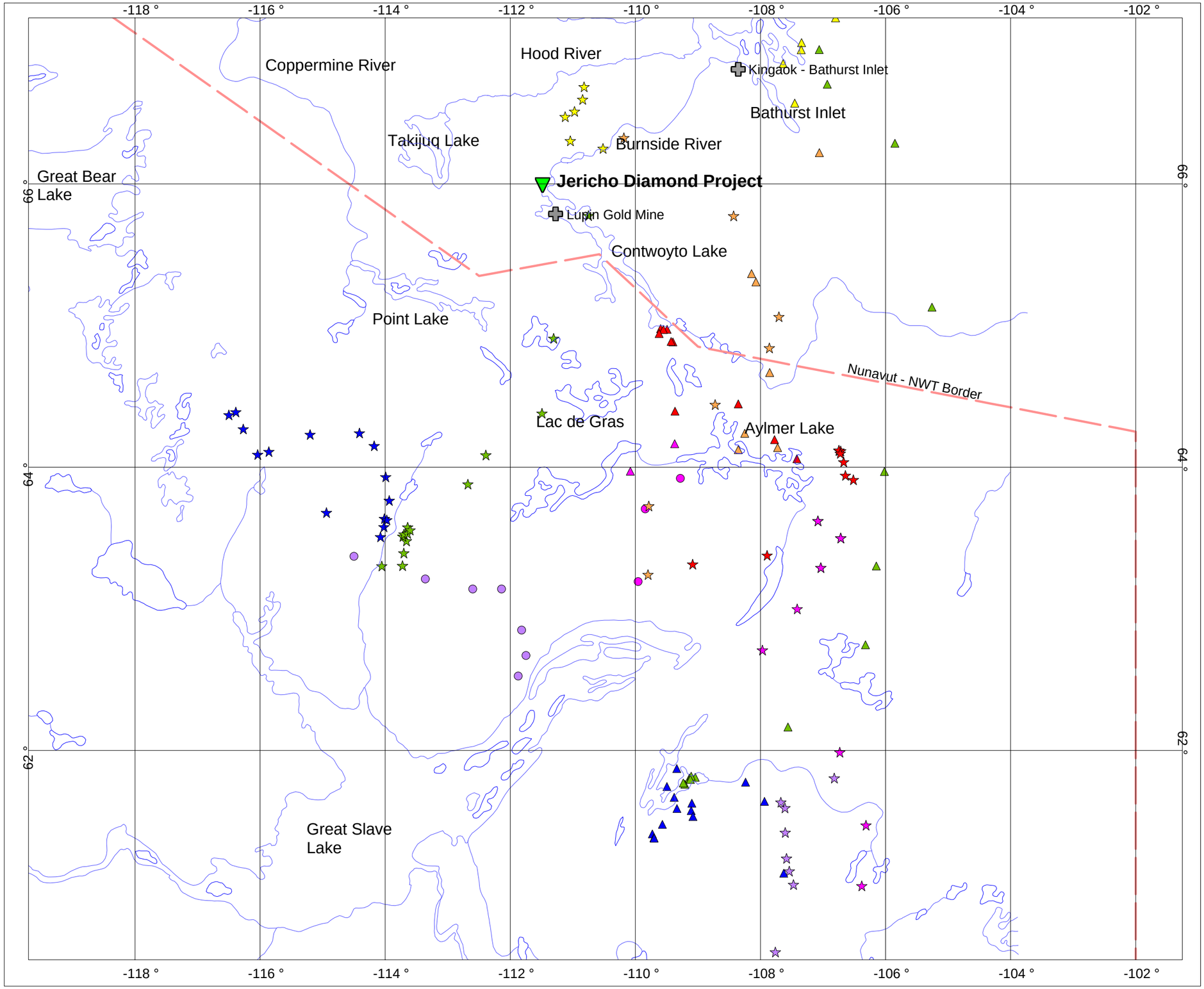
Tahera Corporation

Seasonal Distribution of Individual Caribou

Caribou B11

Date:1/11/2000	
Author: SD	
Office: VAN	
Drawing:	
Scale: 1:3000000	Projection: Lat/Lon (NAD 27 for Canada)

25 0 25 50
kilometres



LEGEND

Late Winter
- 1999
- 2000

Spring Migration
- 1999
- 2000

Calving
- 1999
- 2000

Post Calving
- 1999
- 2000

Late Summer
- 1999
- 2000

Fall Migration/Rut
- 1998
- 1999
- 2000

Early Winter
- 1998
- 1999

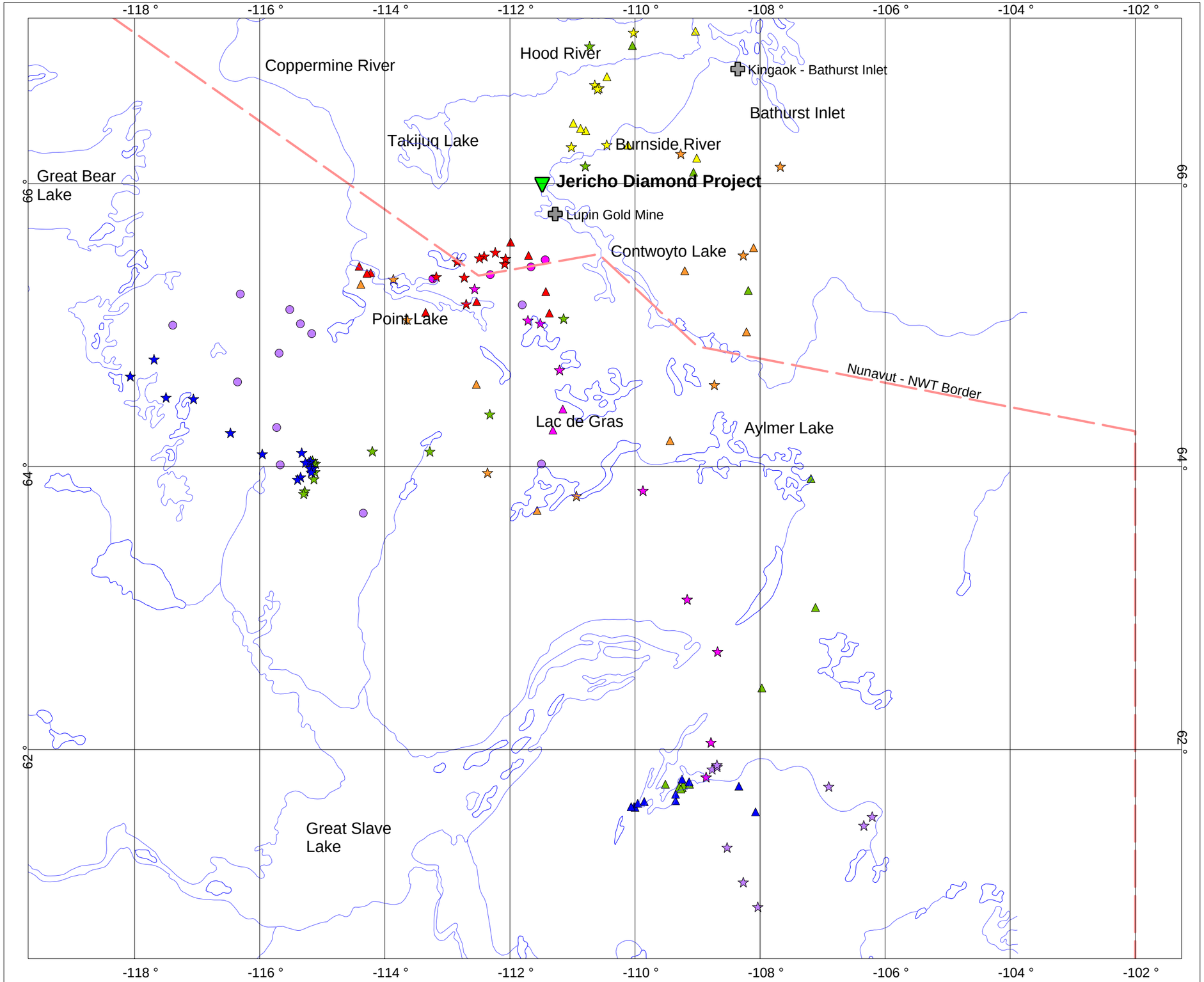
N
W E
S

Figure 7.5

Tahera Corporation

	Seasonal Distribution of Individual Caribou
Date:1/11/2000	
Author: SD	
Office: VAN	**Caribou B12**
Drawing:	
Scale: 1:3000000	Projection: Lat/Lon (NAD 27 for Canada)

25 0 25 50
kilometres



LEGEND

Late Winter
- 1999
- 2000

Spring Migration
- 1999
- 2000

Calving
- 1999
- 2000

Post Calving
- 1999
- 2000

Late Summer
- 1999
- 2000

Fall Migration/Rut
- 1998
- 1999
- 2000

Early Winter
- 1998
- 1999

N W E S

Figure 7.6

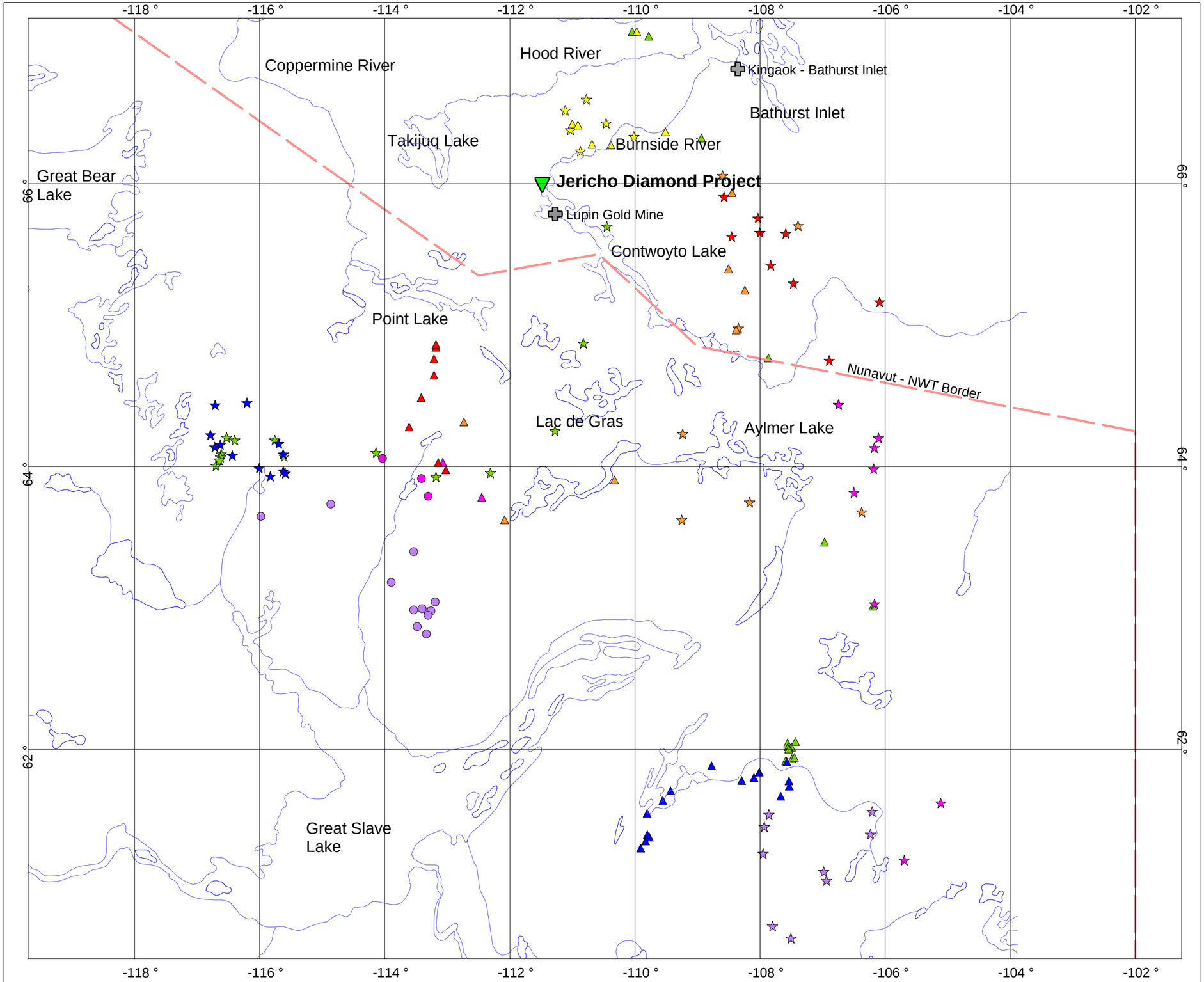
Tahera Corporation

Seasonal Distribution of Individual Caribou

Caribou B17

Date:1/11/2000	
Author: SD	
Office: VAN	
Drawing:	
Scale: 1:3000000	Projection: Lat/Lon (NAD 27 for Canada)

25 0 25 50
kilometres



LEGEND

Late Winter
- 1999
- 2000

Spring Migration
- 1999
- 2000

Calving
- 1999
- 2000

Post Calving
- 1999
- 2000

Late Summer
- 1999
- 2000

Fall Migration/Rut
- 1998
- 1999
- 2000

Early Winter
- 1998
- 1999

N
W E
S

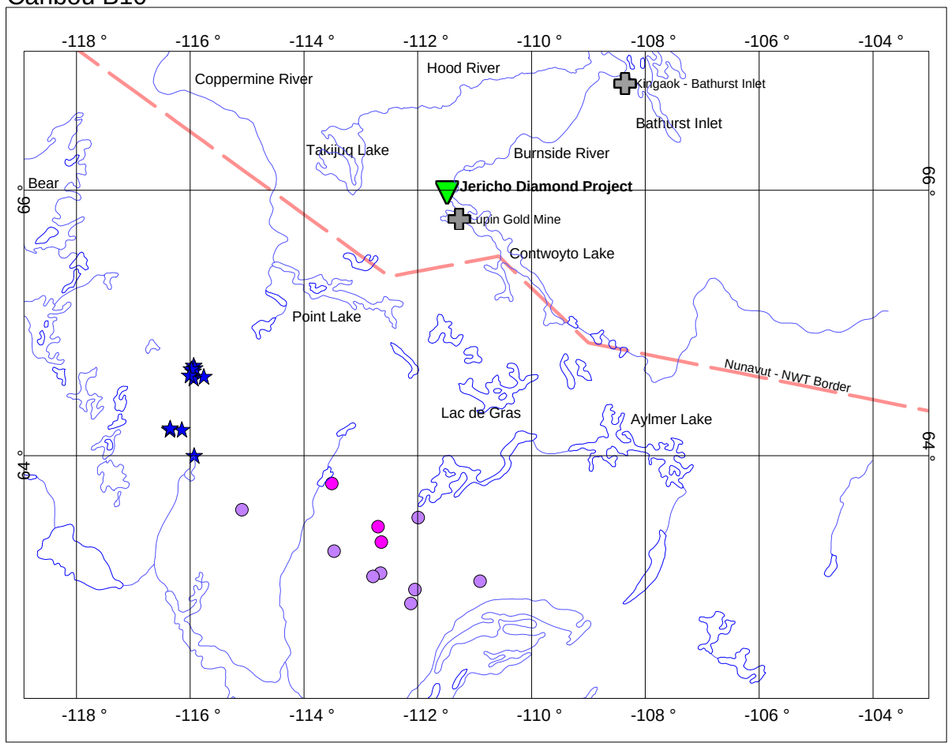
Figure 7.7

Tahera Corporation

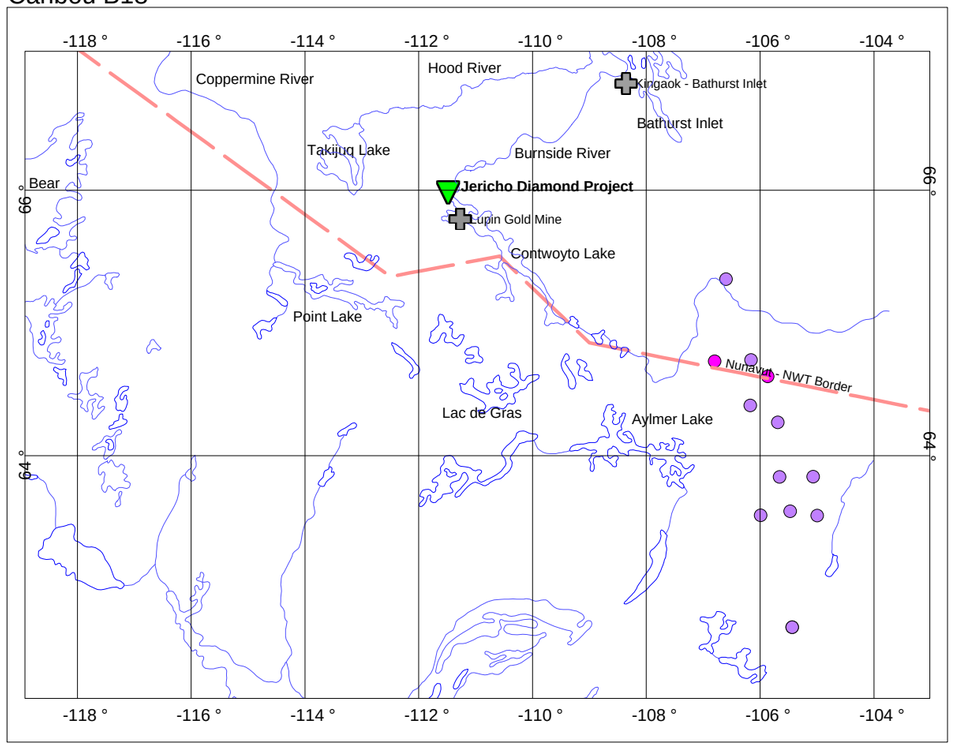
	Seasonal Distribution of Individual Caribou
Date:1/11/2000	
Author: SD	
Office: VAN	**Caribou B26**
Drawing:	
Scale: 1:3000000	Projection: Lat/Lon (NAD 27 for Canada)

25 0 25 50
kilometres

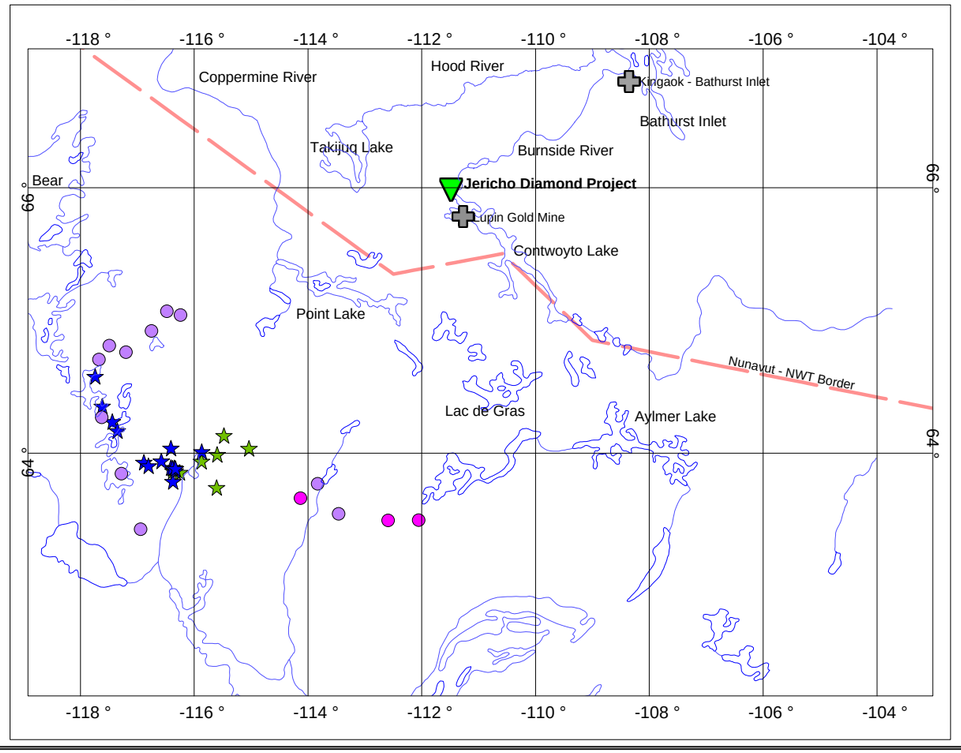
Caribou B10



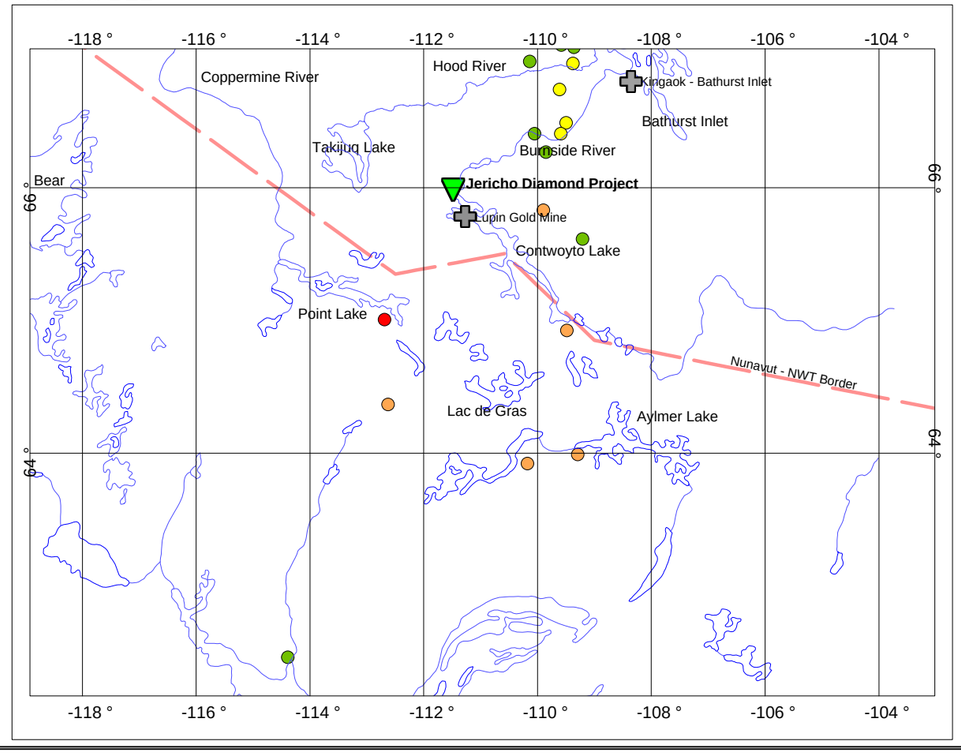
Caribou B18



Caribou B20



Caribou B21



LEGEND

Spring Migration
- 1998
- 1999

Calving
- 1998

Post Calving
- 1998

Late Summer
- 1998

Fall Migration
- 1998

Early Winter
- 1998

Late Winter
- 1999

N
W E
S

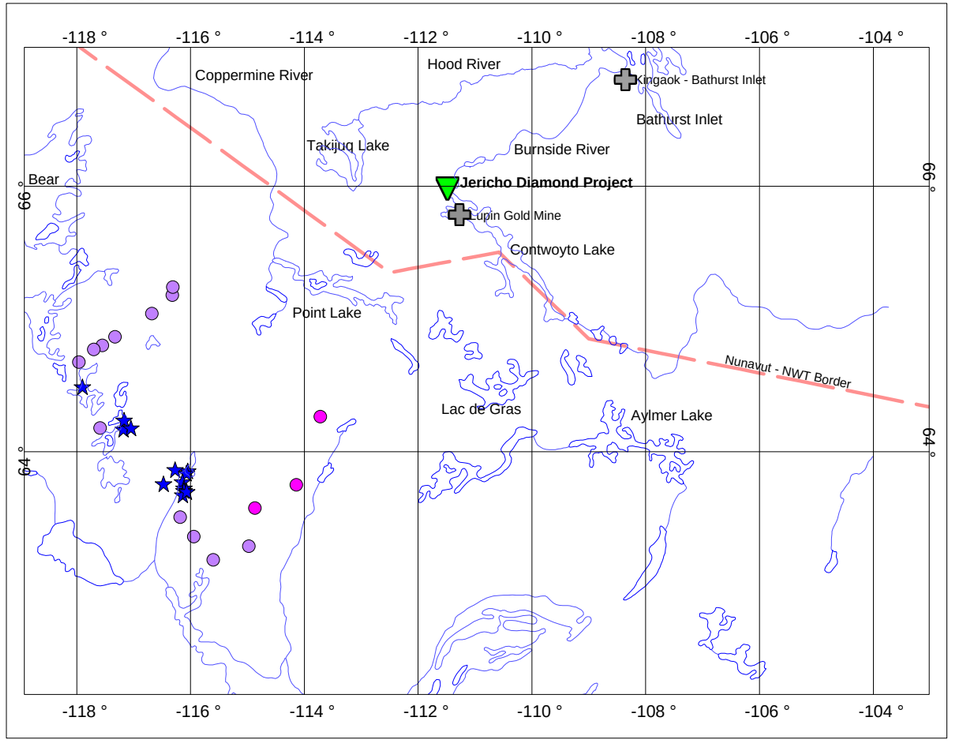
Figure 7.8

Tahera Corporation

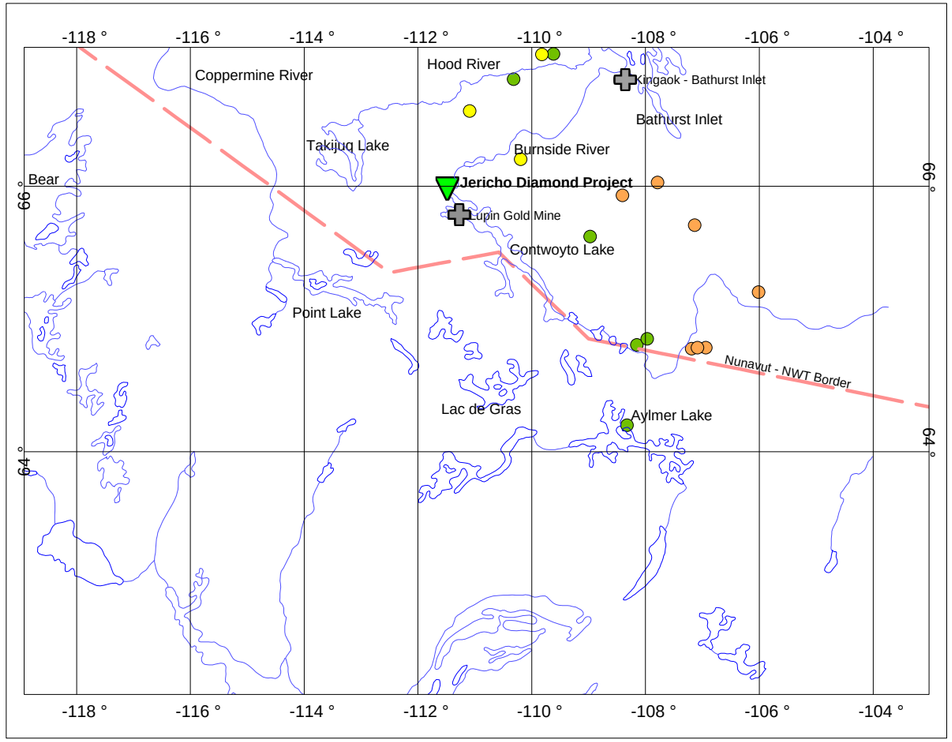
	Seasonal Distribution of Individual Caribou
Date:1/11/2000	
Author: SD	
Office: VAN	**Caribou B10, B18, B20 and B21**
Drawing:	
Scale: 1:5000000	Projection: Lat/Lon (NAD 27 for Canada)

25 0 25 50
kilometres

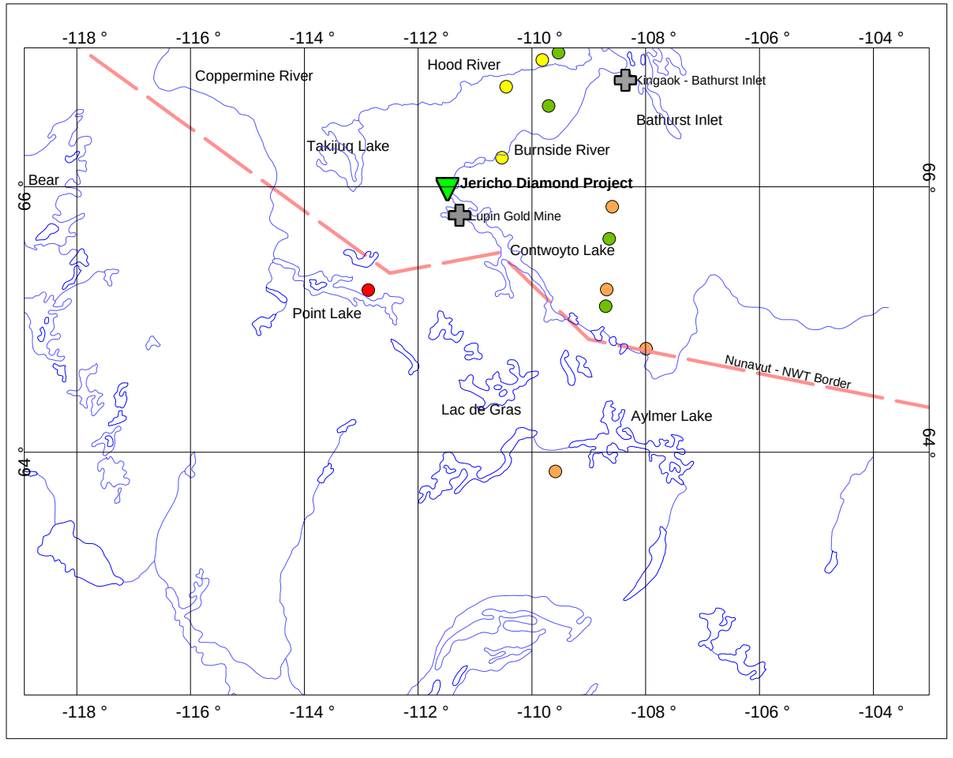
Caribou B25



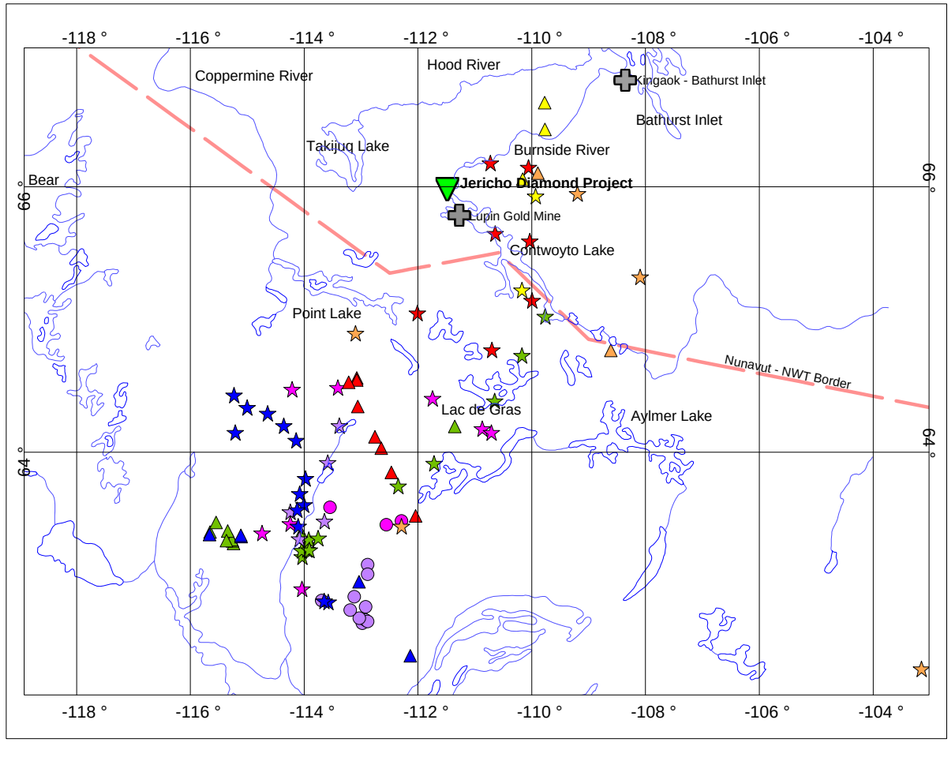
Caribou B27



Caribou B30



Caribou B31



LEGEND

Late Winter
- 1998
- 1999
- 2000

Spring Migration
- 1998
- 1999
- 2000

Calving
- 1998
- 1999
- 2000

Post Calving
- 1998
- 1999
- 2000

Late Summer
- 1998
- 1999
- 2000

Fall Migration/Rut
- 1998
- 1999

Early Winter
- 1998
- 1999

N
W E
S

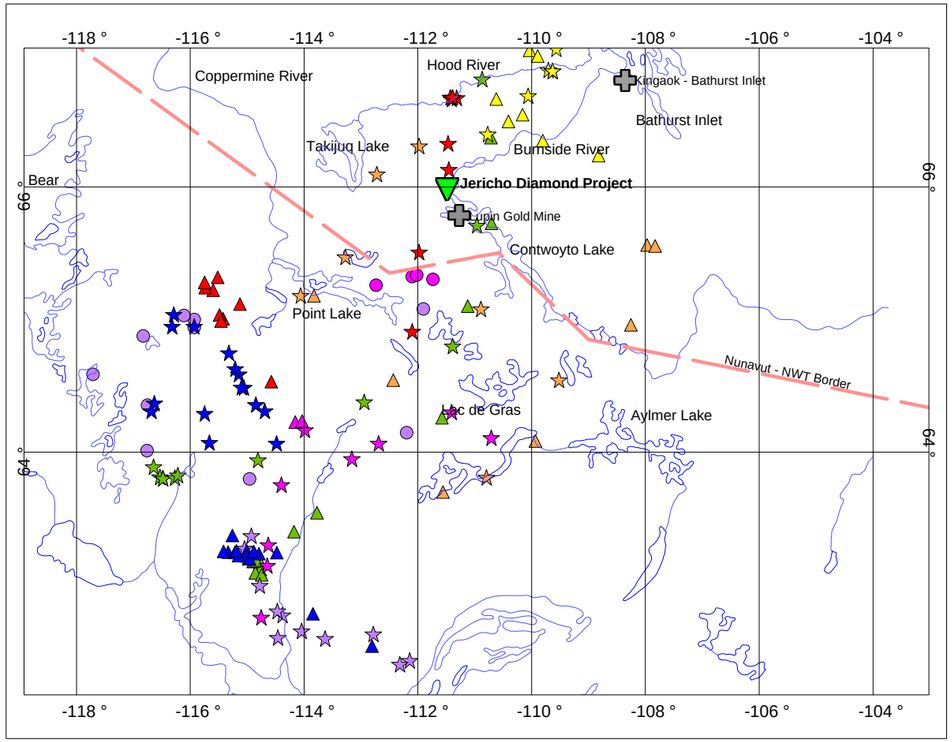
Figure 7.9

Tahera Corporation

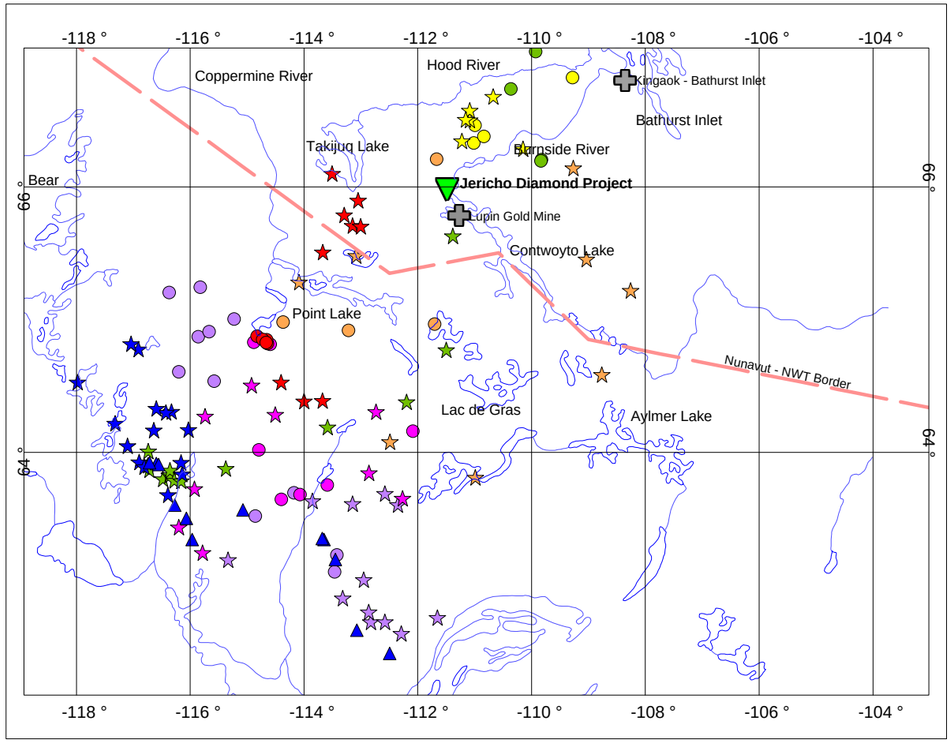
	Seasonal Distribution of Individual Caribou
Date:1/11/2000	
Author: SD	
Office: VAN	**Caribou B25, B27, B30 and B31**
Drawing:	
Scale: 1:5000000	Projection: Lat/Lon (NAD 27 for Canada)

25 0 25 50
kilometres

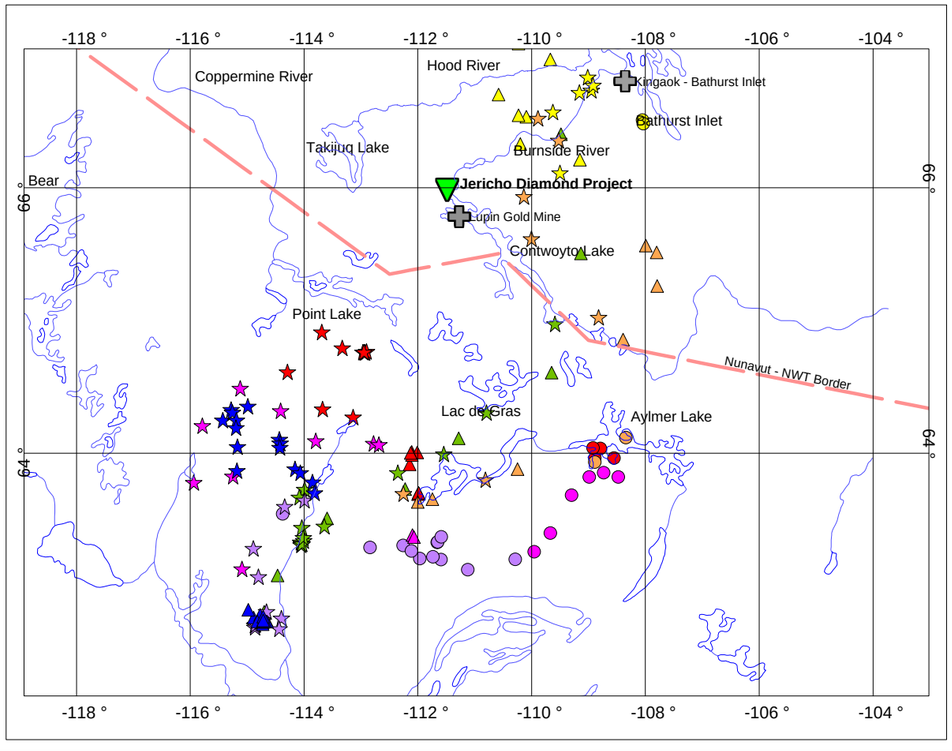
Caribou B13



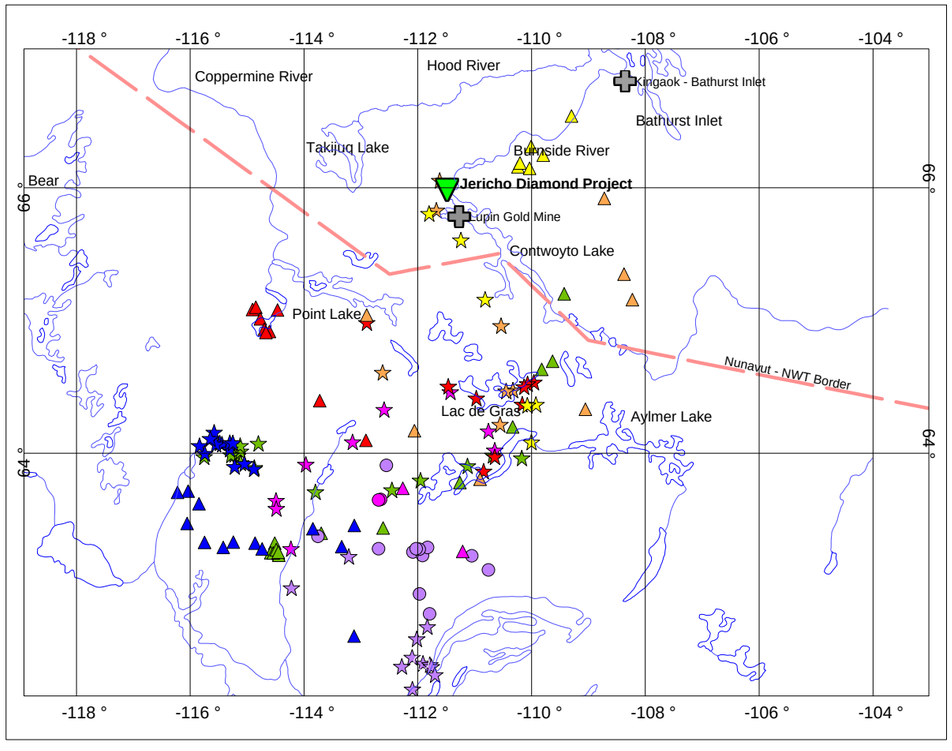
Caribou B14



Caribou B16



Caribou B22



LEGEND

Late Winter
- 1999
- 2000

Spring Migration
- 1998
- 1999
- 2000

Calving
- 1998
- 1999
- 2000

Post Calving
- 1998
- 1999
- 2000

Late Summer
- 1998
- 1999
- 2000

Fall Migration/Rut
- 1998
- 1999
- 2000

Early Winter
- 1998
- 1999

N
W E
S

Figure 7.10

Tahera Corporation

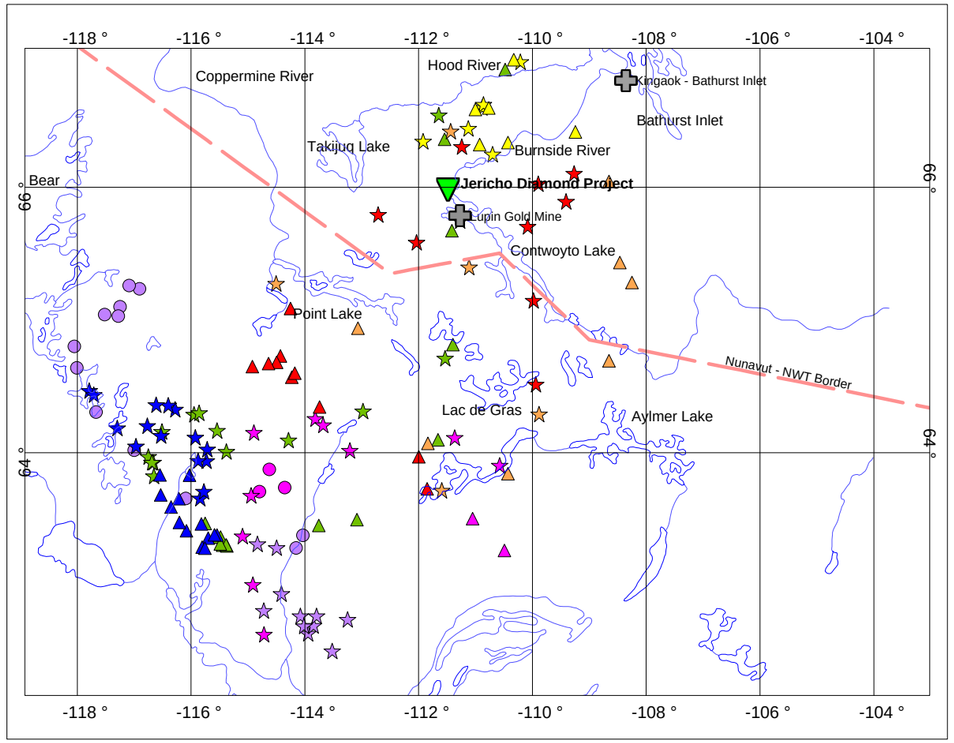
Seasonal Distribution of Individual Caribou

Caribou B13, B14, B16 and B22

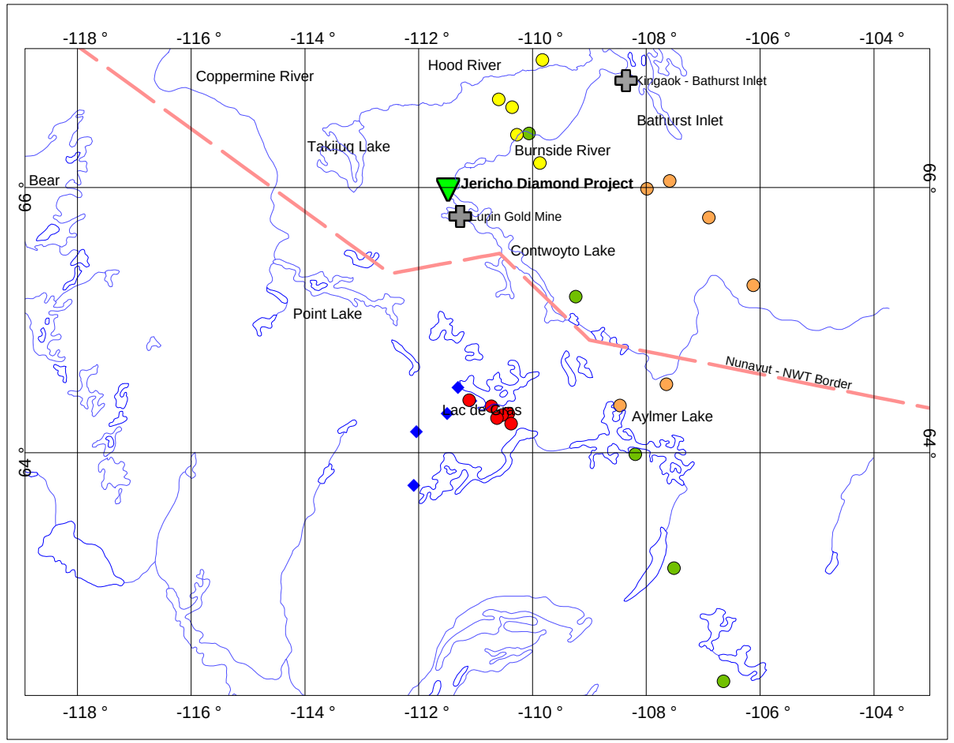
Date:1/11/2000	
Author: SD	
Office: VAN	
Drawing:	
Scale: 1:5000000	Projection: Lat/Lon (NAD 27 for Canada)

25 0 25 50
kilometres

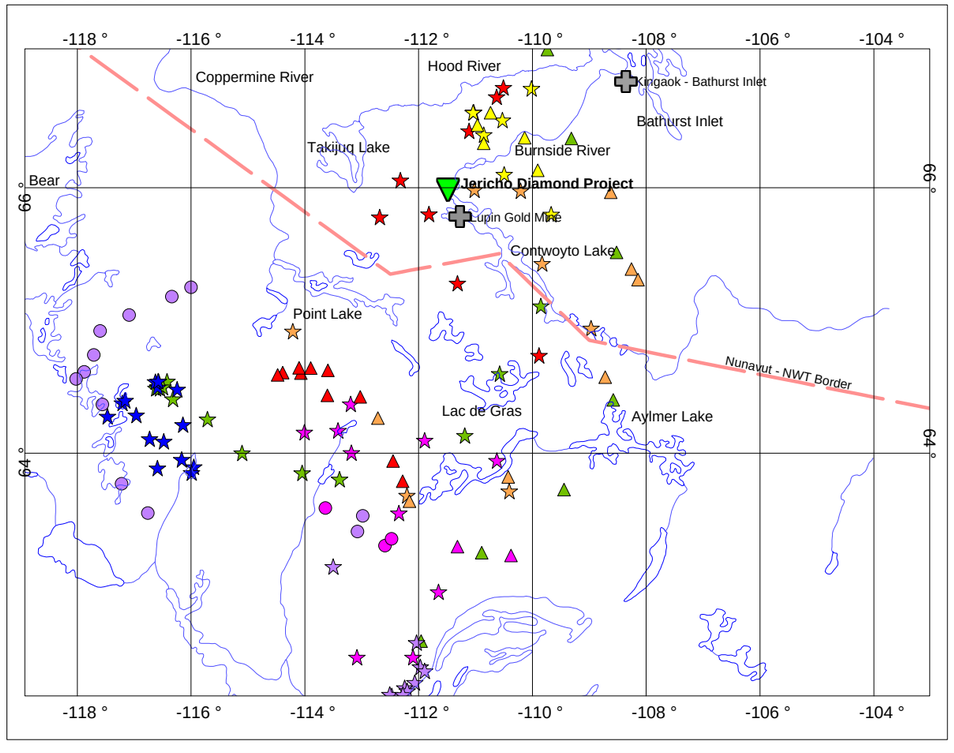
Caribou B23



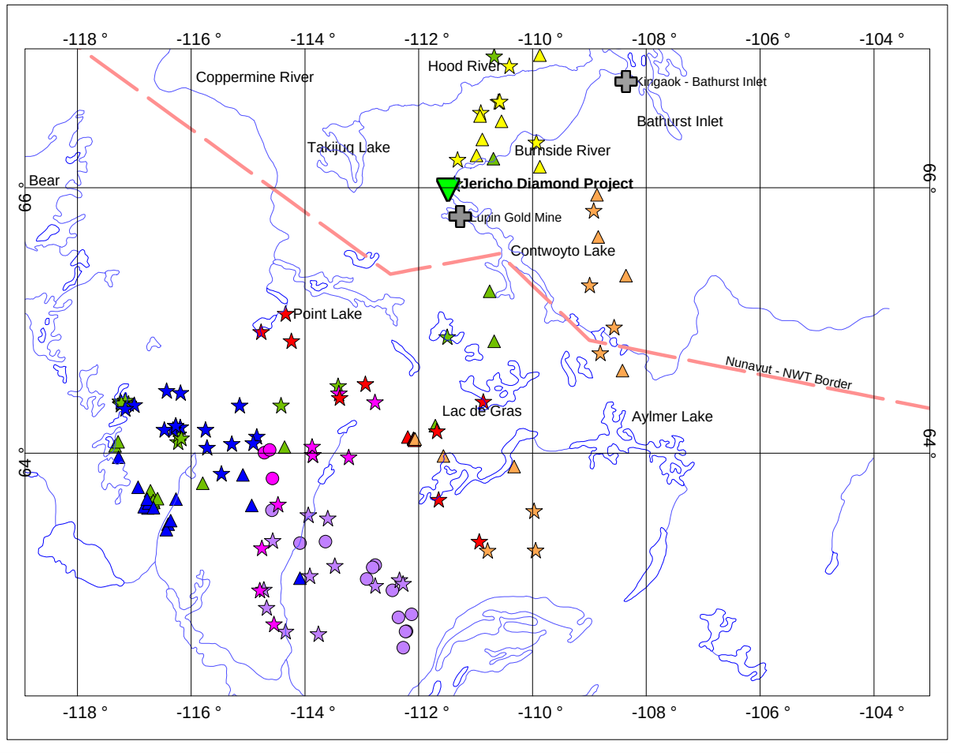
Caribou B24



Caribou B28



Caribou B29



LEGEND

Late Winter
- 1999
- 2000

Spring Migration
- 1998
- 1999
- 2000

Calving
- 1998
- 1999
- 2000

Post Calving
- 1998
- 1999
- 2000

Late Summer
- 1998
- 1999
- 2000

Fall Migration
- 1998
- 1999
- 2000

Early Winter
- 1998
- 1999

N
W E
S

Figure 7.11

Tahera Corporation

	Seasonal Distribution of Individual Caribou
Date:1/11/2000	
Author: SD	**Caribou B23, B24, B28 and B29**
Office: VAN	
Drawing:	
Scale: 1:5000000	Projection: Lat/Lon (NAD 27 for Canada)

25 0 25 50
kilometres

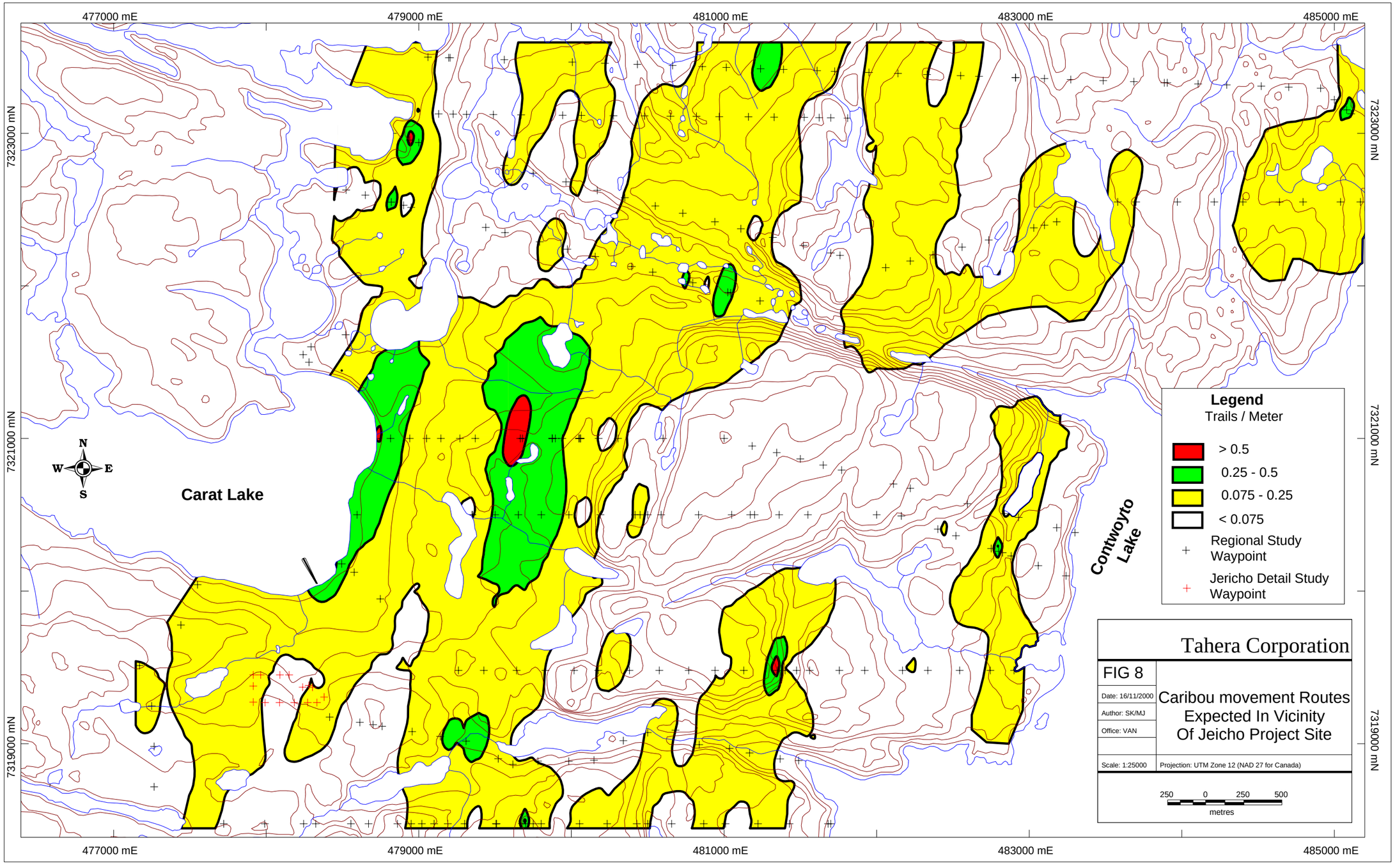
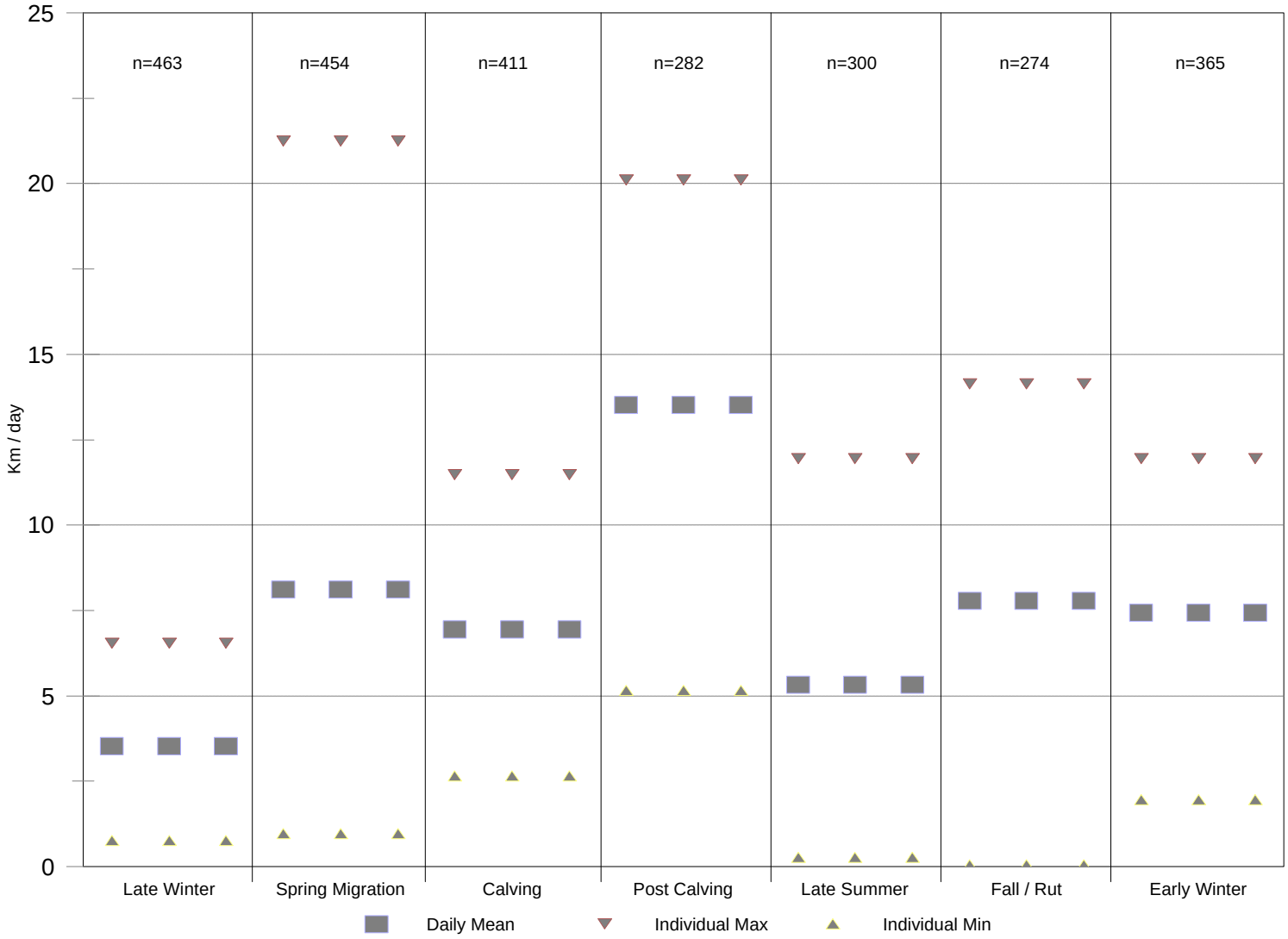

477000 mE
479000 mE
481000 mE
483000 mE
485000 mE
7323000 mN
7321000 mN
7319000 mN
N
W
E
S
Carat Lake
Contwoyto Lake
Legend
Trails / Meter
> 0.5
0.25 - 0.5
0.075 - 0.25
< 0.075
Regional Study Waypoint
Jericho Detail Study Waypoint
Tahera Corporation
FIG 8
Date: 16/11/2000
Author: SK/MJ
Office: VAN
Caribou movement Routes Expected In Vicinity Of Jeicho Project Site
Scale: 1:25000
Projection: UTM Zone 12 (NAD 27 for Canada)
250 0 250 500
metres

Figure 9. Mean Daily Caribou Movement 1996-2000 *



* based on satellite telemetry for adult females; data courtesy of RWED, GNWT

Appendix 1

Wildlife Logs

1a. Jericho

1b. Lupin

Wildlife Logs

1a. Jericho

Area	Date	Time	Location	Species	Number Observed	Activity Observed	Habitat Type	Travel Direction	Observer	Notes	Type	Dist.
Jericho	12/04/1999	2:05 PM	7319300 482800	parasitic jaegar	1	flying	cliff	unknown	BO/MT			
Jericho	21/04/1999	7:05 PM	7304648 483099	caribou tracks	unknown	n/a	unknown	NE	MT			
Jericho	22/04/1999	8:25 AM	7323766 477494	caribou tracks	unknown	n/a	unknown	N	MT			
Jericho	22/04/1999	9:30 AM	7308739 485773	caribou tracks	unknown	n/a	unknown	E (or W)	MT			
Jericho	22/04/1999	2:20 PM	7301833 491585	caribou tracks	unknown	n/a	ice	W	MT			
Jericho	22/04/1999	2:45 PM	7304009 489055	caribou tracks	unknown	n/a	NW slope	NW	MT			
Jericho	22/04/1999	3:10 PM	7308838 485798	caribou tracks	unknown	n/a	ice	NW	MT			
Jericho	01/05/1999	9:00 PM	7320946 478770	caribou	5	migration	ice/snow	NE	Bill Luke			
Jericho	01/05/1999	10:50 PM	7320946 478770	caribou	5	stationary/feeding	unknown	N	MT	3 Adults/ 2 yearlings		
Jericho	02/05/1999	3:30 PM	7318441 478608	gyrfalcons	2	stationary/flying	cliff	n/a	MT	1 stationary, 1 flying		
Jericho	03/05/1999	1:20 PM	7321111 477004	caribou tracks	unknown	n/a	ice	N	MT	2 distinct sets		
Jericho	03/05/1999	1:26 PM	7320780 476181	caribou tracks	unknown	n/a	ice	NW	MT	3 distinct sets		
Jericho	05/05/1999	8:30 AM	7320946 478770	arctic hare	3	fighting	Camp site	all over	Bill Luke			
Jericho	05/05/1999	AM	Carat-Lupin	caribou	3	traveling	snow	NW	Ed/Phil			
Jericho	06/05/1999	9:13 AM	7299760 480468	caribou tracks	unknown	n/a	snow/ice	NW	MT			
Jericho	07/05/1999	1:29 PM	7300424 488165	caribou tracks	2 sets	heading NW	snow/ice	NW	BA			
Jericho	07/05/1999	1:44 PM	7305128 483675	tracks	1	n/a	snow	NW (SE)	BA			
Jericho	08/05/1999	1:28 PM	7309612 472912	wolf tracks	1	n/a	snow	NE/S	BA	just inside a small valley-hillside		
Jericho	08/05/1999	1:29 PM	no coord's	ptarmigan	1	flying	n/a	unknown	Phil/BA	Flying as we went over it.		
Jericho	08/05/1999	1:45 PM	7309612 472912	wolves	4	run/observe	rocky area	NE	Ed/Phil/BA	2 black-1 white-1 black/white		
Jericho	08/05/1999	2:17 PM	7313513 472942	wolf tracks	1	unknown	snow	NW (SE)	BA	A lot of wolf tracks in that rocky/hilly area.		
Jericho	09/05/1999	p.m.	Carat Area 7320830 478800	muskox	5	standing	rocky area	n/a	Ben	Aerial survey-C185 w/Ben		
Jericho	09/05/1999	p.m.	Carat Area 7320830 478800	muskox	25	stand/still	rocky area	n/a	Ben	Aerial survey-C185 w/Ben		
Jericho	10/05/1999	9:45 AM	Carat Lake 7320830 478800	Branta canadensis	2	flying	n/a	S	Ed Woods			
Jericho	10/05/1999	12:50 PM	7313754 490585	caribou trails	lots	travel	snow/ice	NE	BA	Heli survey of North transect	heli	90 km
Jericho	10/05/1999	1:00 PM	7298997 507414	ground squirrel	1	run/observe	birch area	SW	BA	Heli survey of N-transect-Roy,Pilot	heli	
Jericho	15/05/1999	1:48 PM	7322229 479381	caribou	50-60	feeding	below hill	n/a	BA	Crew chg-caribou feeding bet. hill&strip	heli	
Jericho	15/05/1999	2:00 PM	7320946 478770	caribou	150-200	feed/lay down	bare tundra/snow	n/a	Ed Woods			
Jericho	15/05/1999	10:00 PM	7320946 478770	muskox	1	feeding	bare tundra/snow	NW - SE	Ed Woods			
Jericho	17/05/1999	4:00 PM	7320946 478770	Branta canadensis	12	flying	n/a	N	Ed Woods			
Jericho	17/05/1999	8:00 PM	7320946 478770	caribou	4	migrating	crossing lake	S	Ed Woods			
Jericho	17/05/1999	10:30 PM	7320946 478770	caribou	120	migrate/feed	bare tundra	N	Ed Woods			
Jericho	18/05/1999	8:45 AM	Jericho transect	caribou	herds	migrating	snow & ice	N	PhilBAFred	Jericho & Contwoyto transects total	heli	223 km
Jericho	18/05/1999	12:00 PM	7320946 478770	caribou	80	feeding	bare tundra	NE	Ed Woods			
Jericho	18/05/1999	12:00 PM	7320946 478770	caribou	200+	migratng across lake		N	Ed Woods			
Jericho	18/05/1999	1:30 PM	7320946 478770	caribou	50	feeding	bare tundra/snow	S	Ed Woods			

Area	Date	Time	Location	Species	Number Observed	Activity Observed	Habitat Type	Travel Direction	Observer	Notes	Type	Dist.
Jericho	18/05/1999	5:00 PM	7320946 478770	caribou	200+	crossing lake	frozen	N	Ed Woods			
Jericho	18/05/1999	10:00 PM	7320946 478770	caribou	60	back yard	bare tundra/snow	N	Ed Woods			
Jericho	19/05/1999	10:00 AM	7320946 478770	caribou	250+	migrating across lake		N	Ed Woods			
Jericho	20/05/1999	10:30 AM	7320946 478770	caribou	300+	migrating across lake		N	Ed Woods			
Jericho	20/05/1999	4:00 PM	7320946 478770	caribou	150+	migrating across lake		N	Ed Woods			
Jericho	20/05/1999	6:00 PM	7320946 478770	Anser albifrons	20	feeding in pond		n/a	Ed Woods			
Jericho	21/05/1999	7:00 AM	7320946 478770	caribou	300+	migrating across lake		N	Ed Woods			
Jericho	21/05/1999	8:30 AM	7320946 478770	caribou	150+	migrating across lake		N	Ed Woods			
Jericho	21/05/1999	6:00 PM	7320946 478770	caribou	100	migrating across lake		N	Ed Woods			
Jericho	21/05/1999	9:30 PM	7320946 478770	caribou	200+	migrating across lake		N	Ed Woods			
Jericho	22/05/1999	8:00 AM	7320946 478770	caribou	60	migrating across lake		N	Ed Woods			
Jericho	22/05/1999	8:45 AM	7320946 478770	caribou	40	migrating across lake		N	Ed Woods			
Jericho	22/05/1999	11:10 AM	7320946 478770	caribou	68	migrating across lake		N	Ed Woods			
Jericho	22/05/1999	11:20 AM	7320946 478770	caribou	80	migrating across lake		N	Ed Woods			
Jericho	22/05/1999	12:15 PM	7320946 478770	caribou	450+	migrating across lake		N	Ed Woods			
Jericho	23/05/1999	7:00 AM	7320946 478770	caribou	40	migrating across lake		N	Ed Woods			
Jericho	23/05/1999	10:00 AM	Ponds end of Airstrip	Anser albifrons	4	feeding	tundra	n/a	Ed Woods			
Jericho	23/05/1999	10:00 AM	Ponds end of Airstrip	Branta canadensis	6	feeding	tundra	n/a	Ed Woods			
Jericho	23/05/1999	10:00 AM	7320946 478770	caribou	26	migrating across lake		N	Ed Woods			
Jericho	23/05/1999	10:00 AM	Ponds end of Airstrip	snow geese	3	feeding	tundra	n/a	Ed Woods			
Jericho	23/05/1999	12:50 PM	7335642 472843	ground squirrels	4	observe/run	sand	n/a	Phil/BA	Survey of dens along eskers	heli	
Jericho	23/05/1999	1:00 PM	7320946 478770	caribou	13	migrating across lake		N	Ed Woods			
Jericho	23/05/1999	1:36 PM	7322583 479157	caribou carcass	1	n/a	below esker	n/a	Phil/BA	"carcass is just a fresh ones.	heli	
Jericho	23/05/1999	9:00 PM	7320946 478770	caribou	9	migrating across lake		N	Ed Woods			
Jericho	23/05/1999	9:00 PM	Along the eskers	caribou & tracks	200	travel	over esker	N	Phil/BA	caribou are going over the eskers	heli	
Jericho	23/05/1999	?	7330042 477945	fox tracks	?	n/a	sand/snow	n/a	Phil/BA	caribou are going over the eskers	heli	
Jericho	23/05/1999	?	7319345 482742	squirrels	4	observe/run	sand	n/a	Phil/BA	fox den area-none to be seen.	heli	
Jericho	23/05/1999	?	7328062 479378	wolf-molting	1	observe/run	esker	n/a	Phil/BA	wolf is molting-couldn't find den in area	heli	
Jericho	24/05/1999	7:00 AM	7320946 478770	caribou	6	migrating across lake		N	EW			
Jericho	24/05/1999	8:45 AM	7320946 478770	caribou	7	migrating across lake		N	EW			
Jericho	24/05/1999	9:42 AM	7320946 478770	caribou	6	migrating across lake		N	EW			
Jericho	24/05/1999	3:00 PM	7320946 478770	caribou	400+	travel	ice/snow	N	EW	Crossing Carat Lake		
Jericho	24/05/1999	5:45 PM	7320946 478770	caribou	140	travel	ice/snow	N	MT			
Jericho	24/05/1999	9:47 PM	Ponds N end strip	Grn winged teal	1	wading	pond	n/a	BA/EW		truck	
Jericho	24/05/1999	9:48 PM	Ponds N end strip	ducks	2	wading	pond	n/a	BA/EW		truck	
Jericho	24/05/1999	9:48 PM	Ponds N end strip	geese	2	flying	n/a	N	BA/EW		truck	
Jericho	24/05/1999	9:48 PM	Ponds N end strip	snow geese	15	flying	n/a	N	BA/EW		truck	

Area	Date	Time	Location	Species	Number Observed	Activity Observed	Habitat Type	Travel Direction	Observer	Notes	Type	Dist.
Jericho	24/05/1999	9:49 PM	Ponds N end strip	Branta canadensis	2	wading	pond	n/a	BA/EW		truck	
Jericho	24/05/1999	9:50 PM	Ponds N end strip	Branta canadensis	2	flying	n/a	N	BA/EW		truck	
Jericho	24/05/1999	9:50 PM	Ponds N end strip	pintail ducks	2	wading	pond	n/a	BA/EW		truck	
Jericho	24/05/1999	10:04 PM	Ponds N end strip	caribou	6	feeding	bare grnd	n/a	BA/EW		truck	
Jericho	24/05/1999	10:15 PM	66'01.50N 111'27.58W	grizzly bear	1	laying down	snow	n/a	BA/EW	Carcass sighted before-today buried in snow	truck	
Jericho	25/05/1999	6:15 AM	7320946 478770	wolf tracks	1	sniffin'arnd	sand	n/a	Ed	tracks noticed from last night		
Jericho	25/05/1999	8:27 AM	7320946 478770	caribou	31	crossing lake	ice/snow	N	Ed			
Jericho	25/05/1999	8:34 AM	7320946 478770	caribou	5	crossing lake	ice/snow	N	Ed			
Jericho	25/05/1999	1:50 PM	7320946 478770	caribou	70	crossing lake	ice/snow	N	Ed			
Jericho	25/05/1999	3:20 PM	7320946 478770	caribou	120	feeding/migrating	ice/land	N	MT/BA	some on ice, some feeding off ice	foot	
Jericho	25/05/1999	3:45 PM	7320946 478770	Branta canadensis	4	flying	n/a	NE	MT/BA		foot	
Jericho	25/05/1999	3:45 PM	7320946 478770	caribou	52	feeding/walking	bare grnd	N	MT/BA		foot	
Jericho	25/05/1999	6:50 PM	Ponds NW end strip	tundra swans	2	wading	pond	n/a	MT/BA/EW		truck	
Jericho	25/05/1999	7:10 PM	Ponds NW end strip	Anser albifrons	5	swimming	pond	n/a	MT/BA/EW		truck	
Jericho	25/05/1999	7:10 PM	Ponds NW end strip	pintail ducks	11	swimming/feeding	pond	n/a	MT/BA/EW		truck	
Jericho	25/05/1999	7:15 PM	Ponds NW end strip	Anser albifrons	2	feeding	bare grnd	n/a	MT/BA/EW		truck	
Jericho	25/05/1999	7:15 PM	Ponds NW end strip	snow geese	5	feeding	bare grnd(tussock)	n/a	MT/BA/EW	in and out of ponds while observing	truck	
Jericho	25/05/1999	7:20 PM	Ponds NW end strip	sandhill cranes	3	feeding	bare grnd	n/a	MT/BA/EW	1 male and 2 females	truck	
Jericho	25/05/1999	7:26 PM	66'01.50N 111'27.58	grizzly bear	1	feeding (on kill)	snow	n/a	MT/BA/EW	back on kill: disturbed by truck	truck	
Jericho	25/05/1999	8:30 PM	7320946 478770	caribou	280	migrating across lake	ice/snow	N	BA/MT/EW		foot	
Jericho	26/05/1999	4:45 PM	7320946 478770	caribou	2	migrating	ice/snow	N	EW			
Jericho	26/05/1999	4:45 PM	7320946 478770	caribou	8	migrating	ice/snow	N	EW			
Jericho	26/05/1999	4:45 PM	7320946 478770	caribou	4	migrating	ice/snow	N	EW			
Jericho	26/05/1999	4:50 PM	7320946 478770	caribou	11	migrating	ice/snow	N	MT			
Jericho	27/05/1999	8:40 PM	7320946 478770	caribou	15	migrating	ice/snow	N	EW/MT			
Jericho	27/05/1999	8:40 PM	7320000 478200	caribou	5	feeding	ground	n/a	EW/MT			
Jericho	27/05/1999	8:41 PM	7328000 477000	caribou	18	migrating	land	N	MT			
Jericho	27/05/1999	9:00 PM	7321000 475500	caribou	26	feeding	land	n/a	MT			
Jericho	27/05/1999	10:30 PM	7320946 478770	caribou	4	migrating	ice/snow	N	EW			
Jericho	28/05/1999	5:00 AM	7320946 478770	caribou	16	migrating	ice/snow	S	EW			
Jericho	28/05/1999	5:15 AM	479000 732800	caribou	3	feeding	br grd/snow	n/a	EW			
Jericho	28/05/1999	9:20 AM	7320946 478770	caribou	20	migrating	ice/snow	N	EW			
Jericho	28/05/1999	10:40 PM	7320946 478770	caribou	9	feeding	br grd/snow	n/a	MT	Feeding crest of hill		
Jericho	28/05/1999	10:40 PM	7320946 478770	caribou	4	feeding	br grd/snow	n/a	MT			
Jericho	28/05/1999	11:20 PM	Carat Ridge	caribou	29	feeding	br grd/snow	n/a	MT			
Jericho	29/05/1999	7:30 AM	7320946 478770	caribou	13	feeding	br grd/snow	n/a	EW			
Jericho	29/05/1999	8:30 AM	7320946 478770	caribou	1	feeding	br grd/snow	n/a	EW			

Area	Date	Time	Location	Species	Number Observed	Activity Observed	Habitat Type	Travel Direction	Observer	Notes	Type	Dist.
Jericho	29/05/1999	9:15 AM	7320946 478770	caribou	48	feeding	br grd/snow	n/a	EW			
Jericho	29/05/1999	11:30 AM	7323000 482000	peregrine falcons	2	nesting	cliff edge	n/a	MT/BA	falcons fussed while we were there	walk	
Jericho	29/05/1999	11:55 AM	7315000 481500	caribou	9	migrating	ice/snow	N	MT/BA	Migrate across Contwoyto Lk-N-end	walk	
Jericho	29/05/1999	12:08 PM	7315700 483500	caribou	7	migrating	ice/snow	N	MT/BA	Migrate across Contwoyto Lk-N-end	walk	
Jericho	29/05/1999	12:09 PM	7328000 477000	caribou	17	migrating	ice/snow	N	MT/BA	Migrate across Contwoyto Lk-N-end	walk	
Jericho	29/05/1999	12:10 PM	7321000 475500	caribou	11	migrating	ice/snow	N	MT/BA	Migrate across Contwoyto Lk-N-end	walk	
Jericho	29/05/1999	2:45 PM	7321950 478870	arctic hare	1	observe/run	snow	n/a	MT/BA/EW	Survey of strip & surrounding area	walk	
Jericho	29/05/1999	2:50 PM	7322200 478700	Anser albifrons	2	feeding	br grd/snow	n/a	MT/BA/EW	Survey of strip & surrounding area	walk	
Jericho	29/05/1999	3:00 PM	7322500 479200	caribou	33	feeding	br grd/snow	n/a	MT/BA/EW	Survey of strip & surrounding area	walk	
Jericho	29/05/1999	3:15 PM	7322500 477950	caribou	2	migrating	ice/snow	N	MT/BA/EW	Survey of strip & surrounding area	walk	
Jericho	29/05/1999	3:30 PM	7322250 479250	caribou	7	feeding	br grd/snow	n/a	MT	Survey of strip & surrounding area	walk	
Jericho	29/05/1999	8:10 PM	7319950 478200	caribou	6	feeding	br grd/snow	n/a	BA		walk	
Jericho	29/05/1999	8:23 PM	7320946 478770	caribou	34	migrating	ice/snow	N	MT/EW		walk	
Jericho	30/05/1999	1:15 AM	7320946 478770	red fox	1	running	ice/snow	S	EW	Running across Carat Lake	walk	
Jericho	30/05/1999	5:50 PM	7320946 478770	falcon	1	flying	n/a	EW	BA		walk	
Jericho	30/05/1999	6:15 PM	7320946 478770	Anser albifrons	1	feeding	heath tundra	n/a	EW		walk	
Jericho	30/05/1999	8:30 PM	7320946 478770	Anser albifrons	2	flying	n/a	N	EW		walk	
Jericho	31/05/1999	6:10 PM	7320500 478000	caribou	11	migrating	ice/snow	N	MT/Dan		truck	
Jericho	31/05/1999	9:10 PM	7321720 478480	pintails	3	swimming	pond	n/a	MT/Dan		truck	
Jericho	31/05/1999	9:20 PM	7322150 478690	abser albifrons	2	feeding	hummock	n/a	MT/Dan		truck	
Jericho	31/05/1999	10:15 PM	7322500 479450	caribou	3	feeding	heath tundra	N	MT/Dan		truck	
Jericho	31/05/1999	10:15 PM	7322550 479450	pintail	1	swimming	pond	n/a	MT/Dan		truck	
Jericho	31/05/1999	11:10 PM	7321100 478000	caribou	7	migrating	br grnd	N	MT/Dan	unable to identify habitat type	truck	
Jericho	01/06/1999	2:30 PM	7322470 478370	snow geese	5	flying	n/a	N	MT/Dan	flying with tundra swans-listed next	foot	
Jericho	01/06/1999	2:30 PM	7322470 478370	tundra swans	3	flying	n/a	N	MT/Dan		foot	
Jericho	01/06/1999	4:05 PM	7322650 478780	pintail	1	swimming	pond	n/a	MT/Dan		foot	
Jericho	02/06/1999	2:10 PM	7320750 479000	caribou	2	migrating	heath tundra/road	NW	MT/Dan	both young caribou	foot	
Jericho	02/06/1999	2:20 PM	7320650 479050	fox	1	walking/scenting	heath tundra	n/a	MT/Dan	travelled in a circle around us	foot	
Jericho	02/06/1999	3:05 PM	7320250 479650	caribou	4	migrating	tussock	NW	MT/Dan	travelled in a circle NW then SE	foot	
Jericho	03/06/1999	2:18 PM	7323650 479700	ducks	9	swimming	pond	n/a	MT/Dan	unable to identify species	truck	
Jericho	03/06/1999	2:20 PM	7322500 482500	eagle	1	flying	n/a	NW then S	MT/Dan	unable to identify species+location estimated	truck	
Jericho	03/06/1999	2:32 PM	7322300 478800	anser albifrons	2	feeding	hummock	n/a	MT/Dan		truck	
Jericho	03/06/1999	2:50 PM	7322650 479550	pintail	2	flying	n/a	NW	MT/Dan		truck	
Jericho	03/06/1999	11:10 PM	478800 7320830	Branta canadensis	5	flying	n/a	N	MT		bed	
Jericho	04/06/1999	8:00 AM	478800 7320830	arctic hare	2	sitting	sand	n/a	Dan	by outhouse	foot	
Jericho	04/06/1999	3:05 PM	7321500 478800	Branta canadensis	2	swimming	pond	n/a	MT/Dan	in pond just east of fuel farm	truck	
Jericho	04/06/1999	3:24 PM	7322120 478700	longspur	2	flying/feeding	snow	n/a	MT/Dan	feeding on seeds on snow patches	foot	

Area	Date	Time	Location	Species	Number Observed	Activity Observed	Habitat Type	Travel Direction	Observer	Notes	Type	Dist.
Jericho	04/06/1999	3:40 PM	7322292 478521	longspur	1	flying/feeding	hummock	n/a	MT/Dan		foot	
Jericho	04/06/1999	4:10 PM	7322528 478476	Branta canadensis	2	flying	n/a	N	MT/Dan	hign winds- tried north then turned S	foot	
Jericho	04/06/1999	6:20 PM	478800 7320830	herring gull	2	flying	n/a	N	MT	seemed to be "playing" in the wind	foot	
Jericho	04/06/1999	7:25 PM	7321410 477910	caribou	2	feeding/resting	br grnd	n/a	MT		foot	
Jericho	04/06/1999	7:50 PM	7321350 478350	herring gull	1	flying	n/a	S	MT		foot	
Jericho	05/06/1999	11:14 AM	7321300 478300	Anser albifrons	2	flying	n/a	N	MT	North then landed in Carta Lake moat	foot	
Jericho	05/06/1999	11:20 AM	478800 7320830	herring gull	1	flying	over lake shore	N	MT		foot	
Jericho	05/06/1999	4:02 PM	7321700 477750	caribou	1	feeding/walking	heath tundra	S	MT	from heath into hummocks	foot	
Jericho	05/06/1999	4:14 PM	7321610 476500	caribou	3	walking	unknown	N	MT		foot	
Jericho	05/06/1999	5:10 PM	7322400 478750	Anser albifrons	2	swimming	pond	n/a	MT/Dan		foot	
Jericho	06/06/1999	11:36 AM	7320613 479097	tree sparrow	1	flying	birch seep	n/a	MT	flying all over- no definite direction	foot	
Jericho	06/06/1999	12:05 PM	7320613 479097	caribou	7	walking	heath (rocky) tundra	N	MT		foot	
Jericho	06/06/1999	12:20 PM	7320737 479144	longspur	2	flying	heath (rocky)tundra	n/a	MT	flying all over-no definite direction	foot	
Jericho	06/06/1999	12:30 PM	7320737 479144	arctic hare	1	sitting	boulders	n/a	MT		foot	
Jericho	06/06/1999	3:38 PM	7322150 478250	loons	2	swimming	pond	n/a	MT		foot	
Jericho	06/06/1999	3:38 PM	7322250 478100	pintail	2	swimming	lake	n/a	MT		foot	
Jericho	06/06/1999	3:50 PM	7322304 732304	longspur	1	flying	hummock	n/a	MT	flying all over-no definite direction	foot	
Jericho	06/06/1999	4:10 PM	7322450 478397	C.redpoll	1	flying	hummock	n/a	MT	flying all over-no definite direction	foot	
Jericho	06/06/1999	4:10 PM	7322450 478397	longspur	3	flying	hummock	n/a	MT	not in a group but in same area	foot	
Jericho	06/06/1999	5:37 PM	7321600 478550	herring gull	2	swimming	pond	n/a	MT		foot	
Jericho	07/06/1999	2:35 AM	478800 7320830	arctic hare	1	walking	esker	NW	MT		bed	
Jericho	07/06/1999	11:10 AM	478800 7320830	Branta canadensis	4	flying	n/a	N	MT		foot	
Jericho	07/06/1999	11:13 PM	478800 7320830	longspur	2	flying	birch seep	n/a	MT	no definite direction	foot	
Jericho	07/06/1999	11:13 PM	478800 7320830	rock ptarmigan	1	sitting	birch seep	n/a	MT	on rock in birch seep, vocalizing	foot	
Jericho	07/06/1999	11:23 PM	478800 7320830	arctic hare	1	sitting	heath (rocky) tundra	n/a	MT		foot	
Jericho	07/06/1999	11:30 PM	478690 7321400	P.loons	2	flying	n/a	SW	MT		foot	
Jericho	07/06/1999	11:40 PM	7319950 478450	arctic hare	1	walking	heath(rocky)tundra	N	MT		foot	
Jericho	08/06/1999	2:12 PM	7320870 478630	snow geese	2	flying	n/a	N	MT		foot	
Jericho	08/06/1999	2:15 PM	7320870 478630	tree sparrows	2	flying	birch seep	n/a	MT		foot	
Jericho	08/06/1999	2:37 PM	7320870 478630	caribou	3	walking	heath(rocky) tundra	N	MT		foot	
Jericho	08/06/1999	3:57 PM	7318479 476150	caribou	24	resting	heath (rocky) tundra	n/a	MT/BO/AL/RP		heli	
Jericho	08/06/1999	4:01 PM	7318650 476050	caribou	21	resting/feeding	heath (rocky) tundra	n/a	MT/BO/AL/RP	some resting some feeding	heli	
Jericho	08/06/1999	4:04 PM	7319620 476600	muskox	1	feeding	heath (rocky) tundra	n/a	MT/BO/AL/RP		heli	
Jericho	08/06/1999	4:15 PM	C-6 grayling enhancement area	mallard	1	flying	n/a	unknown	RP		heli	
Jericho	08/06/1999	4:22 PM	Rick may have it	wolf	1	feeding	unknown	n/a	MT/BO/AL/RP	kill in mouth, by shore then jumped onto floating ice		
Jericho	08/06/1999	4:40 PM	Rick may have it	Anser albifrons	1	flying	n/a	unknown	MT/BO/AL/RP		heli	
Jericho	08/06/1999	unknown	7325702 479467	wolf	1	walking	heath	unknown	RP		heli	

Area	Date	Time	Location	Species	Number Observed	Activity Observed	Habitat Type	Travel Direction	Observer	Notes	Type	Dist.
Jericho	09/06/1999	10:23 AM	7319850 478450	caribou	19	feeding/walking	heath (rocky) tundra	E	Mt/BO	walked from heath into hummock	foot	
Jericho	09/06/1999	11:35 AM	7380850 478150	Anser albifrons	4	flying	n/a	W	MT		foot	
Jericho	09/06/1999	1:10 PM	7319220 477150	herring gull	1	flying	n/a	n/a	BO		foot	
Jericho	09/06/1999	1:18 PM	7380850 478150	longspur	1	flying	hummock	n/a	MT	no definite direction	foot	
Jericho	09/06/1999	1:20 PM	7310850 478200	redpolls	2	flying	hummock	n/a	MT/RP/AL	no definite direction	foot	
Jericho	09/06/1999	1:30 PM	7319250 477050	arctic hare	1	running	heath tundra	n/a	MT		foot	
Jericho	09/06/1999	1:36 PM	7319620 478200	herring gull	4	flying	n/a	n/a	MT	2 sets of 2; could be ones that hang out in the boulders by Carat	foot	
Jericho	09/06/1999	2:00 PM	7319250 477050	caribou	1	walking	NE	NE	MT	one yearling	foot	
Jericho	09/06/1999	2:17 PM	7319620 478200	rough legged hawks	3	flying	n/a	unknown	RP	one zooming the hummocks	foot	
Jericho	09/06/1999	2:22 PM	7319620 478200	Anser albifrons	4	flying	n/a	W	MT		foot	
Jericho	09/06/1999	2:30 PM	7319800 478150	caribou	12	walking	heath tundra	W	MT		heli	
Jericho	11/06/1999	8:05 AM	7320613 479097	Oldsquaw	2	flying	n/a	unknown	PB/MT		foot	
Jericho	11/06/1999	8:05 AM	7320613 479097	Raven	1	flying	n/a	n/a	PB/MT	likely a Carat camp resident	foot	
Jericho	11/06/1999	11:10 AM	7322200 478650	rough legged hawk	1	flying	hummock	n/a	PB/MT		foot	
Jericho	11/06/1999	11:10 AM	7322200 478650	rough legged hawk	1	flying	hummock	n/a	PB/MT		foot	
Jericho	11/06/1999	11:30 AM	7322400 478150	R.B merganser	3	swimming	lake	n/a	PB/MT	2 male 1 female	foot	
Jericho	12/06/1999	11:11 AM	476850 7319150	caribou	2	unknown	unknown	unknown	BO		heli	
Jericho	12/06/1999	12:10 PM	479150 7323000	caribou	4	unknown	unknown	unknown	BO	yearlings	foot	
Jericho	12/06/1999	12:48 PM	477500 7319200	arctic hare	1	unknown	unknown	unknown	BO		foot	
Jericho	12/06/1999	2:00 PM	478500 7319150	semi-palmated plover	3	unknown	unknown	unknown	K. Sexsmith	at Tyson's pond	foot	
Jericho	12/06/1999	2:25 PM	479150 7323300	caribou	30	feeding	sedge association	n/a	BO		heli	
Jericho	12/06/1999	2:35 PM	478820 7322000	caribou	13	resting	esker	n/a	BO		heli	
Jericho	12/06/1999	2:40 PM	479150 7323200	caribou	4	unknown	unknown	unknown	BO	all yearlings	heli	
Jericho	13/06/1999	2:11 PM	7319190 476760	caribou	2	feeding	Heath	random		BSO		
Jericho	13/06/1999	2:40 PM	7321800 478600	caribou Yearlings	4	feeding	Heath	random		BSO		
Jericho	14/06/1999	9:05 AM	487500 7298500	caribou	3	unknown	unknown	unknown	BO	1 yearling, 2 adults	foot	
Jericho	14/06/1999	unknown	478250 7319850	caribou	3	unknown	unknown	unknown	RP		foot	
Jericho	14/06/1999	unknown	478250 7319850	ptarmigan	1	unknown	unknown	unknown	RP		foot	
Jericho	15/06/1999	7:15 AM	479150 7323250	caribou	11	feeding	heath	West	MT/PB	moved west when scared by Heli	heli	
Jericho	15/06/1999	7:25 AM	478500 7322300	Branta canadensis	1	resting	lake	n/a	MT/PB		foot	
Jericho	15/06/1999	8:00 AM	7322533 478416	herring gull	1	flying	n/a	N	MT/PB		foot	
Jericho	15/06/1999	8:05 AM	7322533 478416	longspur	1	flying/perched	sedge association	n/a	MT/PB	no definite direction noted	foot	
Jericho	15/06/1999	8:10 AM	7322533 478416	longspur	1	flying/perched	sedge association	n/a	MT/PB	no definite dir. noted, territorial behaviour	foot	
Jericho	15/06/1999	8:25 AM	478250 7322150	Anser albifrons	2	flying	n/a	N	MT/PB	flew right along Carat Lake out flow	foot	
Jericho	15/06/1999	10:12 AM	7320816 479431	tree sparrow	1	flying/perched	hummock	n/a	MT/PB	no definite direction noted	foot	
Jericho	15/06/1999	10:12 AM	7320816 479431	white crowned sparrow	1	flying/perched	hummock	n/a	MT/PB	no definite direction noted	foot	
Jericho	15/06/1999	2:00 PM	7319600 478200	semi-palmated plover	3	flying	na	random	BSO		foot	

Area	Date	Time	Location	Species	Number Observed	Activity Observed	Habitat Type	Travel Direction	Observer	Notes	Type	Dist.
Jericho	16/06/1999	12:48 PM	7319250 477700	arctic hare	1	Foraging	meadow	random	BSO		foot	
Jericho	16/06/1999	2:15 PM	7321810 478560	caribou	13	feeding	Heath	random	BSO		foot	
Jericho	16/06/1999	2:25 PM	7321820 478870	caribou	30	feeding	meadow	random	BSO		foot	
Jericho	16/06/1999	4:18 PM	475550 7320850	caribou	5	feeding	heath	n/a	MT/BO/BA		foot	
Jericho	16/06/1999	4:25 PM	475300 7320600	rock ptarmigan	1	unknown	birch seep	n/a	MT/BO/BA	no definite direction noted	foot	
Jericho	17/06/1999	11:28 AM	7319600 478200	white-fronted geese	10	flying	na	random	BSO			
Jericho	18/06/1999	11:30 AM	477100 7319250	white-fronted geese	32	flying	na	na	BO		foot	
Jericho	18/06/1999	11:30 AM	7319300 477100	white-fronted geese	32	flying	na	North	BSO			
Jericho	18/06/1999	12:36 PM	480000 7318000	muskox	1 f, 1 calf	feeding	sedge mead	na	BO		heli	
Jericho	21/06/1999	12:15 PM	475350 7319220	caribou	5	resting/feeding	birch seep	n/a	MT/BO/BA		foot	
Jericho	21/06/1999	12:23 PM	475969 7318855	tree sparrows	1	flying/perched	heath	n/a	MT/BO/BA	no definite direction noted	foot	
Jericho	21/06/1999	3:30 PM	479000 7321500	Anser albifrons	3	feeding	tussock	n/a	MT/BO/BA	small pond at Carat fuel farm	foot	
Jericho	21/06/1999	4:32 PM	478560 7322300	caribou	1	running	heath	SW	MT/BO/BA		foot	
Jericho	21/06/1999	5:10 PM	479320 7320700	caribou	17	resting/feeding	heath	n/a	MT/BO/BA		heli	
Jericho	23/06/1999	8:00 AM	478000E 7321500N	arctic turns (mated)	2	nesting	meadow	na	BSO			
Jericho	23/06/1999	8:00 AM	478000E 7321500N	arctic turns (mated)	2	nesting	meadow	na	BSO			
Jericho	01/07/2199	3:00 PM	500m NW Lynne Inflow 479500 7319600	grizzly Bear	1	Running	Heath (rocky)	NE	MT	Frightened by Heli	heli	
Jericho	05/07/1999	12:45 - 14:4	2 km S of Lynne Lk 480000 7317000	caribou (m,f,y,c)	several Thousand	walking	na	SW	BSO		heli	
Jericho	07/07/1999	12:32 PM	Key Lake Inflow 479350 7319120	C.sparrow	1	flying	rocky heath slope	n/a	MT/HM		foot	
Jericho	07/07/1999	12:32 PM	Key Lake Inflow 479350 7319120	longspur	1	flying	birch seep	n/a	MT/HM	talkative	foot	
Jericho	07/07/1999	12:32 PM	Key Lake Inflow 479350 7319120	S.sparrow	1	flying	birch seep	n/a	MT/HM	territorial	foot	
Jericho	07/07/1999	12:32 PM	Key Lake Inflow 479350 7319120	tree sparrow	3	flying	birch seep	n/a	MT/HM	territorial	foot	
Jericho	07/07/1999	1:20 PM	Lynne Lake Cliffs 480000 7319200	rough legged hawk	1	flying	cLupiniffs	n/a	MT/HM	VERY territorial with continous vocalizations	foot	
Jericho	07/07/1999	1:50 PM	Lynne Lake Outflow 480490 7319140	C.redpoLupinLupins	2	flying	heath	n/a	MT/HM	territorial	foot	
Jericho	07/07/1999	2:00 PM	Lynne Lake Outflow 480490 7319140	caribou	5	walking	rocky heath slope	E	MT/HM	four adults, one calf	foot	n/a
Jericho	07/07/1999	2:50 PM	N Lynne Lk by sm lk 479800 7319680	C.redpoLupinLupins	1	flying	tussock	n/a	MT/HM	vocalizing	foot	
Jericho	07/07/1999	3:15 PM	below inukshuk 482400 7323200	caribou	1000	walking	rocky heath	S	MT/HM	mixed herd	foot	
Jericho	08/07/1999	7:30 AM	at Carat Camp 478800 7320830	arctic hare	1	feeding	non-tussock sedge	n/a	MT/HM	still multi-coloured	foot	
Jericho	08/07/1999	8:10 AM	Birch Seep phen. plt 479230 7320500	tree sparrow	1	flying	birch seep	n/a	MT/HM		foot	
Jericho	08/07/1999	9:50 AM	Non-tussock sedge phen plot 478429 7322442	longspur	2	flying	non-tussock sedge	n/a	MT/HM		foot	
Jericho	08/07/1999	10:50 AM	near Carat Lake outflow station 477900 7321650	longtailed jaegers	2	defending nest	tussock	n/a	MT/HM	nested?	foot	

Area	Date	Time	Location	Species	Number Observed	Activity Observed	Habitat Type	Travel Direction	Observer	Notes	Type	Dist.
Jericho	08/07/1999	2:35 PM	Carat Lake inflow 475270 7320610	longspur	2	flying	birch seep	n/a	MT/HM		foot	
Jericho	10/07/1999	10:15 PM	479770 7320946	caribou	13	feeding	tundra	S	Dan			
Jericho	10/07/1999	11:25 PM	478770 7320946	loons	2	feeding/swimming	lake	n/a	Dan			
Jericho	11/07/1999	12:40 AM	478770 7320946	arctic hare	1	feeding	tundra	n/a	Dan			
Jericho	11/07/1999	8:26 AM	Met Station 509017 7297417	caribou	500+	walking	rocky heath	NW	BSO/MT/HM	Mixed herd with calves	foot	
Jericho	11/07/1999	8:30 AM	509570/7298026	longspur	1	flyng/singing	birch seep	na	BSO/MT/HM		foot	
Jericho	11/07/1999	8:30 AM	509570/7298026	sandpiper	1	flying	birch seep	na	BSO/MT/HM		foot	
Jericho	11/07/1999	10:30 AM	508918/7297717	longspur	1	flying	rocky heath	na	BSO/MT/HM		foot	
Jericho	11/07/1999	10:35 AM	508918/7297717	longspur	1	not old enough to fly	rocky heath	na	BSO/MT/HM		foot	
Jericho	11/07/1999	10:55 AM	508918/7297717	longspur	1	flying	rocky heath	na	BSO/MT/HM		foot	
Jericho	11/07/1999	12:05 PM	509291/7297790	longtailed jaeger	1	flying	air	S	MT		foot	
Jericho	11/07/1999	12:20 PM	479480 7322650	baby fox	3	playing	outside den	n/a	Dan			
Jericho	11/07/1999	12:30 PM	478770 7320946	muskox	6	moving north	tundra	N	Dan			
Jericho	11/07/1999	1:25 PM	509399/7297402	redpoll	1	flying	hummock	na	MT		foot	
Jericho	11/07/1999	1:30 PM	509360/7297418	longspur	1	flying	heath	na	MT		foot	
Jericho	14/07/1999	10:45 AM	Jericho River Rapids 478700 7224000	herring gulls	2	flying	River	na	BSO/HM		foot	
Jericho	15/07/1999	10:40 AM	Carat Lake inflow 475270 7320610	wolverine	1	walking	rocky tundra	na	BSO/HM		foot	
Jericho	16/07/1999	8:30 AM	478400E 7322700N	oldsquaw	5	feeding	Pond	na	BSO/HM		foot	
Jericho	17/07/1999	1:45 PM	Airstrip rd near camp 478800 732930	rough legged hawk	1	feeding	Heath	na	BSO/HM		foot	
Jericho	20/07/1999	11:30 AM	500m N airstrip fox den 479440 7323000	wolf	1	walking	Creek bed	SW	HM/CP		foot	
Jericho	24/07/1999	11:20 PM	478770 7320946	wolf	1	roaming	tundra	unknown	Dan			
Jericho	25/07/1999	8:00 PM	camp 478800/7330900	herring gull	1	walking	Water	na	BSO	Pond behind kitchen	foot	
Jericho	25/07/1999	10:30 PM	479480 7322650	baby fox	3	feeding	outside den	n/a	Dan			
Jericho	25/07/1999	11:15 PM	478780 7322100	swan	1	sitting in pond	Pond	n/a	Dan			
Jericho	26/07/1999	9:30 PM	478770 7320946	caribou	very many	moving north	tundra	N	Dan			
Jericho	26/07/1999	na	camp 478800/7330900	ptarmigan (7-5Y)	7	Rearing	Grass	na	BSO		foot	
Jericho	27/07/1999	6:30 AM	479000/7321800	herring gull	1	flying	Water	na	BSO	Lake O2 e of airstrip	foot	
Jericho	29/07/1999	12:00 PM	camp 478800/7330900	herring gull	1	wading	Water	na	BSO	Pond behind kitchen	foot	
Jericho	29/07/1999	5:50 PM	475400/7320500	grizzly Bear	1	running	heath	na	BSO	Frightened into the lake by Heli	heli	
Jericho	01/08/1999	2:50 PM	479400 7322500	herring gull	1	flying	Sedge/water	n/a	BO			
Jericho	04/08/1999	1:47 PM	3 km East of Camp	golden eagle	1	flying	Cliff	W	BO/BH			
Jericho	06/08/1999	9:00 AM	478750 7321610	caribou	1	lying down	Sandpile	na	HM/GF/WU	Back leg injured; hanging around Carat Camp		
Jericho	06/08/1999	11:30 AM	South of Key Lake	rough legged hawk	1	nesting	Cliff	n/a	BO			
Jericho	06/08/1999	12:00 PM	SE of Key Lake	rough legged hawk	1	flying	Cliff	n/a	BO			

Area	Date	Time	Location	Species	Number Observed	Activity Observed	Habitat Type	Travel Direction	Observer	Notes	Type	Dist.
Jericho	08/08/1999	9:30 PM	478770 7320946	carbou	500	traveling	tundra	N	Dan			
Jericho	09/08/1999	4:55 PM	478770 7320946	caribou	100	traveling	tundra	N	Dan			
Jericho	09/08/1999	5-9 pm	Portal -pond E of Camp	caribou	>1000	walking	n/a	North	BO			
Jericho	10/08/1999	2:00 PM	478770 7320946	caribou	300	traveling	tundra	N	Dan			
Jericho	10/08/1999	all day	Migrating NE	caribou	<100	feeding	n/a	NE	BO			
Jericho	11/08/1999	all day	478770 7320946	caribou	50	traveling	tundra	N	Dan			
Jericho	11/08/1999	all day	Migrating NE	caribou	>1000	walking	n/a	NE	BO			
Jericho	12/08/1999	8:00 AM	478770 7320946	caribou	100	traveling	tundra	N	Dan			
Jericho	12/08/1999	all day	Migrating NE	caribou	>1000	walking	n/a	NE	BO			
Jericho	13/08/1999	4:00 PM	478770 7320946	caribou	1000	traveling	tundra	N	Dan			
Jericho	13/08/1999	all day	Migrating NE	caribou	>100	walking	n/a	NE	BO			
Jericho	14/08/1999	8:00 AM	Portal	caribou	<100	walking	Heath	NE	BO			
Jericho	14/08/1999	all day	478770 7320946	caribou	40-50	feeding	tundra	N	Dan			
Jericho	15/08/1999	all day	478770 7320946	caribou	40-50	feeding	tundra	N	Dan			
Jericho	20/08/1999	12:00 AM	475750 7318800	caribou	2	traveling	rocky tundra	SE	MT			
Jericho	25/08/1999	5:00 PM	478770 7320946	caribou	3	traveling	on road	S	MT/HM			
Jericho	26/08/1999	10:30 AM	478770 7320946	caribou	13	traveling	rocky heath	N	MT/HM			
Jericho	26/08/1999	1:30 PM	477650 7319500	caribou	9	traveling	rocky heath	S	MT/RS			
Jericho	26/08/1999	1:45 PM	478156 7319764	caribou	5	traveling	hummock	N	MT/HM			
Jericho	27/08/1999	11:00 AM	479550 7319000	caribou	11(1 Calf)	feeding	rocky heath	SE	HM/MT	mixed herd		
Jericho	27/08/1999	12:45 PM	478770 7320946	caribou	18	traveling	Heath	SE	HM/MT	mixed herd		
Jericho	27/08/1999	1:30 PM	478750 7322500	caribou	11	feeding	Heath	Due South	HM/MT	mixed herd		
Jericho	27/08/1999	4:00 PM	475600 7318000	caribou	50	traveling	Hummock	SE	AL/RS	mixed herd		
Jericho	28/08/1999	9:30 AM	478750 7322100	caribou	3(F,Y,C)	feeding	Airstrip	n/a	MT			
Jericho	28/08/1999	1:00 PM	SE of Camp	caribou	10	walking	Heath	S	BO			
Jericho	28/08/1999	1:50 PM	SE of Camp	caribou - male	1	walking	Heath	S	BO			
Jericho	28/08/1999	4:45 PM	479500 7321000	caribou	30	traveling	rocky heath	SE	HM/MT	mixed herd		
Jericho	03/09/1999	10:00 AM	7323500 479600	loons	3	migrating	n/a	S	HM/MT/AL			
Jericho	05/09/1999	1:00 PM	Carat Lake, NW of camp	pacific loons	8	swimming	Lake	na	BSO	Likely a famly group		

Area	Date	Time	Location	Species	Number Observed	Habitat Type	Origin Direction	Travel Direction	Observer	Notes	Type
Jericho	22/06/00	7:30 PM	mine site	caribou	42	grass	south	north	Kevin O.	bulls,cows,calves	
Jericho	22/06/00	9:45 PM	mine site	caribou	21	grass	south	north	Kevin O.	bulls	
Jericho	23/06/00	10:00 AM	mine site	caribou	1	grass	south	north	Kevin O.	big bull	
Jericho	23/06/00	8:05 PM	mine site	caribou	8	grass	south	north	Kevin O.	bulls	
Jericho	23/06/00	8:25 PM	air strip	caribou	17	grass	south	north	Kevin O.	young bulls	
Jericho	23/06/00	8:45 PM	tank farm	fox	1	nil	north	SW	Kevin O.		
Jericho	24/06/00	9:45 AM	airstrip	fox	1	rabbit	NW	SE	Kevin O.	it was eating	
Jericho	24/06/00	2:30 PM	camp	caribou	35	grass	south	north	Kevin O.	bulls and small bulls	
Jericho	24/06/00	5:05 PM	mine site	caribou	4	grass	south	north	Kevin O.	3bulls and calf	
Jericho	24/06/00	7:30 PM	mine site	caribou	16	grass	south	north	Kevin O.	7bulls and calf	
Jericho	25/06/00	10:30 PM	mine site	caribou	150	grass	south	north	Kevin O.	bulls,cows,calves	
Jericho	26/06/00	11:15 AM	camp	caribou	20	grass	north	south	Kevin O.	3bulls and 17small bulls	
Jericho	26/06/00	5:00 PM	camp	caribou	53	grass	south	north	Kevin O.	19bulls and 34calfs	
Jericho	26/06/00	7:15 PM	mine site	caribou	72	grass	south	north	Kevin O.	bulls and calves	
Jericho	26/06/00	9:00 PM	camp	caribou	23	grass	south	north	Kevin O.	bulls and calves	
Jericho	26/06/00	11:00 PM	camp	caribou	200-300	grass	south	north	Kevin O.	bulls and calves	
Jericho	27/06/00	8:30 AM	mine site to camp	caribou	1000-2000	grass	south	north	Kevin O.	bulls and calves	
Jericho	27/06/00	10:00 AM	Carat River	caribou	300-400	grass	north	south	Kevin O.	bulls,cows,calves	
Jericho	27/06/00	12:10 PM	tank farm	white wolf	1	nil	south	north	Kevin O.	nil	
Jericho	27/06/00	3:00 PM	camp	caribou	40	grass	south	north	Kevin O.	25bulls,8cows,7calfs	
Jericho	29/06/00	9:30 AM	Carat River to camp	caribou	400-500	grass	north	south	Kevin O.	bulls,cows,calves	
Jericho	29/06/00	11:45 AM	Carat River to camp	caribou	2000-3000	grass	NW	SE	Kevin O.	bulls,cows,calves	
Jericho	29/06/00	2:30 PM	Carat River to camp	caribou	4000-5000	grass	NW	SE	Kevin O.	bulls,cows,calves	
Jericho	29/06/00	6:00 PM	airstrip to camp	caribou	5000-10000	grass	north	south	Kevin O.	bulls,cows,calves	
Jericho	30/06/00	5:00 PM	NE of camp	caribou	40	grass	NE	south	Kevin O.	bulls,cows	
Jericho	01/07/00	9:00 AM	north of camp	caribou	6	grass	north	south	Kevin O.	2bulls,4calfs	
Jericho	02/07/00	4:30 PM	camp	caribou	600	grass	north	south	Kevin O.	big bulls and calves	
Jericho	03/07/00	10:30 AM	Carat River	caribou	300-400	grass	north	south	Kevin O.	old bulls and calves	
Jericho	04/07/00	1:00 PM	camp	caribou	57	grass	south	north	Kevin O.	old bulls	
Jericho	06/07/00	8:00 PM	airstrip	caribou	22	grass	north	south	Kevin O.	old bulls and calves	
Jericho	22/07/00	8:00 AM	near camp	arctic hare	1	rocky tundra		na	BSO	camp inhabitant	ground
Jericho	22/07/00	11:00 AM	near camp	arctic hare	1	rocky tundra		na	BSO		ground
Jericho	23/07/00	9:30 AM	mine site	bears	3	nil	south	SW	Kevin O.	mother and 2 cubs	
Jericho	23/07/00	11:00 AM	meadow S end of airstrip	Hawk	1	sedge meadow		na	BSO	hunting; silhouette only seen	ground
Jericho	23/07/00	9:35 AM	mine site	caribou	1	nil	south	SW	Kevin O.	bull with broken leg	
Jericho	23/07/00	8:05 AM	near W end of rocky tundra trapline	Northern Harrier	1	rocky tundra		na	BSO	hunting	ground

Area	Date	Time	Location	Species	Number Observed	Habitat Type	Origin Direction	Travel Direction	Observer	Notes	Type
Jericho	24/07/00	7:00 AM	road to Portal km 1	arctic hare	1	rocky tundra		na	BSO		ground
Jericho	25/07/00	8:36 PM	S of Camp in Birch Seep	ptarmigan	1	birch meadow		na	BSO	nesting	ground
Jericho	25/07/00	6:00 AM	S side Carat Lake	Canada geese (?)	several ?	lake		na	BSO	honking	ground
Jericho	26/07/00	11:00 AM	300 m d/s of Carat Lk Outlet	Parasitic Jaeger	2	sedge meadow		na	BSO	nesting	ground
Jericho	27/07/00	12:45 PM	N end of airstrip	muskox	18	esker		na	BSO	feeding	heli
Jericho	27/07/00	11:30 AM	airstrip	muskox	18	grass	south	north	Kevin O.	bulls,cows,calves	
Jericho	28/07/00	8:50 AM	road to Portal km 1.5, west of road	muskox	18	sedge meadow		na	BSO	feeding	ground
Jericho	28/07/00	9:15 AM	N shore of Long Lake	herring gull	1	rocky tundra		na	BSO	perching	ground
Jericho	29/07/00	7:00 AM	interlake area	loon (? Spp)	1	lake		na	BSO	call only heard	ground
Jericho	17/08/00	9:00 AM	Carat lake	black ducks	4	lake	west	NE	David Ritcey	2 pairs flying	
Jericho	17/08/00	1:00 PM	c-1 lake	hare	1	grass/marsh	SW	NE	Doug Smith		
Jericho	18/08/00	11:45 AM	200m se portal	arctic hare	1	grass/rock	east	SW	David Ritcey	large	
Jericho	18/08/00	12:00 PM	powder magazine	gull	1		NW	SE	David Ritcey	flying	
Jericho	28/08/00	2:30 PM	1/2way to camp	caribou	11	grass	SW	north	David Ritcey	sitting down	
Jericho	28/08/00	10:30 AM	mine site	caribou	4	grass	SW	north	Kevin O.	big bulls	
Jericho	09/09/00	5:00 PM	NW of portal	caribou YOY	1	dry tundra		W	BSO	heavy snow storm	ground
Jericho	11/09/00	8:00 AM	W shore of Lake C4	fox tracks	from 1 fox	birch seep		N	BSO	in snow	ground
Jericho	11/09/00	8:10 AM	Portal	fox tracks + blood	from 1 fox	rocky tundra		E	BSO	in snow	ground
Jericho	11/09/00	11:00 AM	W of polishing pond	wolf tracks	from 1 wolf	tussock meadow		?	DS	in snow	ground
Jericho	11/09/00	11:40 AM	Jericho Lake Outlet	caribou mixed herd	15	birch seep		W	BSO	grazing	heli
Jericho	12/09/00	10:15 AM	camp	caribou mixed herd	80	road		S	BSO	walking	ground

Wildlife Logs

1b. Lupin

Area	Date	Time	Location	Species	Number Observed	Activity Observed	Habitat Type	Direction of Travel	Observer	Notes	Travel by	Dist.
Lupin	17-Apr-99	all day	7293706 489138	Caribou	20	feeding	unknown	n/a	MT			
Lupin	21-Apr-99	3:30 PM	7293706 489138	Caribou	4	traveling	unknown	NW	MT	1 calf/3 adults		
Lupin	23-Apr-99	10:20 AM	7278750 490500	Grizzly Bear	1	unknown	esker/ice	NE	MT	sub-adult		
Lupin	29-Apr-99	2:40 PM	7278750 490500	Caribou tracks	unknown	n/a	ice	W	MT			
Lupin	11-May-99	4:00 PM	7293706 489138	Tundra geese	8	feeding	birchy area	n/a	BA	Geese are knwn to nest around camp	snowmobile	
Lupin	11-May-99	4:02 PM	road to pumphouse	Tundra geese	6	flying	n/a	North	BA		snowmobile	
Lupin	11-May-99	4:06 PM	7293706 489138	Tundra geese	4	flying	n/a	NE	BA		snowmobile	
Lupin	11-May-99	4:30 PM	7293706 489138	Tundra geese	12	flying	n/a	North	BA		snowmobile	
Lupin	11-May-99	4:45 PM	Inuit Camp	Tundra geese	30	flying	n/a	North	BA	Geese flew over the camp	Heli	
Lupin	12-May-99	10:30 AM	Around the Lupin camp	Herring gull	15	around	dmp/camp	n/a	BA	First sight of gulls today.		
Lupin	12-May-99	4:25 PM	7293806 489244	Geese	4	feeding	barren grnd	n/a	BA	Geese are sighted in pairs now.	ground	
Lupin	12-May-99	4:30 PM	7293806 489229	Geese	60	flying	n/a	North	BA		ground	
Lupin	12-May-99	p.m.	7323401 481875	Golden eagles	2	unknown	hills	unknown	BA	First sight of eagles by Pilot/Tony	Heli	
Lupin	13-May-99	p.m.	Contwoyto Lake-NW	Caribou	200	travel	ice/snow	NE	Fred	Fred sighted caribou 5 k from camp.	Heli	
Lupin	14-May-99	10:40 AM	road to site	Cross fox	1	cross. road	gravel	NE	BA	Foxes are being sighted around camp		
Lupin	14-May-99	3:28 PM	West of weather stn	Cross fox	1	running	snow/gnd	NW	Fred	Fox running across the tundra.		
Lupin	14-May-99	a.m.	7293706 489138	Foxes	2	running	gravel	unknown	HEO	Sighted by truckdriver.		
Lupin	14-May-99	a.m.	7293706 489138	Rabbit	1	still	gravel	n/a	HEO	Sighted by truckdriver.		
Lupin	15-May-99	4:13 PM	West of weather stn	Cross fox	1	running	snow/gnd	NW	BA	Fox running across-probably same one		
Lupin	16-May-99	12:36 PM	East of Lupin Site	Geese	5	feeding	snow/birch	n/a	BA	Geese are feeding around the site.	Heli	
Lupin	17-May-99	3:10 PM	East of Lupin Site	Branta canadensis	4	feeding	march/rock	n/a	BA	Walk-road towards the ice road.	walk	
Lupin	17-May-99	3:10 PM	Betwn Site & grvl rd to ice	Sandhill cranes	2	feeding	marsh/rock	n/a	BA	Walk-road towards the ice road.	walk	
Lupin	17-May-99	3:15 PM	Betwn Site & grvl rd to ice	Rabbits	2	running	snow/rock	SW	BA	Walk-road towards the ice road.	walk	
Lupin	17-May-99	3:20 PM	Rocky area-end of road	Squirrels	2	observing	bare ground	n/a	BA	Walk-road towards the ice road.	walk	
Lupin	17-May-99	3:30 PM	Along the roadside	tracks	scattered	n/a	snow	n/a	BA	"rabbit, squirrel, fox tracks	walk	
Lupin	17-May-99	3:45 PM	7293706 489138	Branta canadensis	16	flying	n/a	N	BA	"rabbit, squirrel, fox tracks	walk	
Lupin	20-May-99	a.m.	7293706 489138	Branta canadensis	6	feeding	grass/rock	n/a	BA	Geese feed in this area all the time.		
Lupin	21-May-99	7:30 AM	7293706 489138	Branta canadensis	30	flying	n/a	N	BA	Geese are flying around again.		
Lupin	21-May-99	7:30 AM	7293706 489138	Snow geese	2	feeding	grass/rock	n/a	BA	Geese feeding in the same area.		
Lupin	21-May-99	3:50 PM	7293706 489138	Short shinned Haw	1	sitting on ledge	n/a	n/a	BA/Ted	Hawk landed on ledge-10' long	n/a	
Lupin	21-May-99	4:10 PM	7293706 489138	Geese	80	flying	n/a	N	BA	Large flock of geese heading N	n/a	
Lupin	24-Jun-99	12:30 PM	SE of mine	caribou	30	feeding	heath	na	residents	BO	heli	na
Lupin	25-Jun-99	7:00 AM	7293706 489138	Caribou	5000 +/-	Resting	Meadow	na	BSO			

Area	Date	Time	Location	Species	Number Observed	Activity Observed	Habitat Type	Direction of Travel	Observer	Notes	Travel by	Dist.
Lupin	27-Jun-99	11:30 PM	7293706 489138	Caribou	10,000 +/-	Travelling	mine site	S	CW			
Lupin	29-Jun-99	3:30 PM	1 km N of Lupin	Caribou (m,f,y)	55	Travelling	na	NW	BSO			
Lupin	30-Jun-99	2:00 PM	7293706 489138	Caribou	1000 +/-	Travelling	na	NW	BSO			
Lupin	01-Jul-99	6:30 AM	Lupin Mine 489138 7293706	White fronted gees	40	FLupinying	Lupinake	NE	BSO		Foot	
Lupin	01-Jul-99	7:55 AM	500 m N of Lupin 489138 7294200	Muskox (f, c)	2	Grazing	Meadow	na	BSO		Heli	
Lupin	02-Jul-99	8:28 AM	15 km N of Lupin	Caribou (m,f,y,c)	1000 +/-	Grazing	Meadow	na	BSO		Heli	
Lupin	03-Jul-99	8:00 AM	17 km N of Lupin	Muskox (f, c)	2	Grazing	Meadow	na	BSO		Heli	
Lupin	03-Jul-99	3:30 PM	15 km N of Lupin	Caribou (m,f,y,c)	1000 +/-	Grazing	Meadow	na	BSO		Heli	
Lupin	29-Jul-99	5:28 PM	478000/7300000	Muskox (1 c)	7	Feeding	Sedge Meadow	na	BSO		Heli	
Lupin	18-Aug-99	10:15 AM	4789138 7293706	Muskoxen	1	Lying down	Heath Tundra	n/a	MT			
Lupin	19-Aug-99	9:15 AM	4789138 7293706	Caribou	11	feeding	Heath Tundra	n/a	MT	mixed herd		
Lupin	21-Aug-99	all day	489138 7293706	caribou	2	feeding	hummock	n/a	MT			
Lupin	23-Aug-99	all day	485000 7297000	muskox	11	feeding	tundra	n/a	MT			
Lupin	25-Aug-99	5:20 PM	489138 7293706	muskox	1	Feeding	hummock	n/a	MT/HM			
Lupin	26-Aug-99	5:30 PM	489138 7293706	peregrine	1	flying	n/a	N	MT			
Lupin	01-Sep-99	8:00 AM	W of mine	Branta canadensis	7	Flying	n/a	S	BO/MT/HM			
Lupin	01-Sep-99	12:30 PM	Lupin airstrip	A.albifrons	20	Flying	n/a	S	TK (Ted)			
Lupin	01-Sep-99	1:30 PM	Lupin airstrip	Sandhill cranes	2	Flying	n/a	S	TK (Ted)			
Lupin	03-Sep-99	8:00 AM	Lupin Mine	Caribou	15	Walking	Heath	n/a	BSO			

Appendix 2

Breeding Bird Survey Data - 2000

2000 Jericho Breeding Bird Survey Data Sheet

Date 1 July 2000		Time	0920-0935
Weather conditions	clear, SE wind at 10, 8°	Observers:	A. Hubert B. Hubert
Site	#1 from Canamera #997		
GPS Loc.	UTM N 7321217 UTM E 478195	Area 2.6 ha	

Transect direction / width

Bird observations:

2 lapland longspur

2 red polls

1 horned lark

Comments: sandy beach habitat

2000 Jericho Breeding Bird Survey Data Sheet

Date 1 July, 2000		Time	0950-1000
Weather conditions	clear, SE at 10, 8°	Observers:	A. Hubert B. Hubert
Site	#2 from Canamera 1997		
GPS Loc.		Area 3.5 ha	

Transect direction / width

Bird observations:

4 Lapland longspurs

1 horned lark

1 red poll

1 Savannah sparrow

Comments:

2 caribou on strip

sandhill crane calls

2000 Jericho Breeding Bird Survey Data Sheet

Date 1 July 2000		Time	1030-1050
Weather conditions	clear, SE at 10, 12°	Observers:	A. Hubert B. Hubert
Site	#3 from Canamera 1997		
GPS Loc.		Area 5 ha	

Transect direction / width

Bird observations:

2 least sandpiper

6 Lapland longspurs

1 Savannah sparrow

1 horned lark

Comments: 3 caribou near airstrip

2000 Jericho Breeding Bird Survey Data Sheet

Date 2 July 2000		Time	1000-1030
Weather conditions	clear, SW at 15, 20°	Observers:	A. Hubert B. Hubert
Site	#4 from Canamera 1997		
GPS Loc.	UTM N 7322978 UTM E 479693	Area 13.5 ha	

Transect direction / width

Bird observations:

2 horned lark

1 Savannah sparrow

1 herring gull

Comments: herds of 150, 250 and 100 caribou moving north to south parallel to airstrip

2000 Jericho Breeding Bird Survey Data Sheet

Date 2 July 2000		Time	1300-1330
Weather conditions	clear, SW at 15, 20°	Observers:	A. Hubert B. Hubert
Site	#5 from Canamera 1997		
GPS Loc.	UTM N 7321171 UTM E 480051	Area 9.3 ha	

Transect direction / width

Bird observations:

2 horned lark

1 Savannah sparrow

1 pipit

1 raven

2 cliff swallows

Comments:

caribou passing continuously below in north to south direction

one old squaw in pond near BBS survey block

2 peregrine falcons near S end of BBS #5

2000 Jericho Breeding Bird Survey Data Sheet

Date 1 July 2000		Time	0845-0915
Weather conditions	clear, SE wind at 10, 8°	Observers:	A. Hubert B. Hubert
Site	#6 from Canamera 1997		
GPS Loc.	UTM N 7321761 UTM E 478232	Area _____ ha	

Transect direction / width

Bird observations: 2 parasitic jaeger with nest and 2 eggs

Comments:

2000 Jericho Breeding Bird Survey Data Sheet

Date 2 July 2000		Time	1045-1100
Weather conditions	clear, SW at 15, 20°	Observers:	A. Hubert B. Hubert
Site	#7 from Canamera 1997		
GPS Loc.	UTM N 7322111 UTM E 481295	Area 2.9 ha	

Transect direction / width

Bird observations:

2 red polls

3 Lapland longspurs

1 white-crowned sparrow

1 golden eagle overhead

Comments: steady stream of caribou from Jericho wall traveling south for more than 1 hour

2000 Jericho Breeding Bird Survey Data Sheet

Date 1 July 2000		Time	1100-1130
Weather conditions	clear, SE at 10, 12°	Observers:	A. Hubert B. Hubert
Site	#8 in Canamera 1997		
GPS Loc.	UTM N 7323593 UTM E 479106	Area 3.2 ha	

Transect direction / width

Bird observations: 1 Savannah sparrow

Comments: ground squirrels along edge of esker

1 oldsquaws on pond NE of airstrip

2old squaw on pond with island, east of airstrip

2000 Jericho Breeding Bird Survey Data Sheet

Date 2 July 2000		Time	1415-1425
Weather conditions	clear, SW at 15, 20°	Observers:	A. Hubert B. Hubert
Site	#9 N end of pond C4		
GPS Loc.	479200 x 7320650 479200 x 7321150	Area 2 ha	

Transect direction / width

Bird observations:

3 Lapland longspurs

2 Savannah sparrows

2 horned larks

Comments: 4 old squaws on pond immediately south of BBS #9

2000 Jericho Breeding Bird Survey Data Sheet

Date 2 July 2000		Time	1500-1520
Weather conditions	clear, SW at 15, 20°	Observers:	A. Hubert B. Hubert
Site	#10		
GPS Loc.	178800 x 7320200 to 478800 x 7320700	Area 2 ha	

Transect direction / width

Bird observations: 2 Lapland longspurs - 1 nest with 4 young

1 ptarmigan

2 Savannah sparrows

Comments: birch heath habitat

2000 Jericho Breeding Bird Survey Data Sheet

Date 2 July 2000		Time	1630-1700
Weather conditions	clear, SW at 15. 20°	Observers:	A. Hubert B. Hubert
Site	#11, airport		
GPS Loc.	478500 x 7321800 to 478500 x 7322300	Area 2 ha	

Transect direction / width

Bird observations: 2 Lapland longspurs

1 horned lark

1 Savannah sparrow

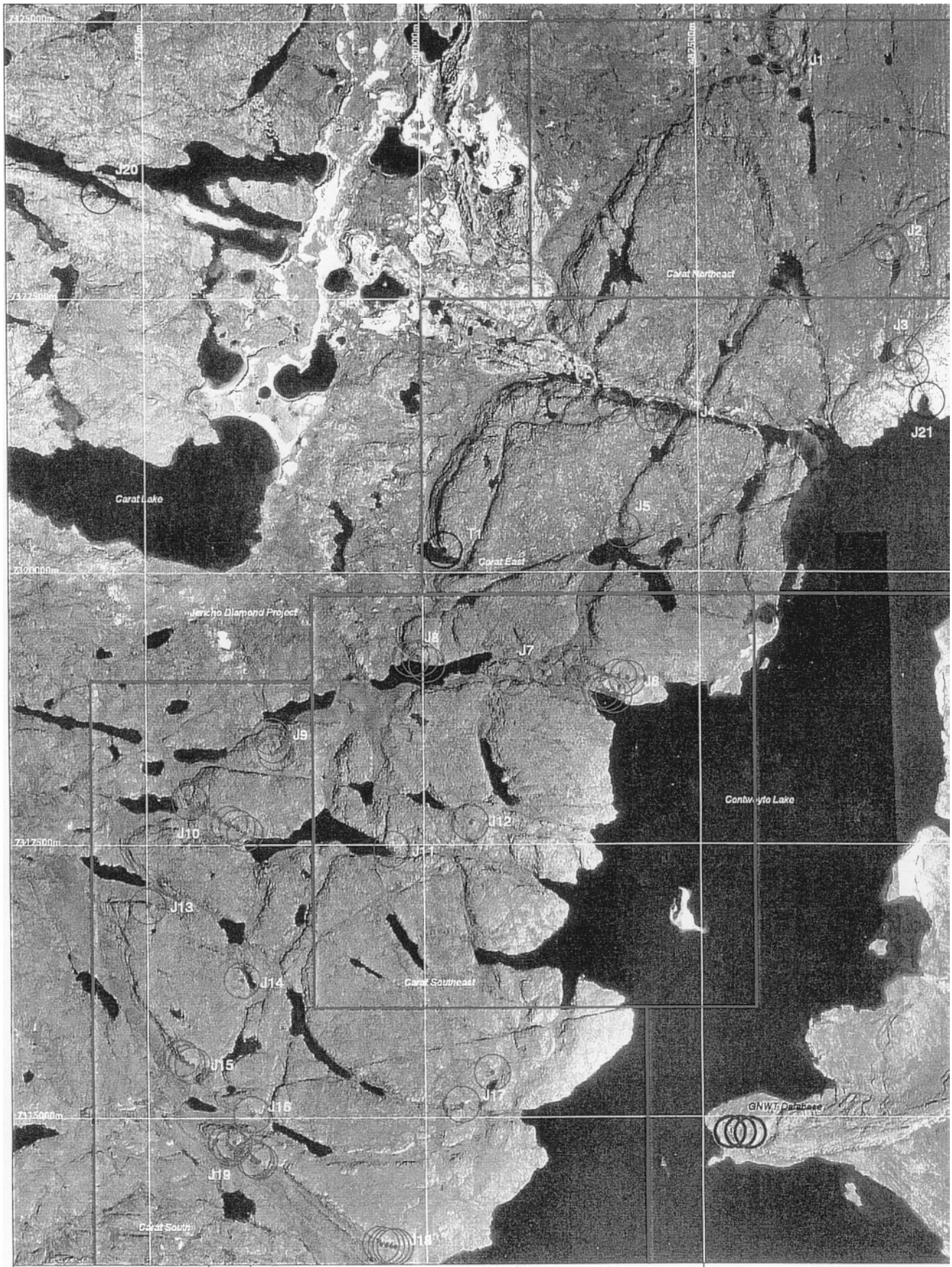
Comments: loon call from Carat Lake

Appendix 3

Raptor Nest Sites 1995 - 2001

3a. Raptor Nest Site Locations

3b. Raptor Nest Site occupancy data: 1995-1997; 1999-2001



Datum: NAD 27

Projection: NUTM 12

Figure #: 1

Jericho Wildlife Study

Raptor Nest Sites

Canamera 1997

Scale 1:50,000

Legend

- Nesting Sites; Canamera Database 1995 - Sites Revisited in 1997
- Nesting Sites; Canamera Database 1996 - Sites Revisited in 1997
- Active Territory; No Nests Found
- J# Occupied Nest Sites (1997)

Active Raptor Territories 1995 - 2001

Jericho Diamond Project area

	1995		1996		1997		1999		2000		2001		
I.D.	**Species**	**Activity**	**Species**	**Activity**	**Species**	**Activity**	**Species**	**Activity**	**Species**	**Activity**	**Species**	**Activity**	**Site Comments**
J1	rough-legged hawk	juveniles present	rough-legged hawk	2 chicks present in middle nest of 3 on N.side of valley		unoccupied	peregrine	would not leave the nest	peregrine	1 adult; no nest found	gyrfalcon	1 adult on territory; no nest	95: clusters of 1 & 3 stick nests on opposite sides of a lake studded valley
J2	rough-legged hawk	juveniles present		unoccupied	rough-legged hawks pair	incubating - number of eggs unknown		unoccupied	rough-legged hawk	3 chicks in nest	rough-legged hawk	1 adult on territory; no nest	95: some active perches nearby
J3	peregrine	adult very defensive near nest area		unoccupied	rough-legged hawks	2 chicks		unoccupied	rough-legged hawk	2 adults in territory; no nest found		no nest; unoccupied	95: barely a scrape in the dirt; adult female (likely) is very agitated; bird is alternately flying and perching, calling constantly; fledged young may be hidden nearby
J4	golden eagle	adult was startled from this nest		unoccupied		unoccupied		unoccupied	golden eagle	4 chicks in nest	peregrine	1 adult; no nest	95: many uric acid stains below
J5		unoccupied	peregrine	2 peregrines active in this area but no nest found		unoccupied		unoccupied	peregrine	3 eggs in nest	peregrine	2 adults, 1 chick	
J6	raptor sp.	unoccupied; some old pellets and fur		unoccupied	gyrfalcon	agressive behaviour		unoccupied		territory vacant		no nest; unoccupied	
J7	raptor sp.	some down feathers and a bowl-shaped depression		unoccupied		unoccupied		unoccupied	peregrine	2 chicks in nest		no nest; unoccupied	95: possibly a raven nest
J8	raptor sp.	unoccupied		unoccupied	rough-legged hawks pair	two chicks observed	rough-legged hawks	at least 1 chick		territory vacant		no nest; unoccupied	95: mostly filled-in; one stained perch 5 m to west
J9	peregrine falcon	juveniles present	rough-legged hawks	3 chicks in white down present		unoccupied	peregrine	1 chick observed	rough-legged hawk		rough-legged hawk	no nest; 1 adult on territory	95: egg is light brown; one well-used perch nearby; nest is little more than scraped-away dirt; scree slope below
J10	raptor sp.	unoccupied		unoccupied	peregrine	presence / absence of eggs could not be determined		unoccupied		territory vacant		no nest; unoccupied	
J11	raptor sp.	unoccupied	rough-legged hawks	4 chicks present in easterly most nest		unoccupied		unoccupied	golden eagle	3 chicks; 1 adult at nest		no nest; unoccupied	
J12	raptor sp.	unoccupied		unoccupied		unoccupied		unoccupied		territory vacant		no nest; unoccupied	95: partially broken-up

Active Raptor Territories 1995 - 2001

Jericho Diamond Project area

	1995		1996		1997		1999		2000		2001		
I.D.	**Species**	**Activity**	**Species**	**Activity**	**Species**	**Activity**	**Species**	**Activity**	**Species**	**Activity**	**Species**	**Activity**	**Site Comments**
J13	raptor sp.	unoccupied		unoccupied		unoccupied		unoccupied		territory vacant		no nest; unoccupied	95: mostly filled-in
J14	raptor sp.	unoccupied		unoccupied	rough-legged hawks pair	presence / absence of eggs could not be determined		unoccupied		territory vacant		no nest; unoccupied	95: visible from below
J15		unoccupied		unoccupied	rough-legged hawks pair	presence / absence of eggs could not be determined	rough-legged hawks	1 chick	peregrine	2 chicks in nest		no nest; unoccupied	96: 1 stick nest with NE exposure over a small lake
J16	rough-legged hawk	juveniles present	rough-legged hawks	4 chicks present		unoccupied		unoccupied		territory vacant	rough-legged hawk	adult on nest; at least 2 chicks	95: both adults are present and agitated, swooping and calling warnings
J17	raptor sp.	unoccupied	rough-legged hawks	4 chicks present		unoccupied		unoccupied		territory vacant		no nest; unoccupied	95: protected by an overhang
J18	gyrfalcon	adults observed teaching young falcon to soar	rough-legged hawks	4 chicks present		unoccupied	rough-legged hawks	2 chicks		territory vacant		no nest; unoccupied	95: 5 m east of previous; only visible from top
J19		unoccupied	rough-legged hawks	3 chicks present		unoccupied	peregrine	4 eggs	peregrine	single adult bird in territory; no nest found		no nest; unoccupied	
J20	raptor sp. (RLHA)	unoccupied	peregrine	2 chicks present	peregrine pair	presence / absence of eggs could not be determined		unoccupied	peregrine	2 adult birds on territory; no nest found	peregrine	1 adult on territory; no nest	95: 30-50 m from previous
J21	raptor sp.	possibly active		unoccupied		unoccupied		unoccupied	rough-legged hawk	single adult bird in territory; no nest found	rough-legged hawk	2adults on territory; 3 chicks	95: several perches with bones, feathers and uric acid stains nearby
J22										territory vacant		no nest; unoccupied	

Appendix 4

Small Mammal Trapline Data Sheets -1999, 2000, 2001

1999 SMALL MAMMAL SURVEY

LOCATION: Contwoyto: Birch Heath

#	Date		Date		Date		Date		Date		#	Date		Date		Date		Date		Date	
	14-Aug		15-Aug		16-Aug		17-Aug		18-Aug			14-Aug		15-Aug		16-Aug		17-Aug		18-Aug	
51									X		76			X						X	
52							V		X		77										
53											78									X	
54											79										
55	X	X	X	X					X	X	80										
56											81							B		X	
57									X		82										
58											83							X			
59									X	X	84							X			
60									X	X	85										
61									X	X	86							V		X	
62											87										
63			X						X	X	88							V			
64			X				X	X	X	X	89									X	
65											90									X	
66									X	X	91			X							
67			X								92					X				X	X
68									X	X	93			X						X	X
69				X					X		94	X				X		X		X	X
70									X		95	X		V				X		X	X
71									X		96	X								X	
72									X		97			X		X		X		X	
73									X	X	98			X				X			
74									X	X	99									X	X
75									X		100							X	X	X	

V= Vole 4

L= Lemming 0

S= Shrew 0

B= Bird 1

X= Missfire 76

Blank = No change

Body weight:(g) Aug 15- vole 22.0

Aug 17- vole 21.0; vole 40.0; vole 15.0

GPS Loc:	Start L1 (51) 509150 7297245	Start L2 (100) 509264 7297110
	End L1 (75) 509319 7297379	End L2 (76) 509287 7297377

1999 SMALL MAMMAL SURVEY

LOCATION: Contwoyto: Rocky Tundra

#	Date		Date		Date		Date		Date		#	Date		Date		Date		Date		Date	
	14-Aug		15-Aug		16-Aug		17-Aug		18-Aug			14-Aug		15-Aug		16-Aug		17-Aug		18-Aug	
1	V	X					X		X		26			X	X	X		X	X	X	X
2									X	X	27			X	X	X				X	X
3	X										28									X	
4	X								X		29									X	X
5									X	X	30									X	
6			X						X	X	31									X	
7									X		32										
8									X		33			X						X	
9											34									X	X
10											35									X	
11									X	X	36			X						X	
12			X								37			X		X				X	X
13									X		38									X	
14									X	X	39									X	X
15					X				X		40			X						X	
16									X		41									X	X
17									X		42			X	X					X	
18			X	X					X		43	L								X	
19									X		44			L							
20									X	X	45									X	
21									X	X	46									X	
22									X		47			X	X					X	
23					X	X			X		48										X
24			X		X	X			X		49									X	X
25			X	X	X	X			X	X	50									X	

V= Vole 1

L= Lemming 2

S= Shrew 0

B= Bird 1

X= Missfire 96

Blank = No change

Body weight:(g) Aug 14- vole 20.5; lemming 31.0

Aug 15- lemming 24.0

GPS Loc:	Start L1 (1) 509025 7297317	Start L2 (50) 509057 7297307
	End L1 (25) 509229 7297486	End L2 (26) 509221 7297449

1999 SMALL MAMMAL SURVEY

LOCATION: Jericho: Birch Heath

#	Date		Date		Date		Date		Date		#	Date		Date		Date		Date		Date	
	04-Aug		05-Aug		06-Aug		07-Aug		08-Aug			04-Aug		05-Aug		06-Aug		07-Aug		08-Aug	
1		X				X					26										
2											27		V				V		V		X
3											28		X		X				X		
4								V			29										
5		X									30		V	V	V		V				
6		V									31	V	V				V		X		
7		V									32										
8											33										
9											34										
10		V									35										
11				V							36										
12											37		V							V	X
13								V			38		V		V		X	V	V		V
14											39		V						V		
15											40										
16											41						X				
17											42										
18											43						V				
19								X			44								V		
20											45										
21						V/V					46										
22					X	X					47										
23						X					48		X								
24			X	V		X	X	V			49				V					X	X
25				V							50										

V= Vole	33
L= Lemming	0
S= Shrew	0
B= Bird	0
X= Missfire	21

Blank = No change

GPS Loc:		
	Start L1 (1) 478876 7320175	Start L2 (50) 478852 7320192
	End L1 (25) 478651 7320267	End L2 (26) 478636 7320261

Body weight:(g)

04-Aug	22	20	13	22	21	19	18	19	23	43	
05-Aug	22	22	21	19	22*	22	21				
06-Aug	21	25	38	33	40	22					
07-Aug	15	43	21	30	17	19	17	17			
08-Aug	20	17									

* partially consumed by unknown scavenger

1999 SMALL MAMMAL SURVEY

LOCATION: Jericho: Upland Tundra

#	Date		Date		Date		Date		Date		#	Date		Date		Date		Date		Date	
	04-Aug		05-Aug		06-Aug		07-Aug		08-Aug			04-Aug		05-Aug		06-Aug		07-Aug		08-Aug	
51		V	X	X	X	X			X	X	76										X
52					X	X					77										
53					X	X					78						X				
54				V*	X	X	X	V	V	V	79										
55				X							80						X				X
56											81										
57				X		X					82										
58										X	83										X
59											84						X				
60		V						X			85			V	V		X				
61						X					86										
62				V							87										
63				V							88										
64								V			89				X						
65											90		V	X	X				X		
66											91						X				
67											92										X
68						X					93									X	X
69											94								X		
70											95										X
71		V							X	X	96										
72											97										X
73											98										
74											99										
75							X	X			100						X		X		

V= Vole 14

L= Lemming 0

S= Shrew 0

B= Bird 0

X= Missfire 44

Blank = No change

GPS Loc:	Start L1 (51) 478960 7319615	Start L2 (100) 478986 7319620
	Enc L1 (75) 479213 7319610	End L2 (76) 479195 7319609

Body weight:(g)

04-Aug	23	5*	40	22	22
05-Aug	18	20	43	30	22
06-Aug	nil				
07-Aug	22	22			
08-Aug	20	21			

* partially consumed by unknown scavenger

1999 SMALL MAMMAL SURVEY

LOCATION: Jericho: Airstrip

#	Date		Date		* Date		** Date		** Date		#	Date		Date		* Date		** Date		** Date	
	09-Aug		10-Aug		11-Aug		12-Aug		13-Aug			09-Aug		10-Aug		11-Aug		12-Aug		13-Aug	
1				X	X	X			X		26			X		X	X	X	X	X	X
2											27			X		X	X	X	X	X	X
3					X	X					28									X	X
4					X						29					X		X		X	X
5											30			X		X	X			X	X
6							X				31					X				X	X
7					X						32					X	X				
8											33									X	
9									X		34										
10					X						35					X		X	X	X	X
11											36	L								X	X
12					X		X	X			37									X	
13					X		X	X			38										
14											39			X							
15					X		X		X		40									X	
16			X	X	X				X	X	41					X		X		X	X
17					X		X	X	X	X	42					X	X	X	X		
18			X				X	X	X	X	43					X	X	X	X	X	X
19					X		X		X	X	44					X	X				
20							X		X	X	45					X					
21					X	X			X	X	46					X					
22							X		X	X	47									X	X
23									X	X	48							X			
24					X		X	X	X	X	49										
25			X		X	X	X	X	X	X	50										

V= Vole	0
L= Lemming	1
S= Shrew	0
B= Bird	0
X= Missfire	125

Blank = No change

Body weight:(g) Aug 9 - lemming 26

GPS Loc:		
	Start L1 (1) 478982 7322555	Start L2 (50) 478785 7322705
	End L1 (25) 478793 7322647	End L2 (26) 478971 7322609

* Caribou tripped traps for missfires

** Ground squirrel tripped most traps for missfires

2000 SMALL MAMMAL SURVEY

LOCATION: **Jericho birch heath** **UTM:** **7320630N 478950E**

#	Date 21/07		Date 22/07		Date 23/07		Date 24/07		Date 25/07		#	Date 21/07		Date 22/07		Date 23/07		Date 24/07		Date 25/07	
1	X	X	X								26	X	X								
2	X	X	X								27	X	X	V	X						
3	X	X	X	X	X	X	X	X	V	X	28		X	V		X					
4		X	X		V				X		29										
5	X	X									30	X	X	X	X			V			
6	X	X							V		31	X	X	X	X	V	X				
7	X	X									32	X	X	X							
8		X	V		V				V		33			X	X						
9	V				X		V				34		X	V	V	V	V	V			
10	X										35		X	X							
11	X								X	X	36		X								
12			V	X					X		37		X	S							
13	X	X	S								38		X	V	X					V	V
14		X									39			X							
15		X									40	X	X								
16			X	X							41	V	X	V							
17	X	S	X								42	X	X	V	X						
18							X				43	X						X			
19	X	X	X						X		44	V		S	S	V	X				
20	V		S	S	X	X	X		X	X	45										
21			X								46										
22	X	X	V	X	V						47	V	V								
23					V						48			V	V	V				V	
24	X										49	X									
25		X							X	X	50	X	V	V							

V	Vole	41	
L	Lemming	0	
S	Shrew	7	dark grey; pointed nose
B	Bird	0	
X	Missfire	87	

Body weight:(g) Vole														
	21-Jul	23	48	47	45	52	41	40						
	22-Jul	15	44	24	15	21	41	23	30	33	23	22	37	20
	23-Jul	40	42	22	24	31	25	21	13	21				
	24-Jul	22	31	14	18	32								
	25-Jul	24	22	20	25	16	37	18						

Body weight:(g) Shrew							
	21-Jul	24					
	22-Jul	22	36	19	23	22	23

2000 SMALL MAMMAL SURVEY

LOCATION: **Jericho rocky upland** **UTM:** **7319700N 478970E**

#	Date 21/07		Date 22/07		Date 23/07		Date 24/07		Date 25/07		#	Date 21/07		Date 22/07		Date 23/07		Date 24/07		Date 25/07	
1	X		X								26	X		V		V		V			
2	X	X							L		27	X	X	X							
3	X		X								28	X	X								
4	X										29	X	X	S	X			V	X	X	
5											30	X									
6	X		V								31	X						X			
7	X	X	X								32	V	X							X	
8	X										33	X				X				X	
9											34	X				V	X	V	V	V	
10	X	X									35	X	X	X							
11	X										36	X	X								
12	X		B	X			X				37										
13	X										38	X	X	X							
14											39										
15	X	X									40	X						X			
16	X								X		41	X	X	X				B			
17	X	X									42	X		X							
18	X	X	X								43	X	X	X	X						
19	X										44	X		X							
20	V	X	X								45									X	
21											46	X		X							
22					V						47	X				X					
23	X		B				X				48	X									
24	X	X	S								49	X				X				X	
25	X										50	X	X	V						B	

V	Vole	13	
L	Lemming	1	striped
S	Shrew	2	
B	Bird	4	
X	Missfire	84	

Body weight:(g) Vole	21-Jul	22	14		
	22-Jul	14	32	31	
	23-Jul	31	21	16	
	24-Jul	17	20	16	21
	25-Jul	21			
Body weight:(g) Lemming	25-Jul	25			

2000 SMALL MAMMAL SURVEY

LOCATION: **Jericho sand plain (airport)** **UTM:** **7322600N** **478970E**

#	Date 26/07		Date 27/07		Date 28/07		Date 29/07		Date 30/07		#	Date 26/07		Date 27/07		Date 28/07		Date 29/07		Date 30/07	
1							X	X	X		26	X		X	X	X		X		X	X
2			X	X			X				27			X		X	X	X		X	X
3			X		X	X	X	X	X		28			X		X					
4			X	X	X				X	X	29			X	X	X				X	
5	L		X	X			X		X		30			X	X			X		X	X
6			X	X	X		X		X	X	31			X				X	X	X	
7			X	X	X				X		32			X				X	X	X	X
8					X						33			X	X	X	X	X	X		
9	V		X				X	X	X		34			X	X	X				X	X
10			X	X							35	X		X	X			X	X	X	X
11			X	X			X				36			X	X	X				X	
12			X				X		X		37			X		X		X			
13			X				X	X	X		38			X	X						
14									X		39			X	X			X		X	X
15					X		X				40	X	X	X	X			X	X	X	
16			X	X			X		X	X	41			X		X	X	X		X	X
17			X	X					X		42			X				X			
18			X				X		X		43			X				X	X	X	X
19			X	X			X		X		44			X	X			X	X		
20			X	X			X		X		45	X		X	X			X	X	X	X
21			X				X		X	X	46			X	X	X		X		X	
22			X		X	X	X		X		47			X	X	X	X				
23			X	X	X		X	X			48			X		X	X	X		X	
24			X	X			X	X			49	X		X	X	X	X	X	X	X	X
25			X		X	X	X		X		50	X		X	X	X	X			X	

V	Vole	1
L	Lemming	1
S	Shrew	0
B	Bird	0
X	Missfire	218

Body weight:(g) Vole 26-Jul 30

Body weight:(g) Lemming 26-Jul 41

2001 SMALL MAMMAL SURVEY

LOCATION: Jericho - Birch Seep

#	Date 23-Jul	Date 24-Jul	Date 25-Jul	Date 26-Jul	Date 27-Jul	#	Date 23-Jul	Date 24-Jul	Date 25-Jul	Date 26-Jul	Date 27-Jul
1						26					
2		X				27	X				
3		X				28					
4						29					
5						30					
6				X		31					
7						32					
8		X				33					
9						34					
10						35					
11		B				36					
12						37					
13						38				X	
14						39					
15						40		X			
16						41	V	V	V	V	
17						42					
18						43		V	X		
19						44				X	
20						45					
21						46					
22						47					
23		X				48					
24						49	V	X			
25						50		X	V		

V= Vole 7

L= Lemming 0

S= Shrew 0

B= Bird 1

X= Missfire 14

Blank = No change

GPS Loc:		
	Start L1(1) E 478923 N 7320525	Start L2 (50) E 478916 N 7320501
	End L1 (25) E 478710 N 7320628	End L2 (26) E 478701 N 7320605

Body weight:(g)

23-Jul	28	13
24-Jul	26	14
25-Jul	14	14
26-Jul	14	
27-Jul		

2001 SMALL MAMMAL SURVEY

LOCATION: Jericho - Rocky Tundra

#	Date		Date		Date		Date		Date		#	Date		Date		Date		Date		Date	
	28-Jul		29-Jul		30-Jul		31-Jul		01-Aug			28-Jul		29-Jul		30-Jul		31-Jul		01-Aug	
51			X	X					X		76			X	X					X	
52			X	X							77			X	X						
53			X	X							78	X		X							
54			X	X			B				79			X	X						
55			X	X			X				80			X	X						
56			X								81			X	X						
57			X	X							82			X	X	X					
58			X	X							83			X							
59			X	X							84			X	X						
60			X	X							85			X							
61			X								86			X	X						
62			X	X							87			X	X			V			
63			X	X							88			X							
64			X								89			X	X						
65			X	X							90			X	X						
66			X	X							91			X	X						
67			X		B						92			X	X						
68	V		X	X							93			X							
69			X	X							94			X	X						
70			X	X							95	X		X							
71			X								96			X							
72			X	X							97			X							
73			X								98	X		X							
74			X	X							99			X	X						
75			X								100			X	X						

V= Vole 2

L= Lemming

S= Shrew

B= Bird 2

X= Missfire 89

Blank = No change

Body weight:(g) 28-Jul 17

29-Jul

30-Jul

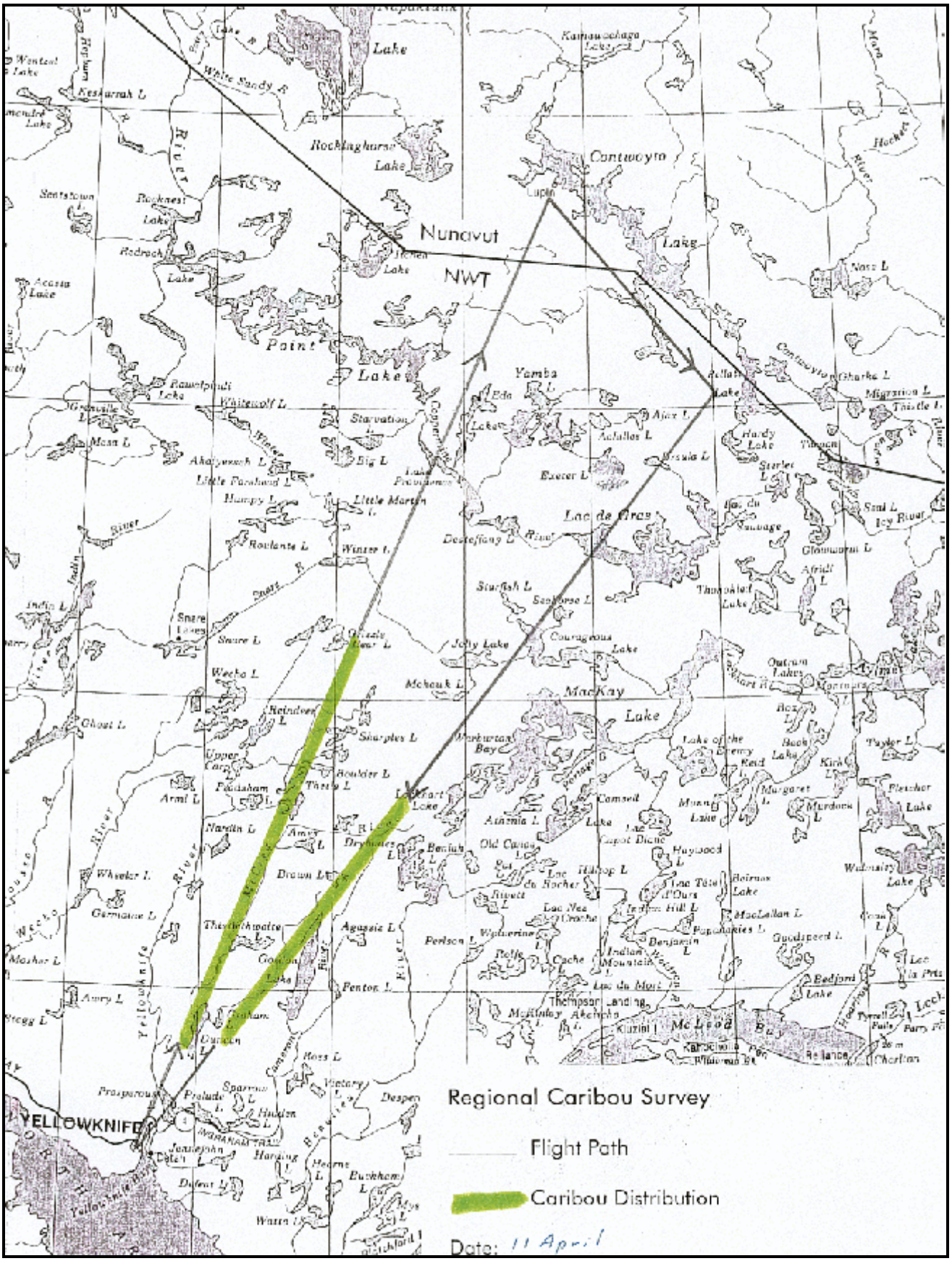
31-Jul 32

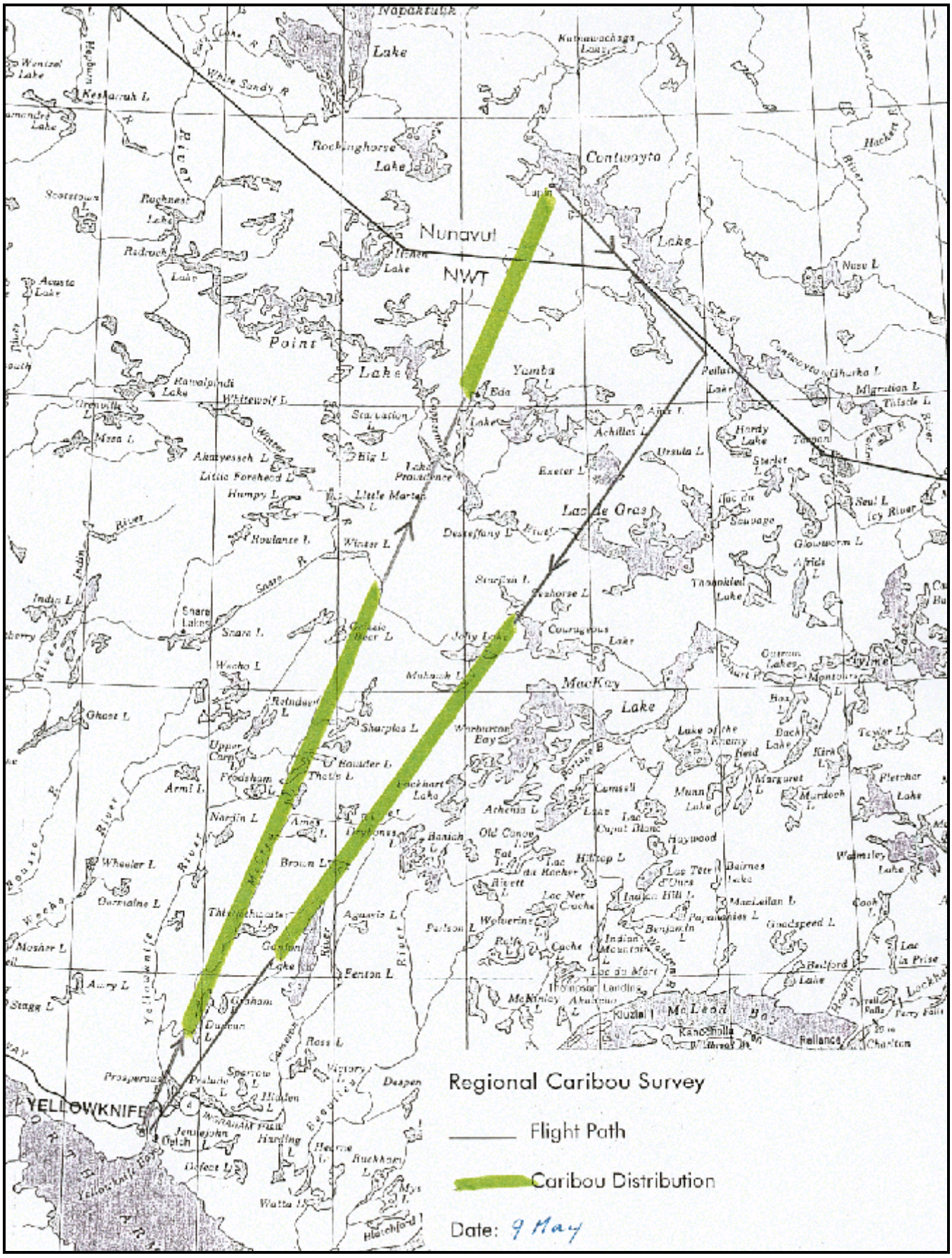
01-Aug

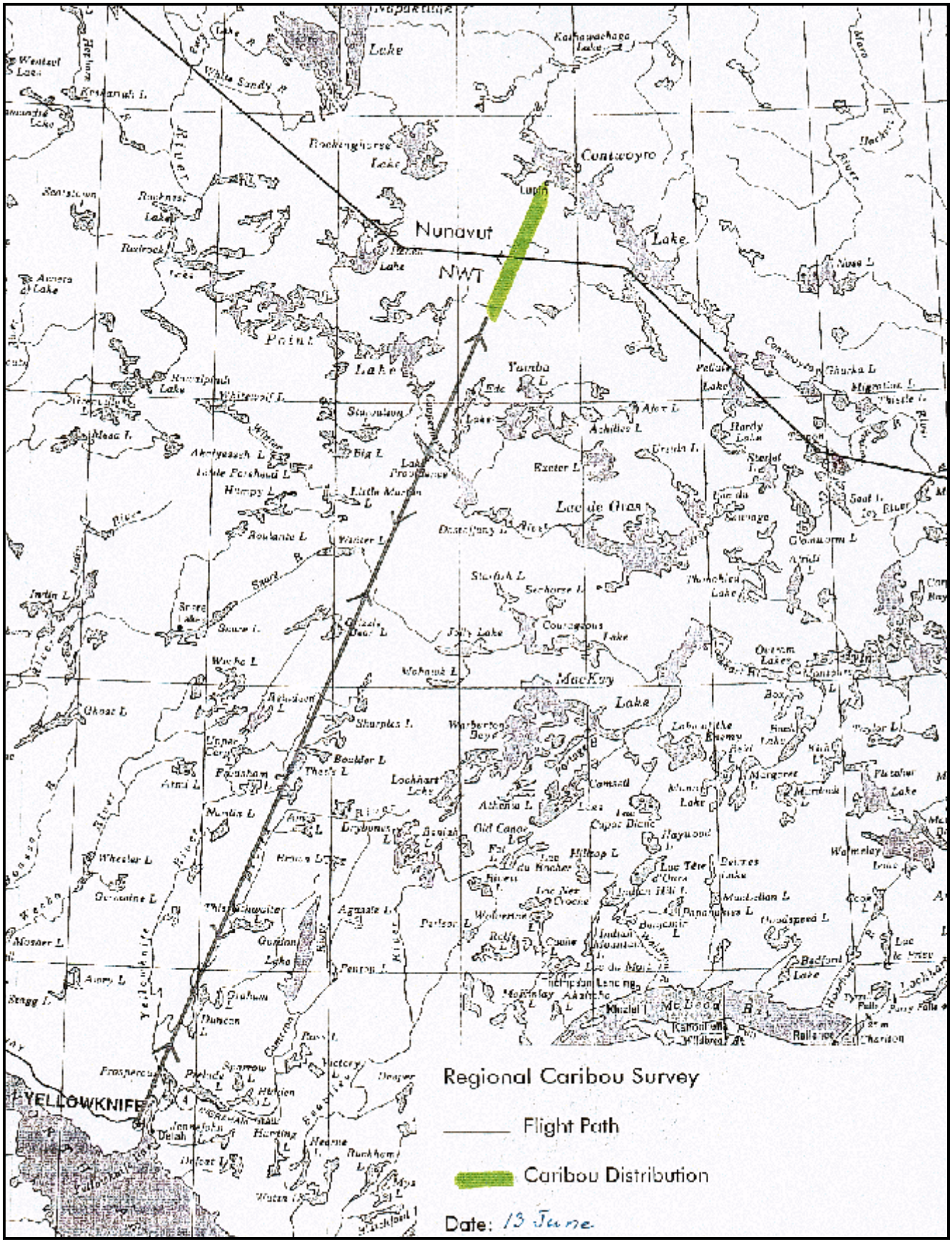
GPS Loc:		
	Start L1 (51) E 478943 N 7319681	Start L2 (100) E 478947 N 7319706
	End L1 (75) E 479148 N 7319565	End L2 (76) E 479158 N 7319586

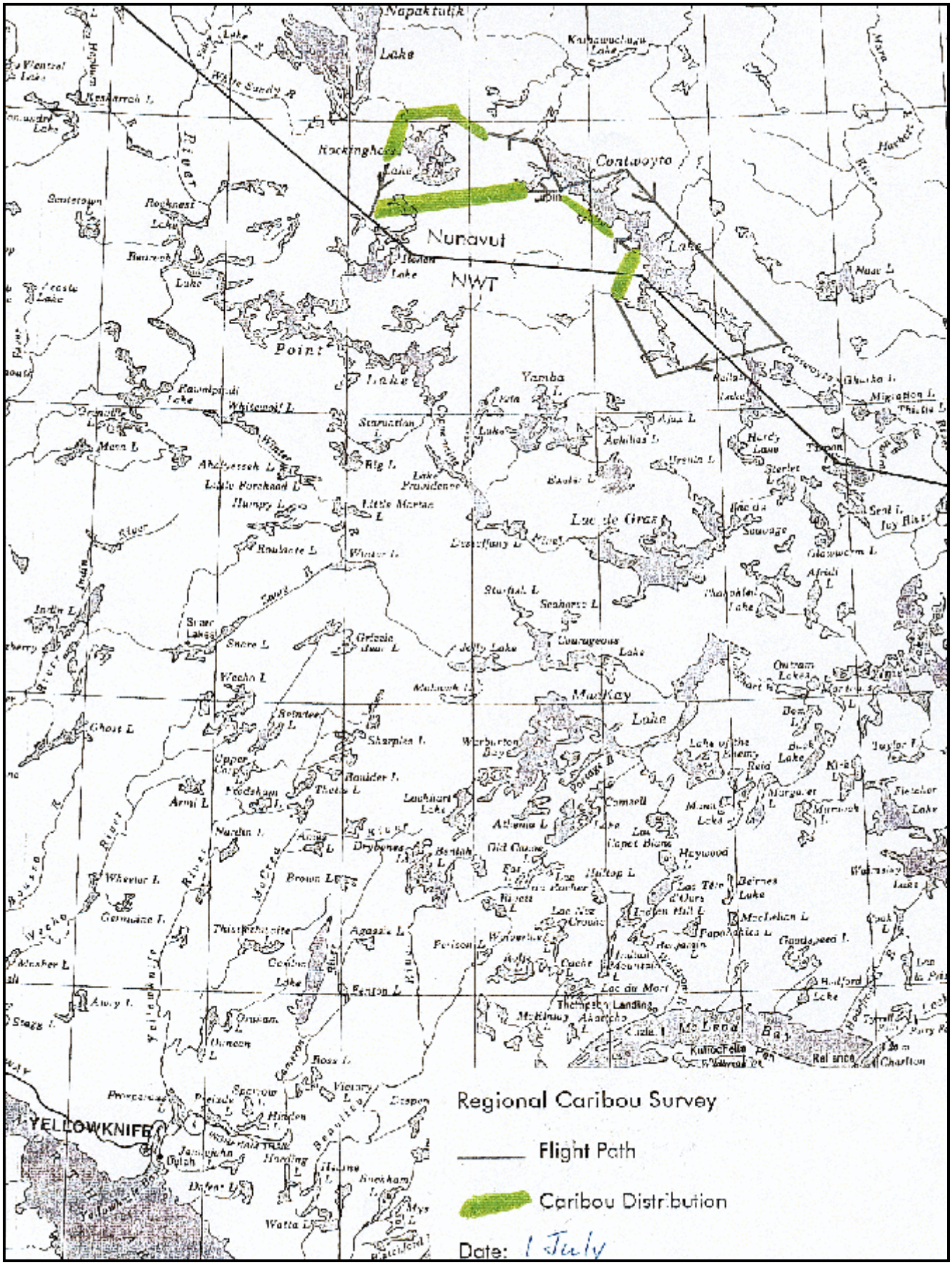
Appendix 5

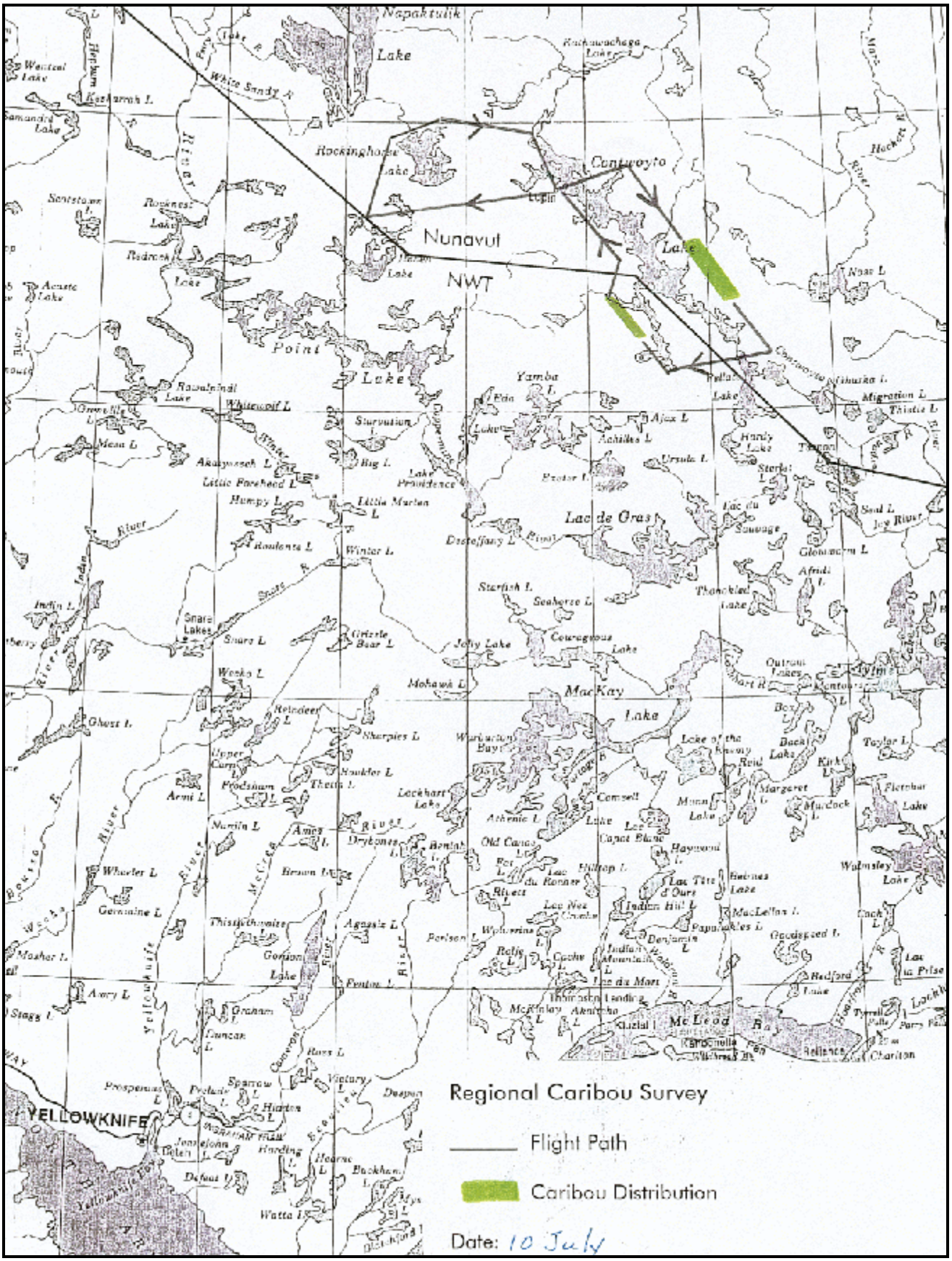
Regional Reconnaissance Surveys - 1999

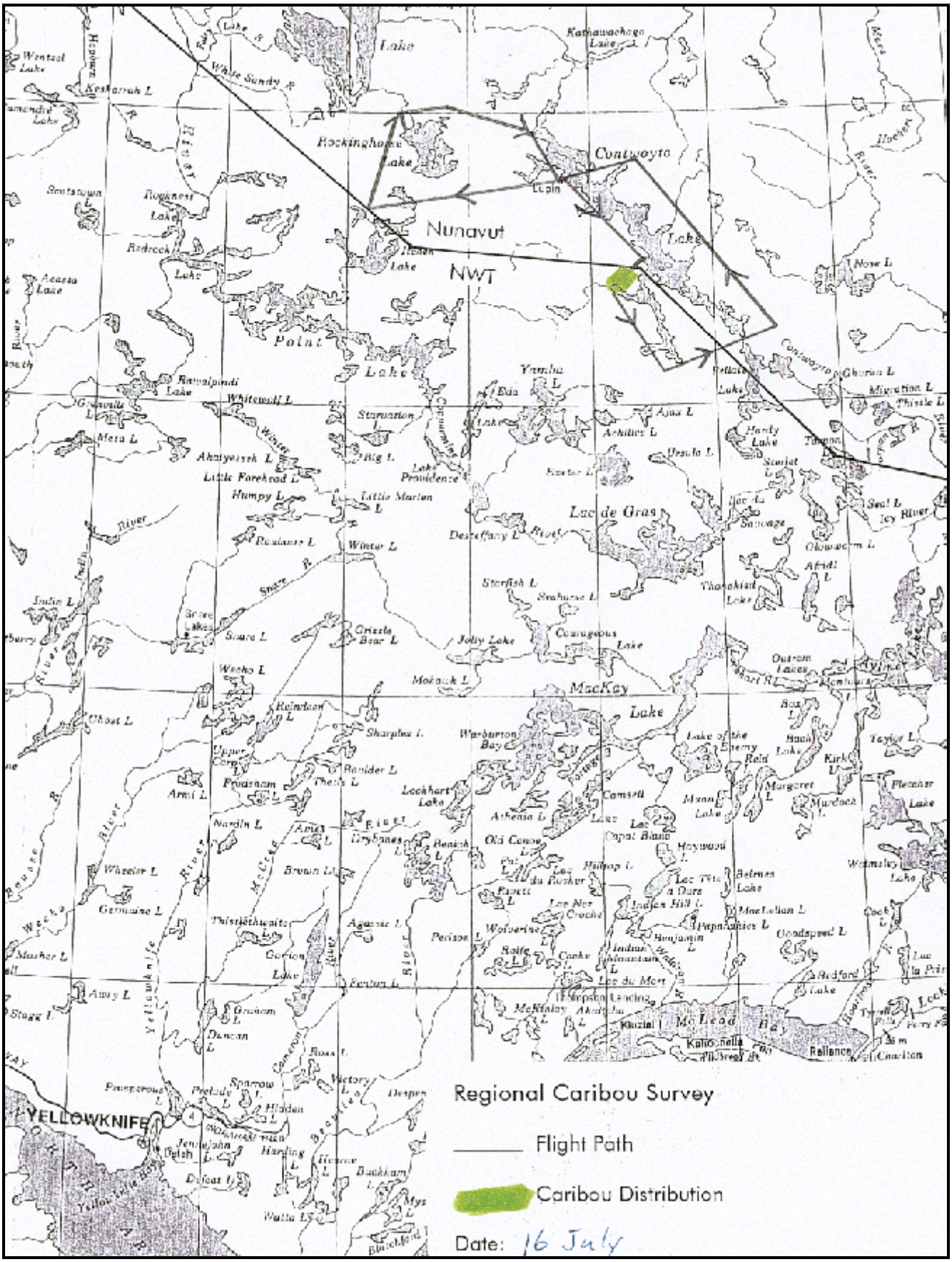

Nunavut
NWT
Contwoyto Lake
Point Lake
Lac de Gras
MacKay Lake
YELLOWKNIFE
Regional Caribou Survey
Flight Path
Caribou Distribution
Date: 11 April

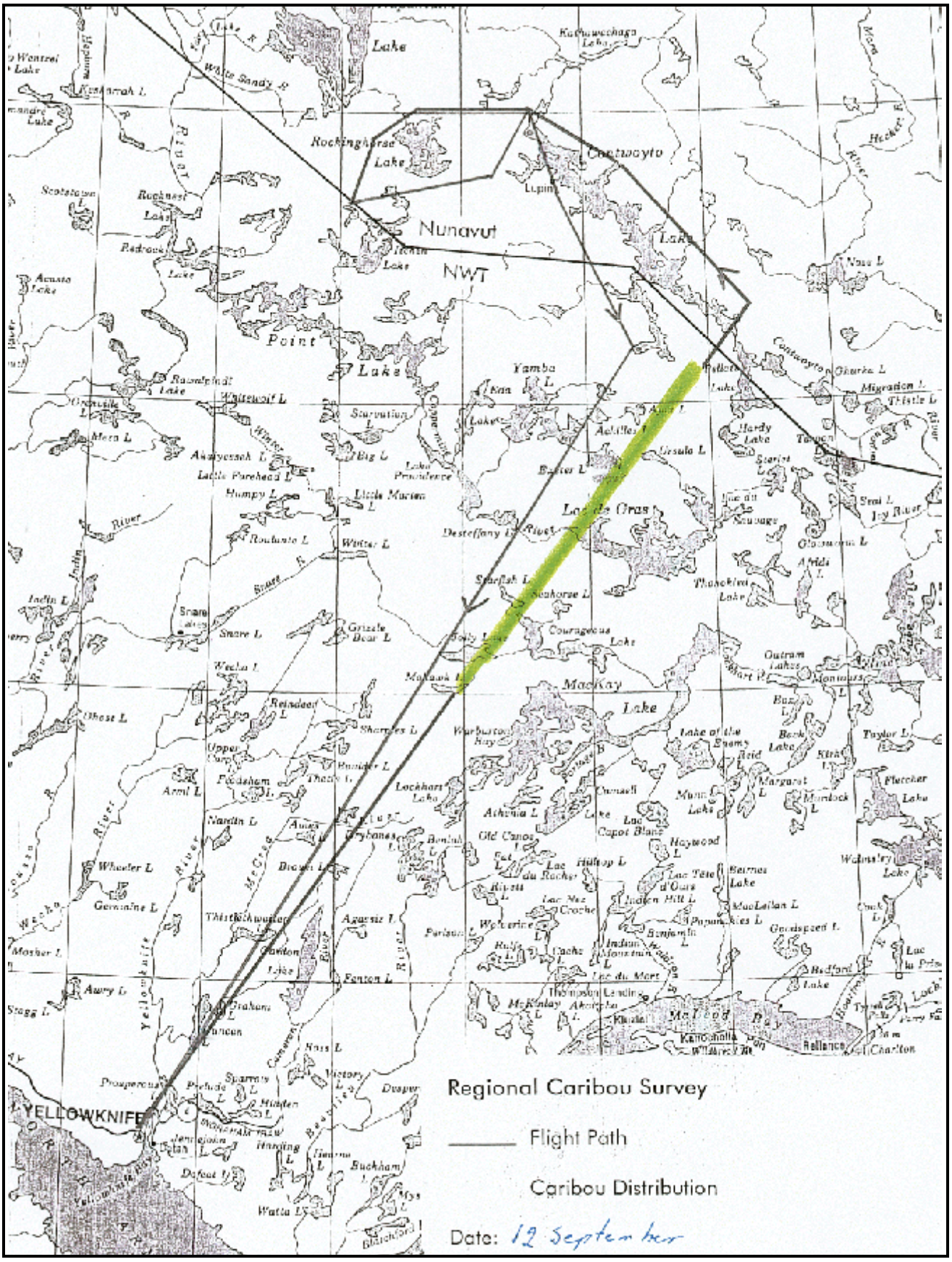

Nunavut
NWT
YELLOWKNIFE
Regional Caribou Survey
Flight Path
Caribou Distribution
Date: 9 May


Nunavut
NWT
YELLOWKNIFE
Regional Caribou Survey
Flight Path
Caribou Distribution
Date: 13 June.


Napaktulik Lake
Nunavut
NWT
Point Lake
Lac de Gras
MacKay Lake
YELLOWKNIFE
Regional Caribou Survey
Flight Path
Caribou Distribution
Date: 1 July


Nunavut
NWT
Lac de Gras
MacKay Lake
Point Lake
Rockinghorse Lake
Contwoyto Lake
YELLOWKNIFE
Regional Caribou Survey
Flight Path
Caribou Distribution
Date: 10 July


Nunavut
NWT
Contwoyto Lake
Rockinghorse Lake
Lupin
Point Lake
Lac de Gras
MacKay Lake
YELLOWKNIFE
Regional Caribou Survey
Flight Path
Caribou Distribution
Date: 16 July


Nunavut
NWT
YELLOWKNIFE
Regional Caribou Survey
Flight Path
Caribou Distribution
Date: 12 September

Appendix 6

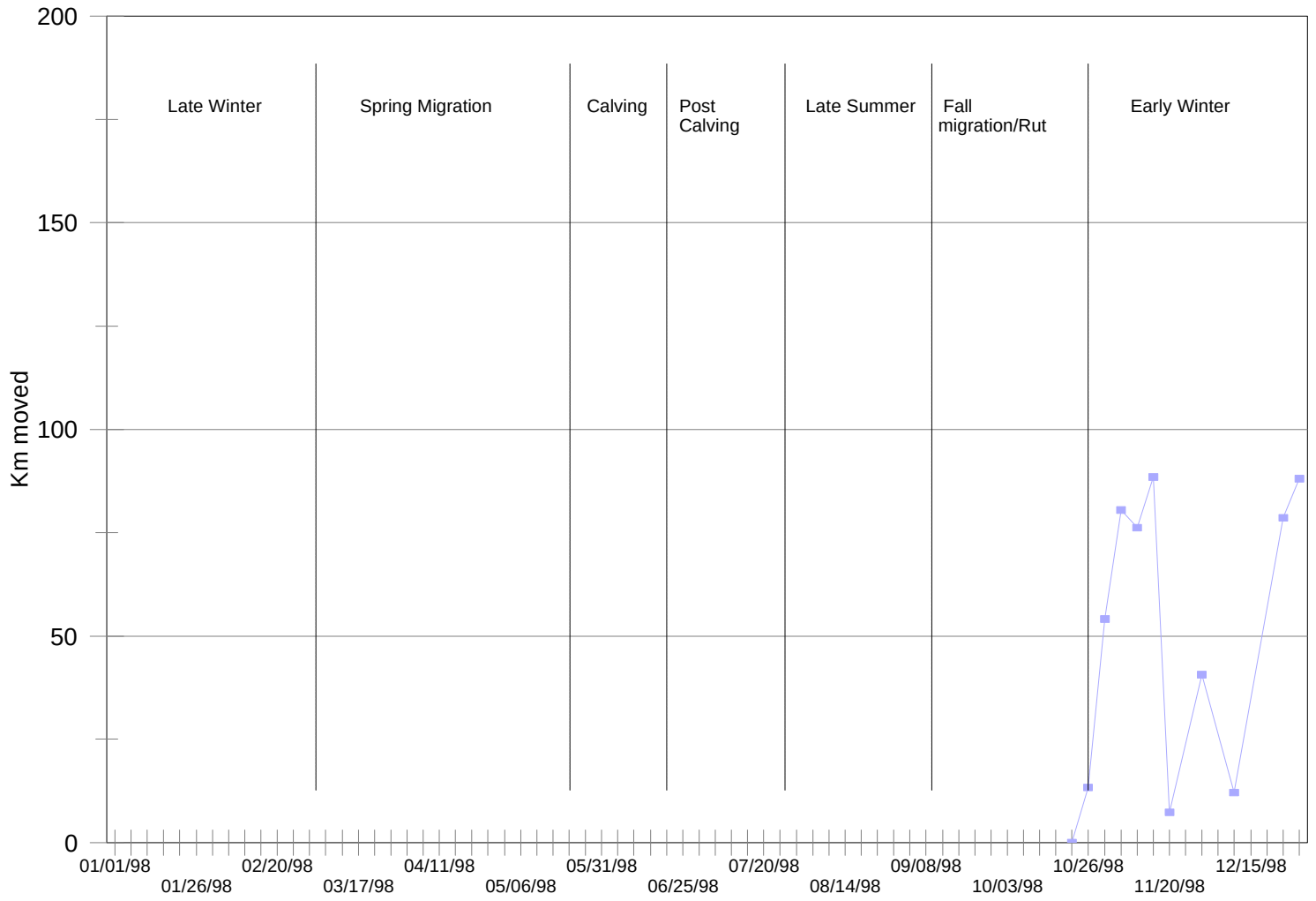
Straight Line Distance Movements of Caribou as Shown by Satellite Telemetry

1996 - 2000

Data courtesy of GNWT RWED and West Kitikmeot Slave Study

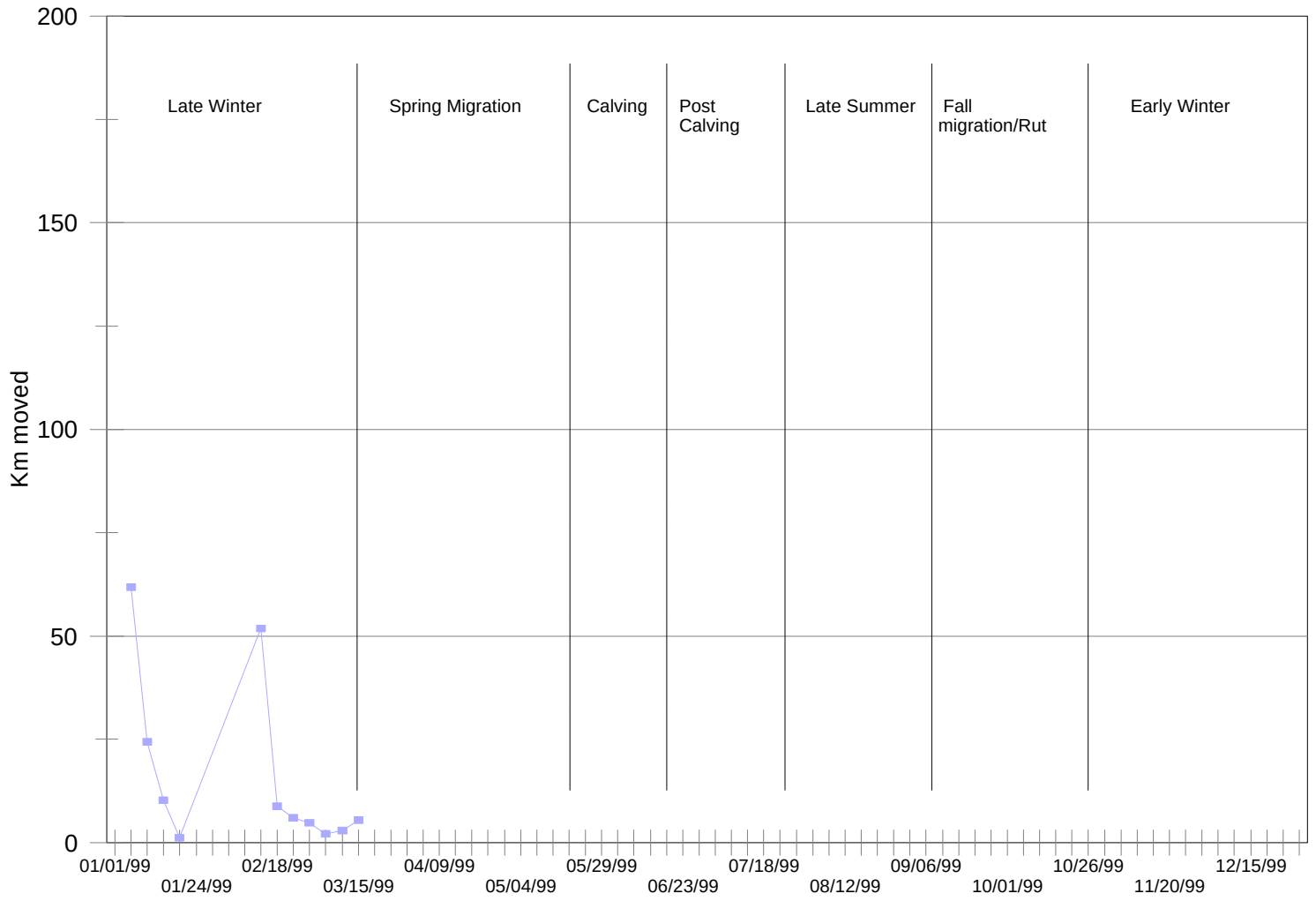
Seasonal Caribou Movement

Female B10 1998 - 1999



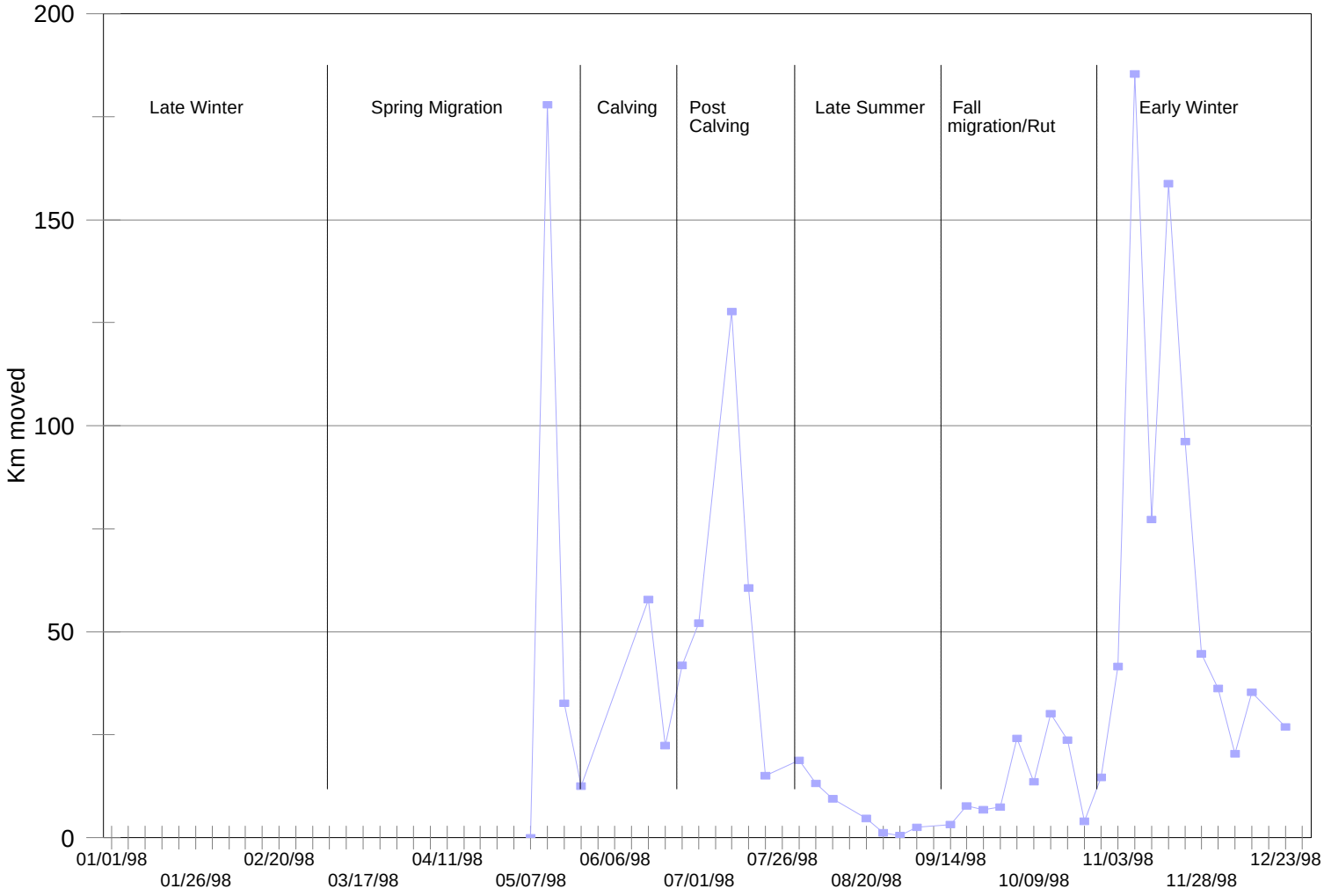
Seasonal Caribou Movement

Female B10 1998 -1999 cont'd.



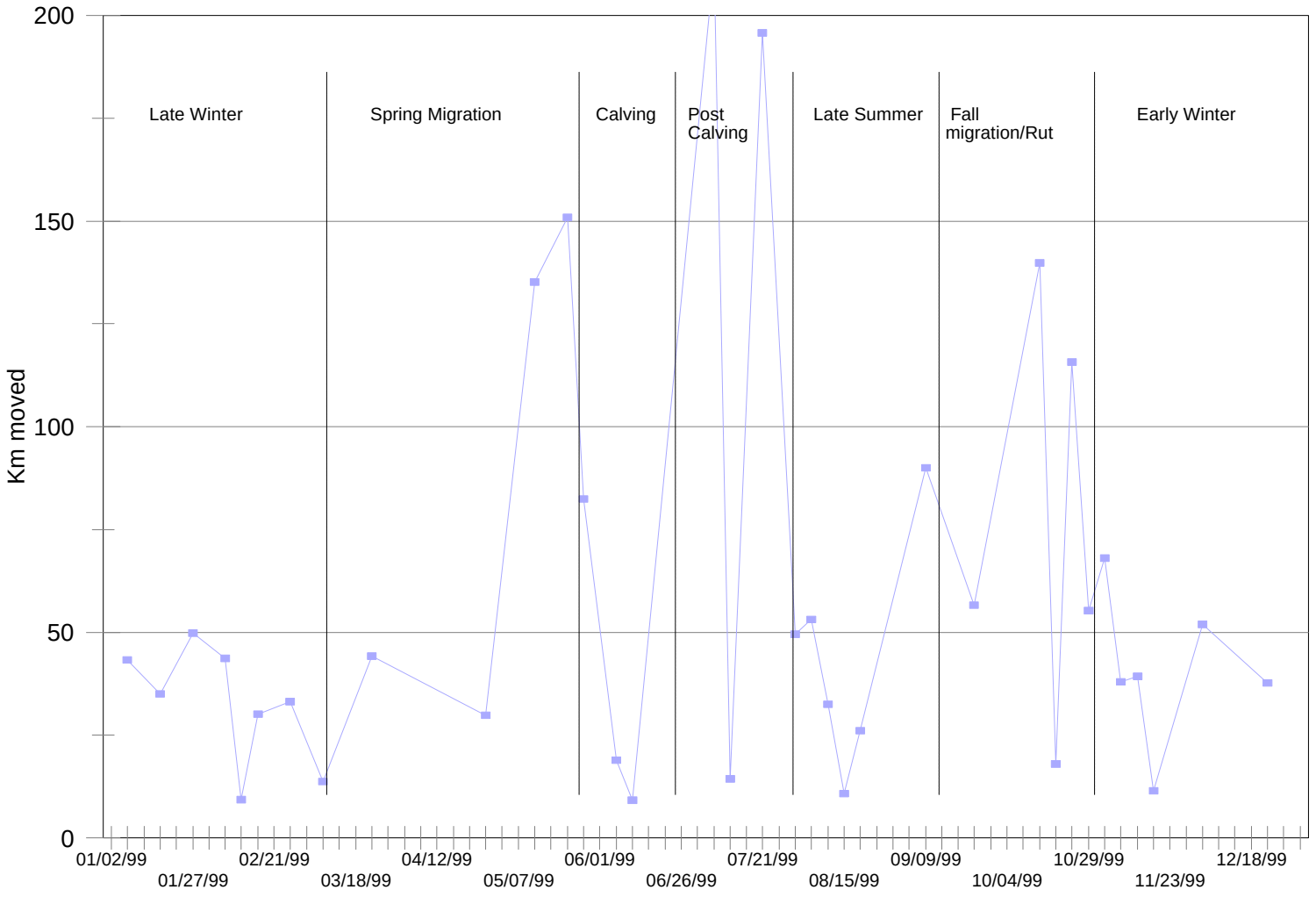
Seasonal Caribou Movement

Female B11 1998 - 2000



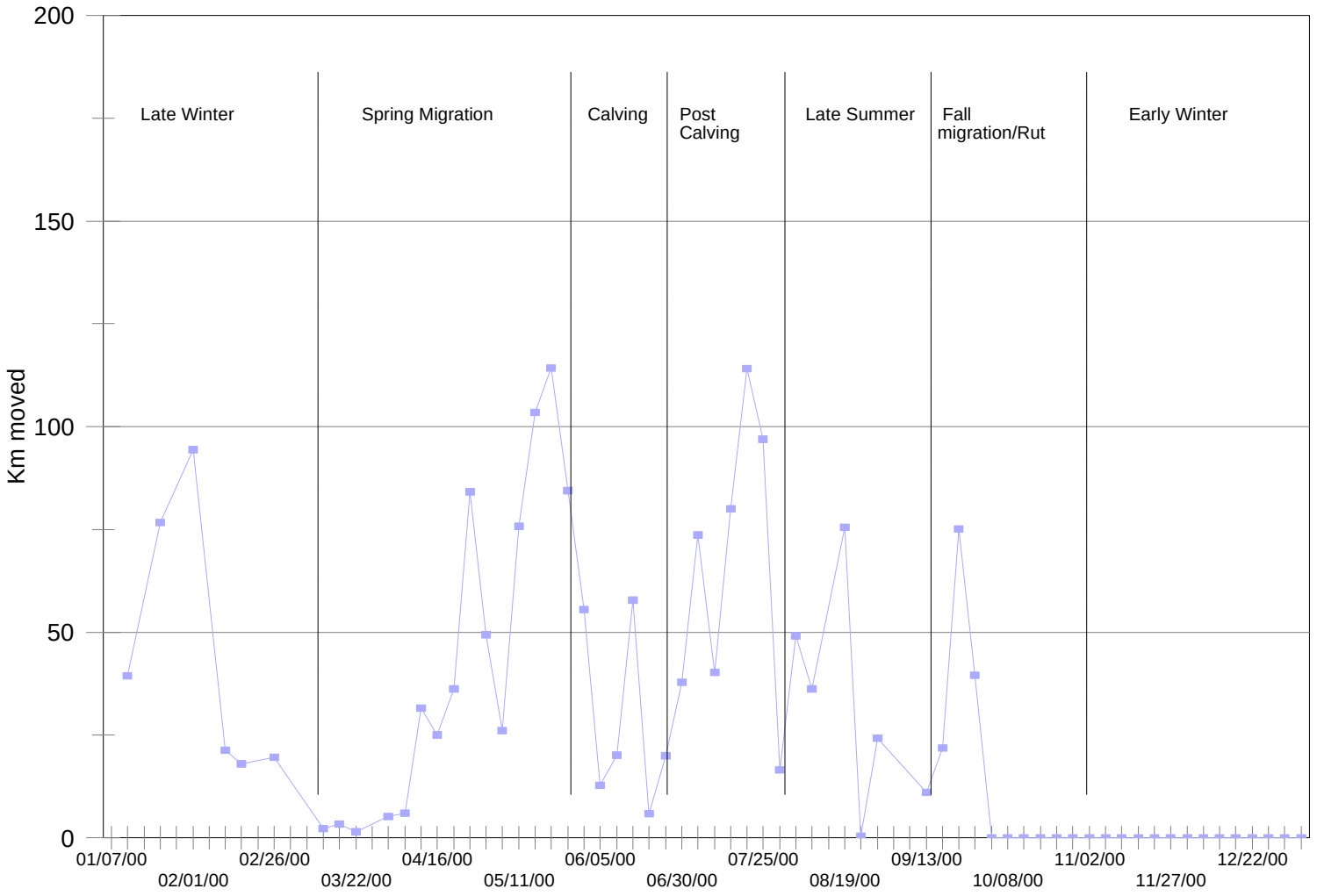
Seasonal Caribou Movement

Female B11 1998 - 2000 cont'd.



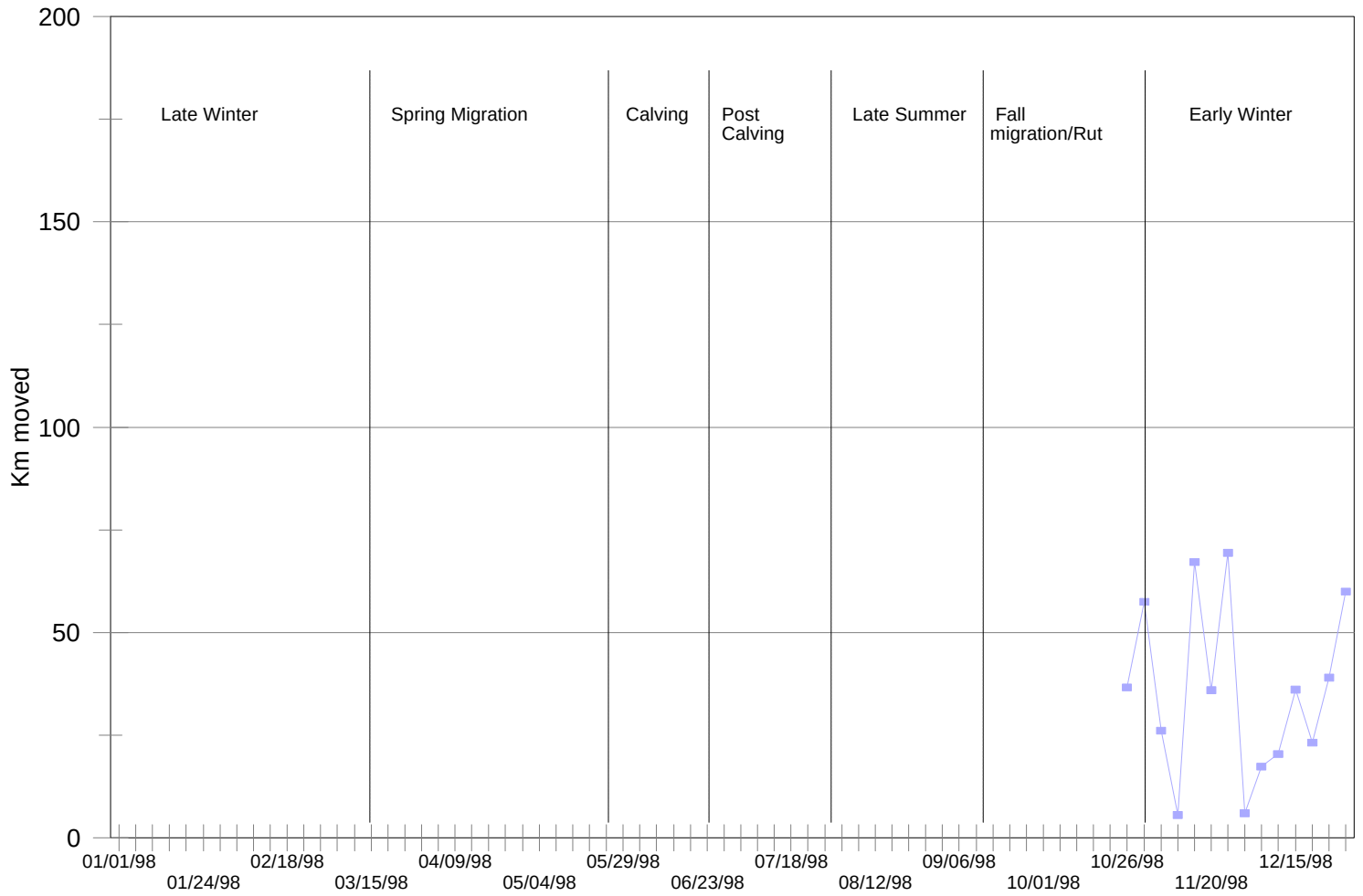
Seasonal Caribou Movement

Female B11 1998 - 2000 cont'd.



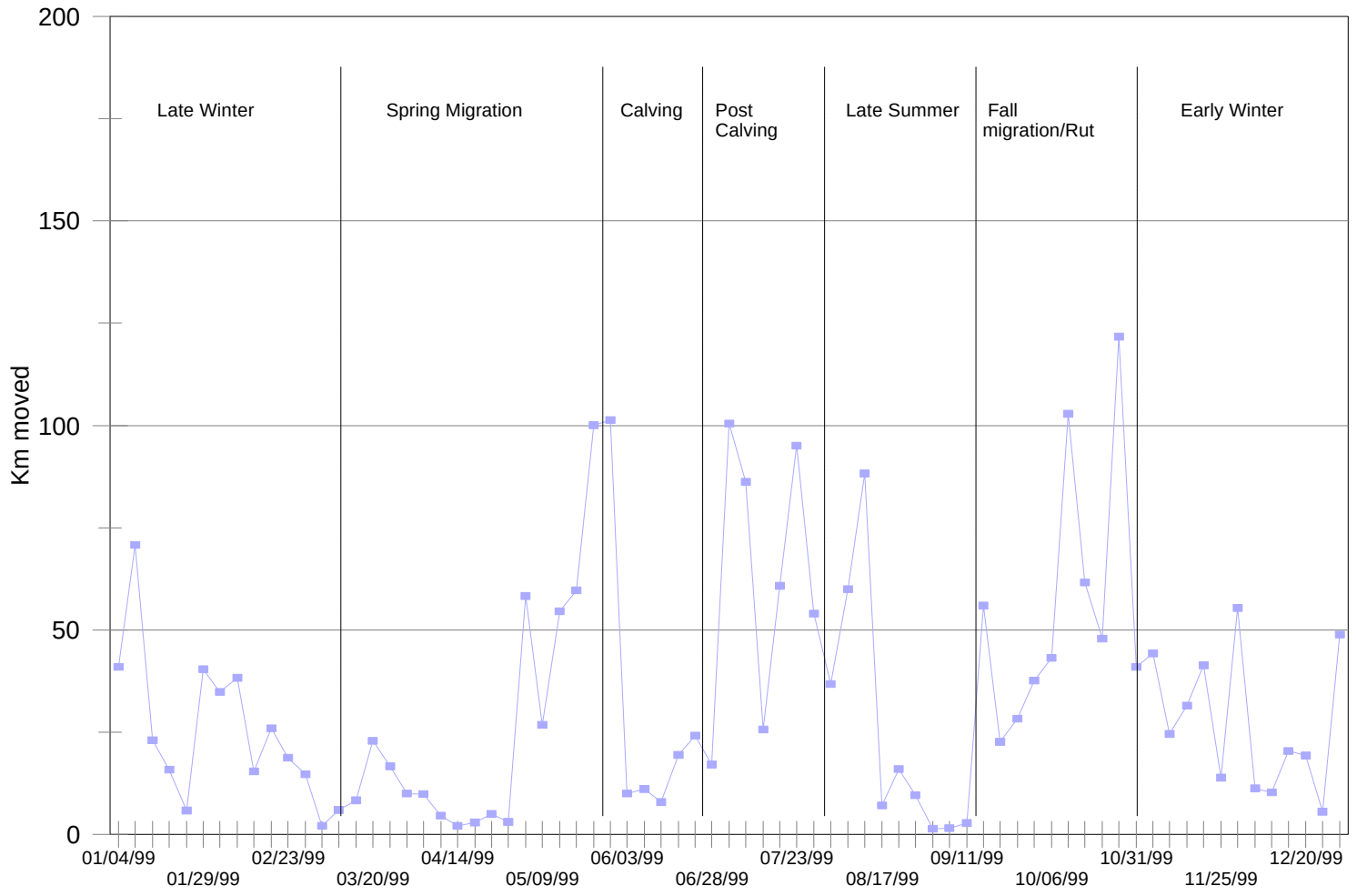
Seasonal Caribou Movement

Female B12 1998 - 2000



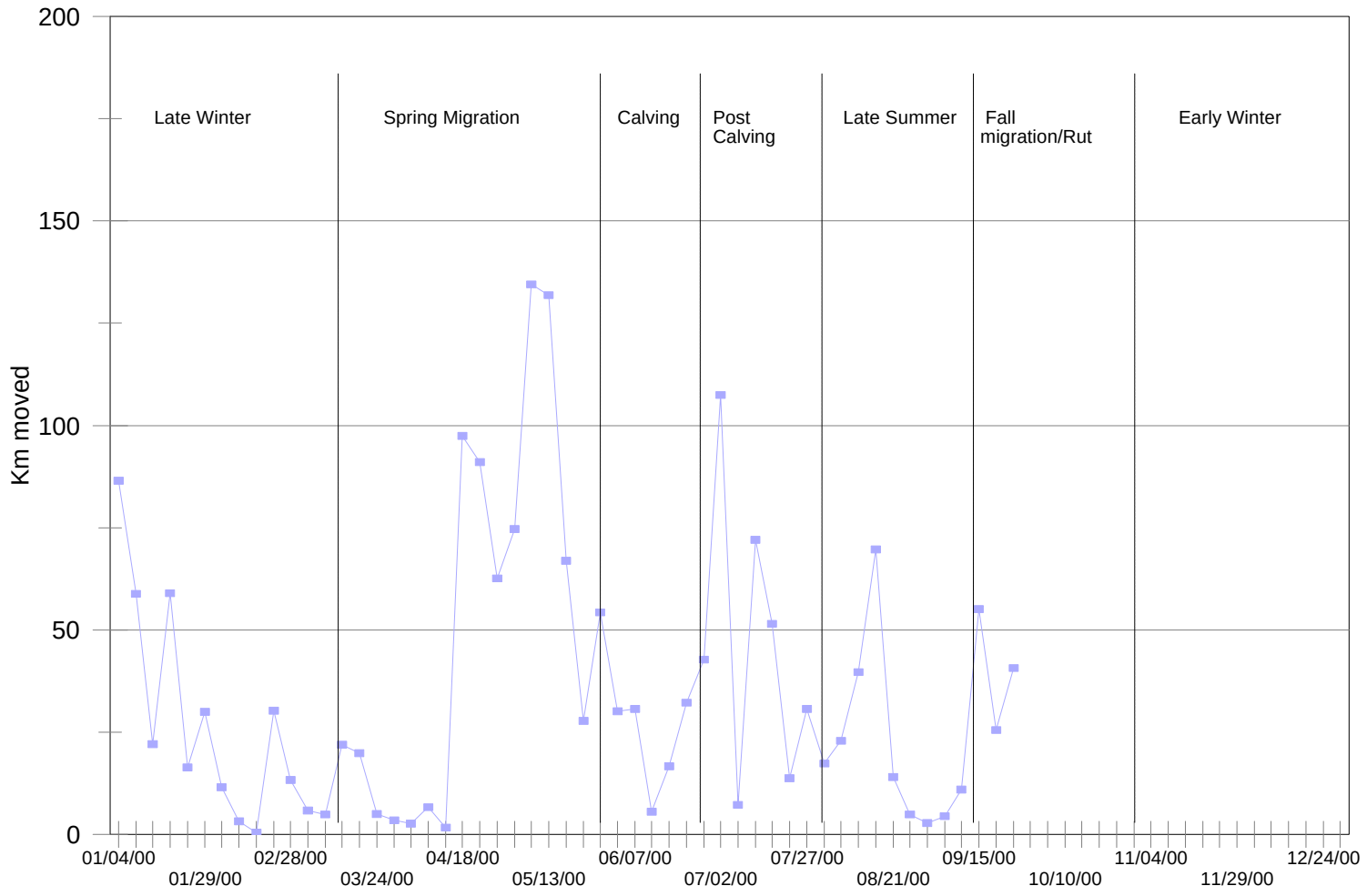
Seasonal Caribou Movement

Female B12 1998 - 2000 cont'd.



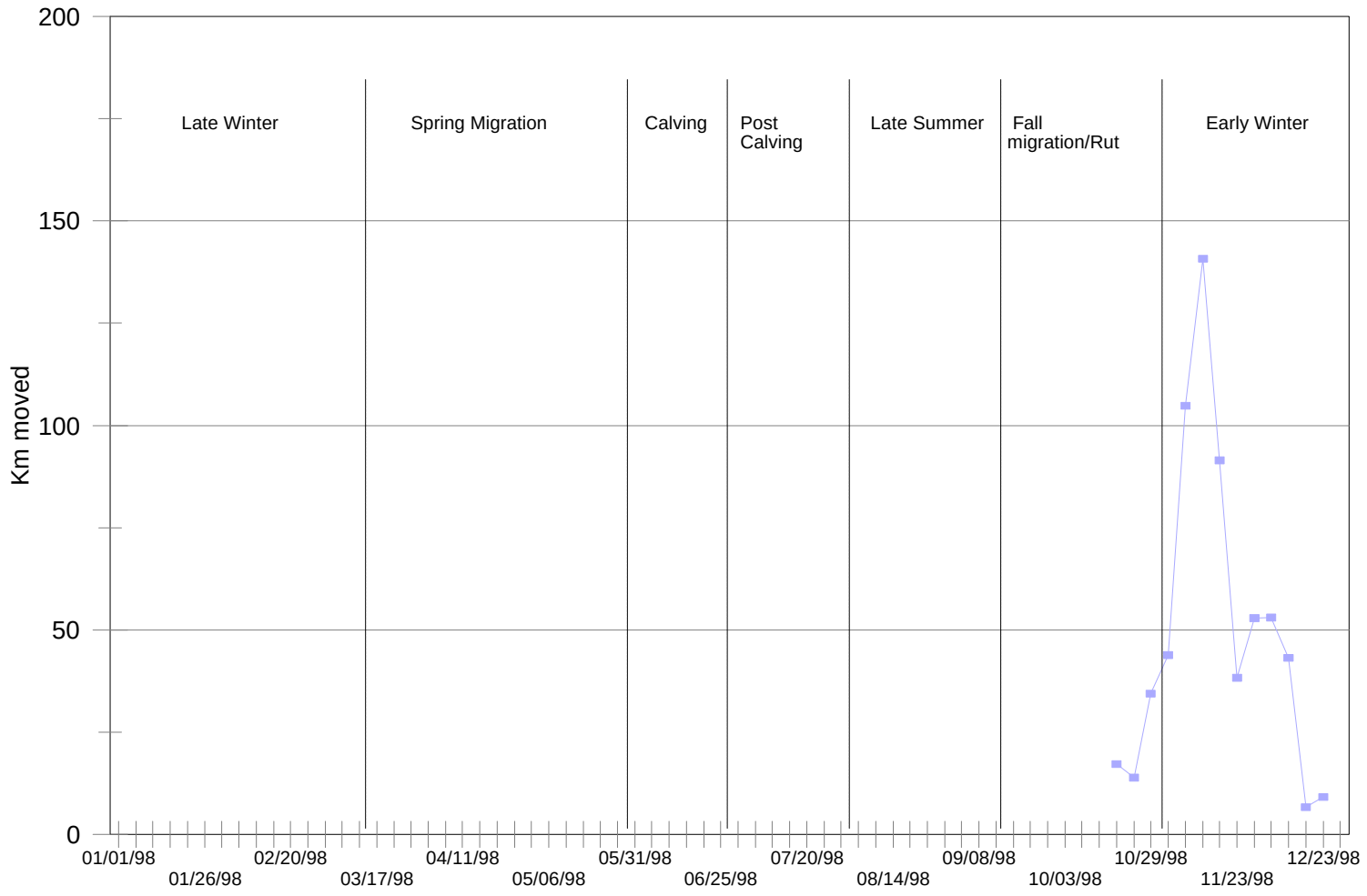
Seasonal Caribou Movement

Female B12 1998 - 2000 cont'd.



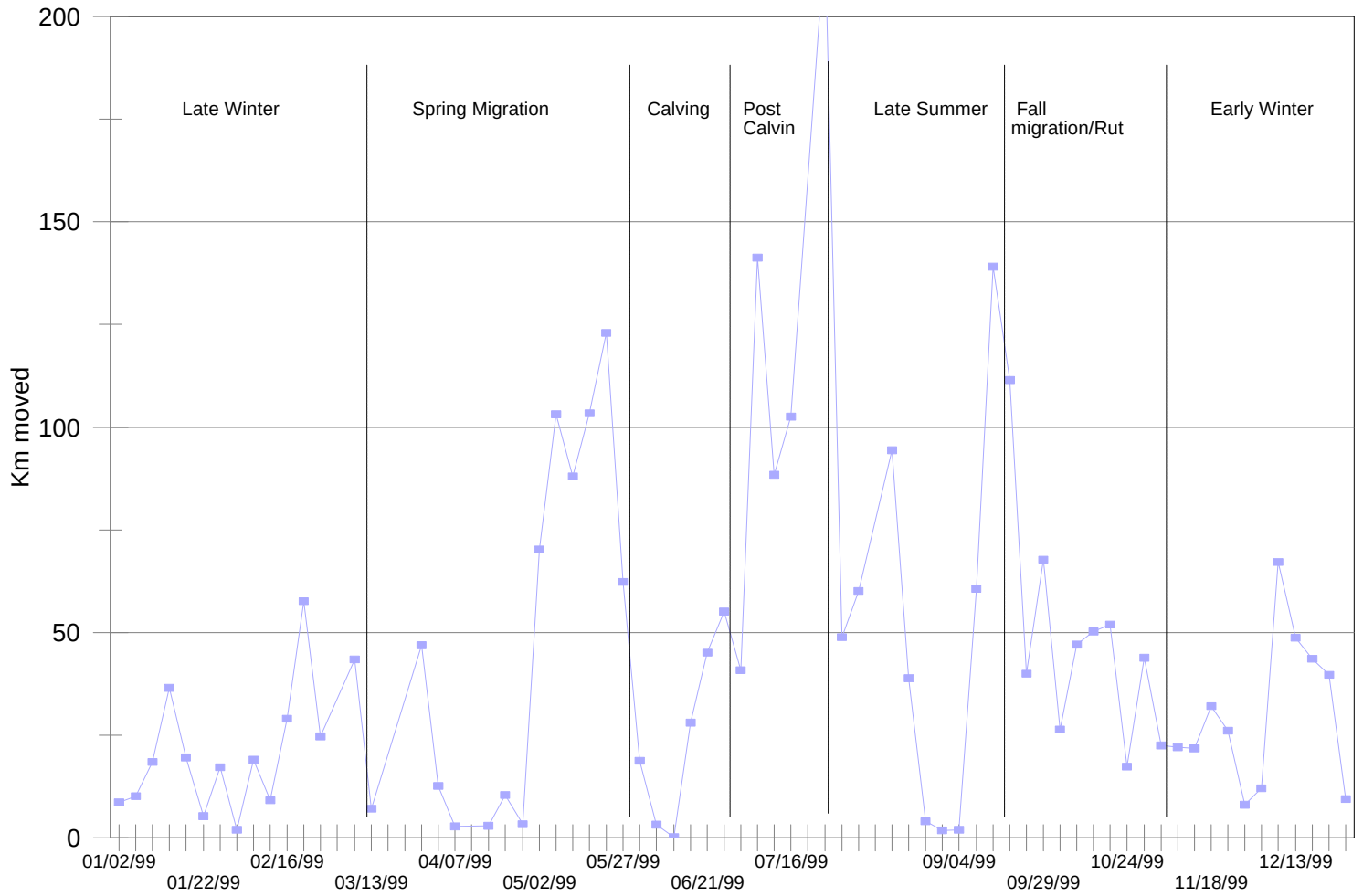
Seasonal Caribou Movement

Female B13 1998 - 2000



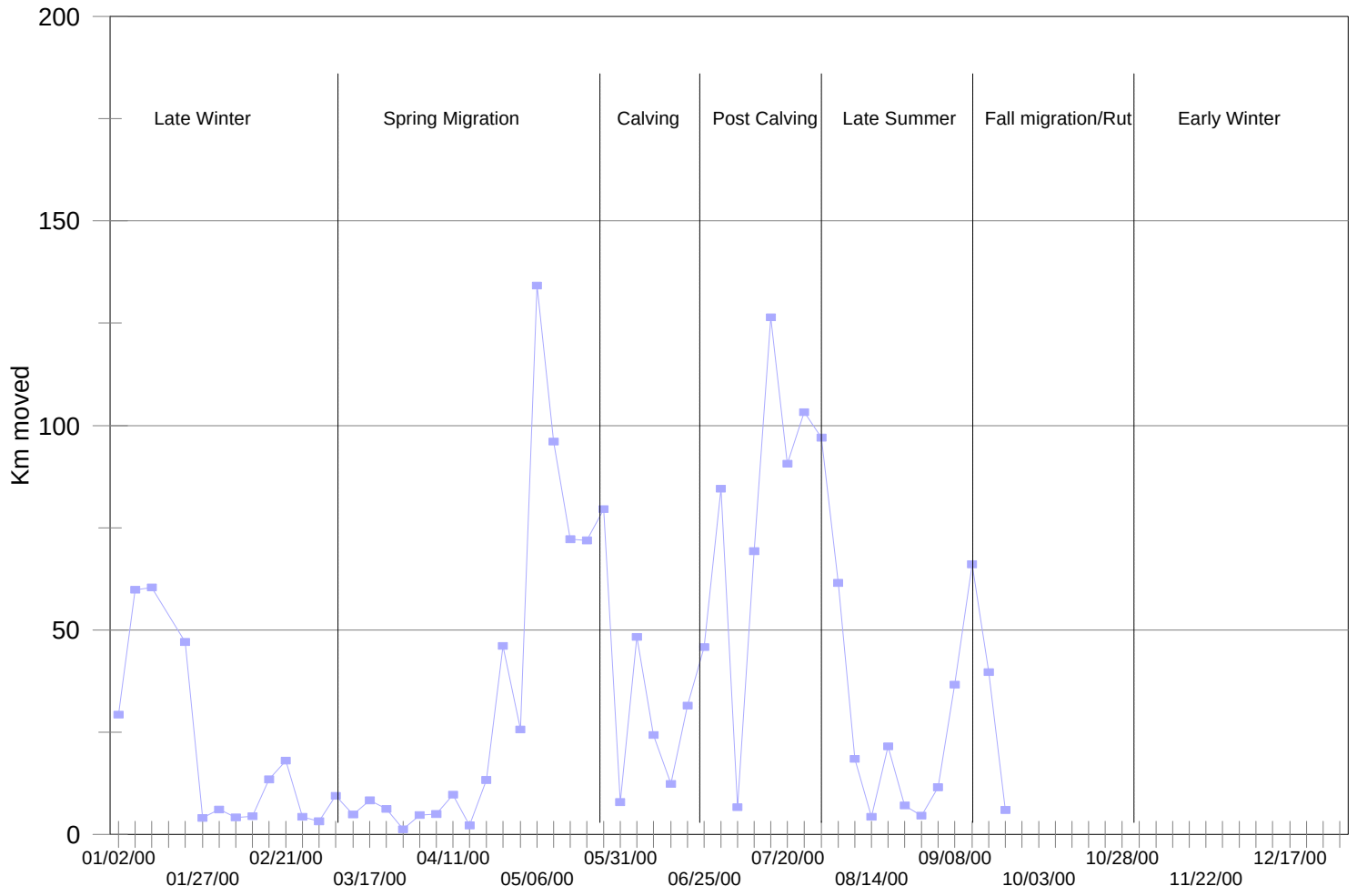
Seasonal Caribou Movement

Female B13 1998 - 2000 cont'd.



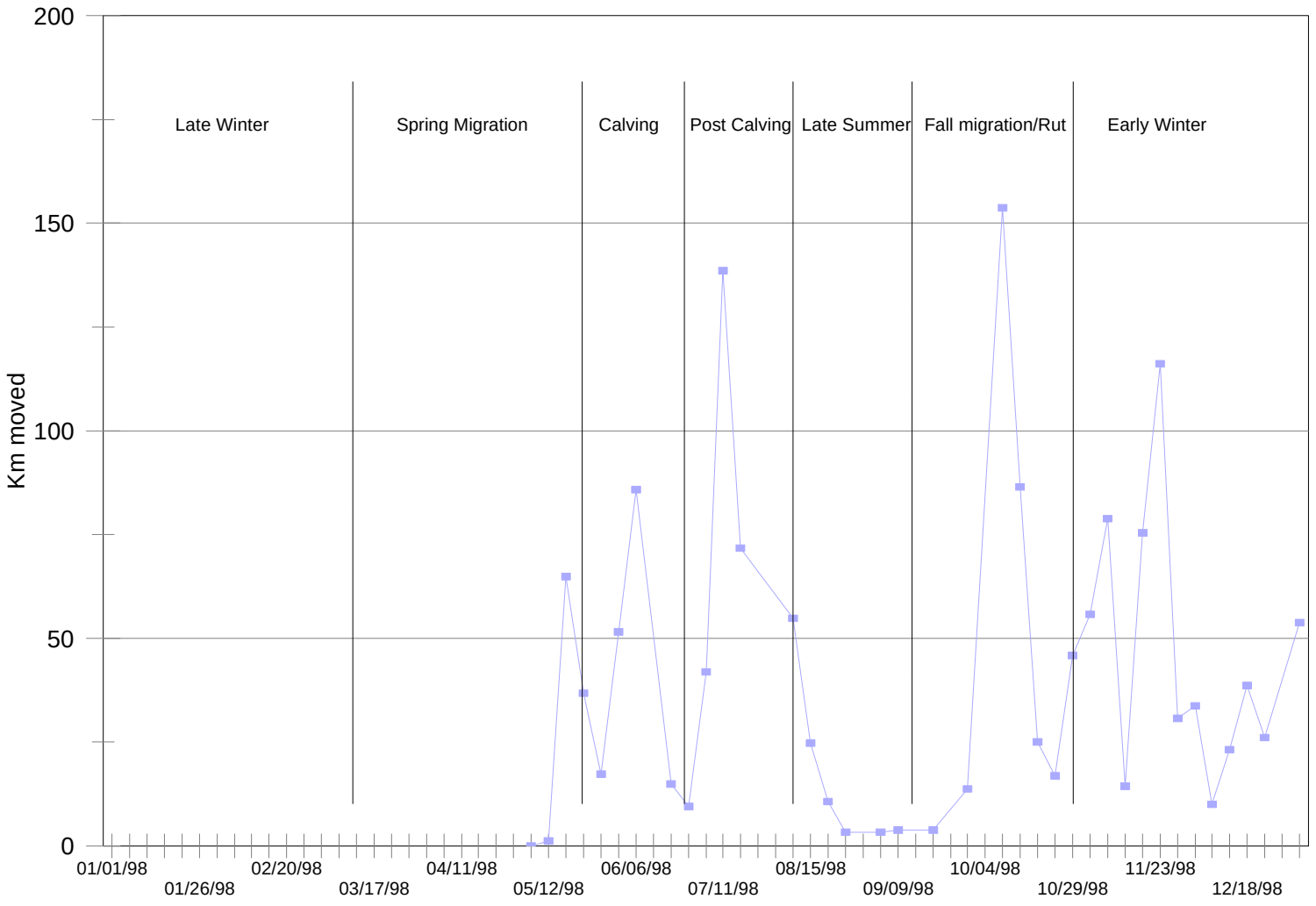
Seasonal Caribou Movement

Female B13 1998 - 2000 cont'd.



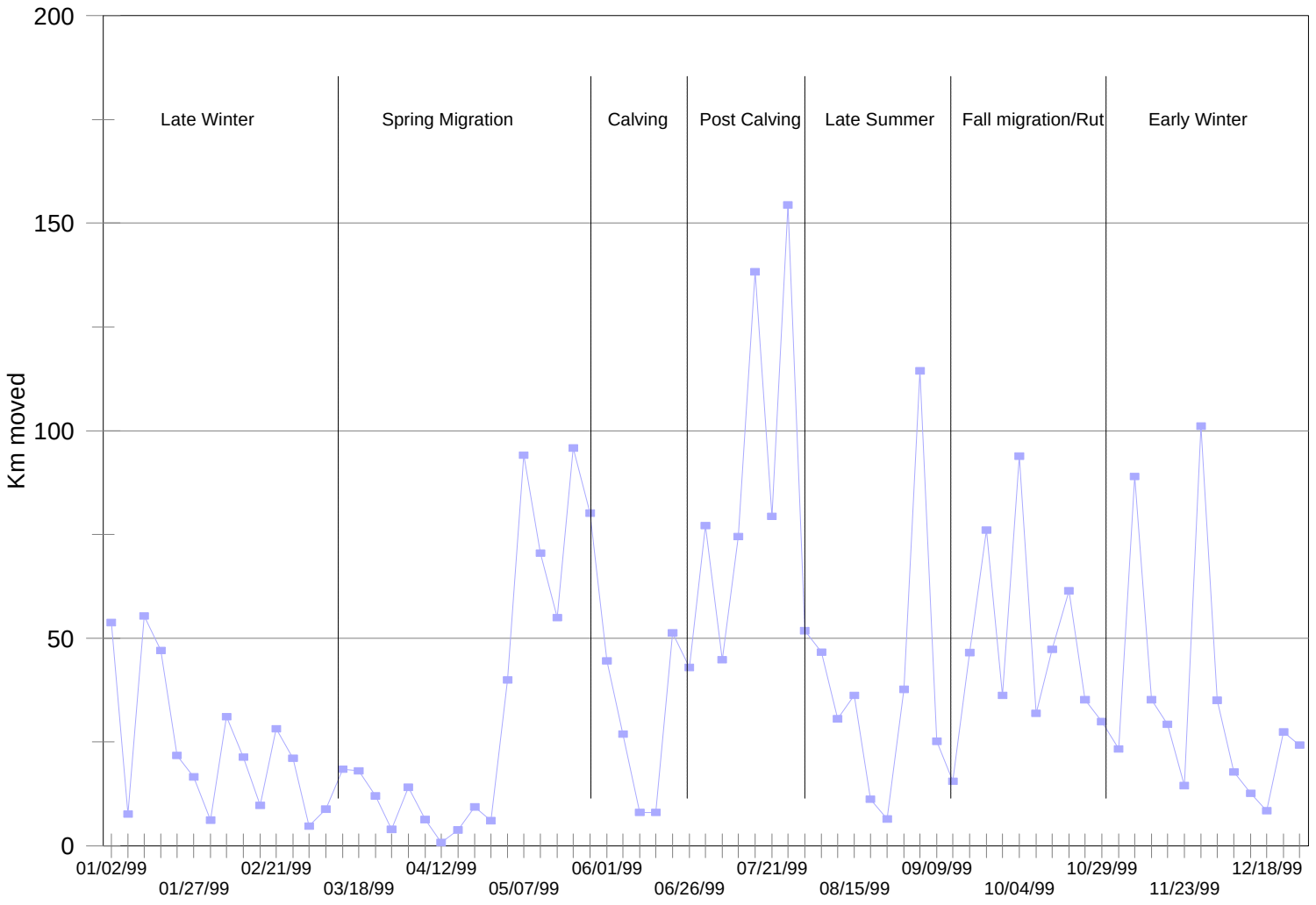
Seasonal Caribou Movement

Female B14 1998 - 2000



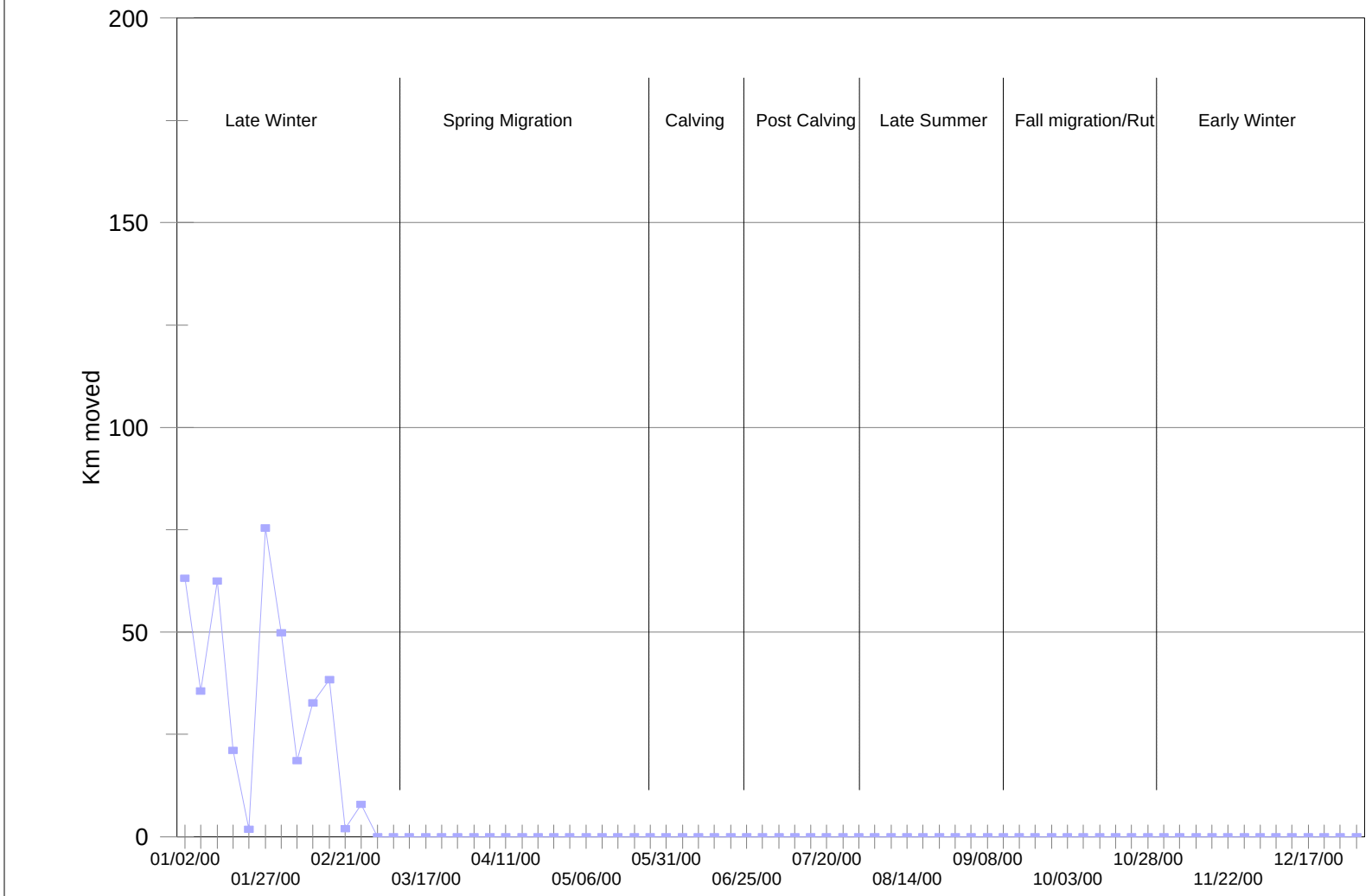
Seasonal Caribou Movement

Female B14 1998 - 2000 cont'd.



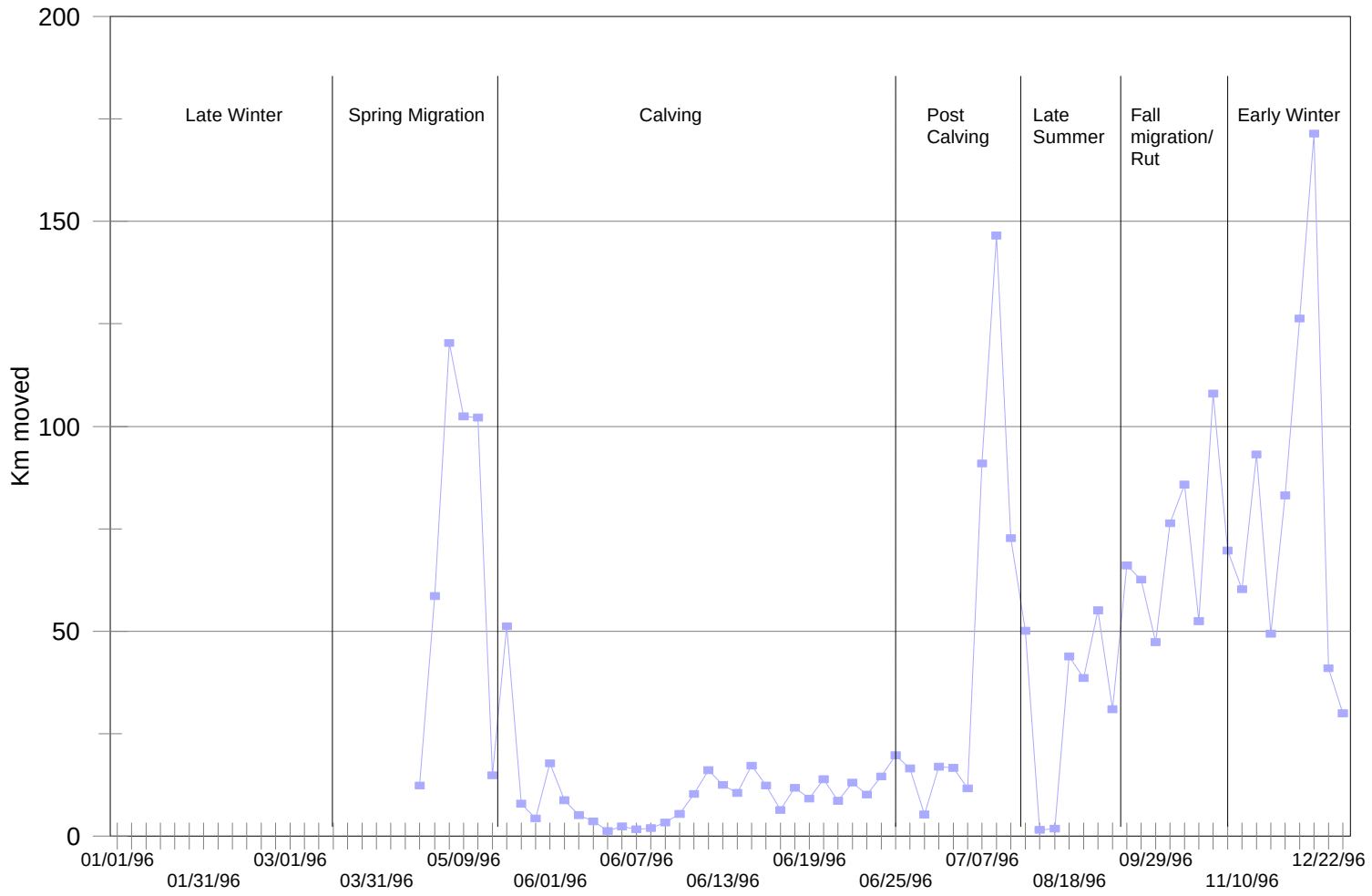
Seasonal Caribou Movement

Female B14 1998 - 2000 cont'd.



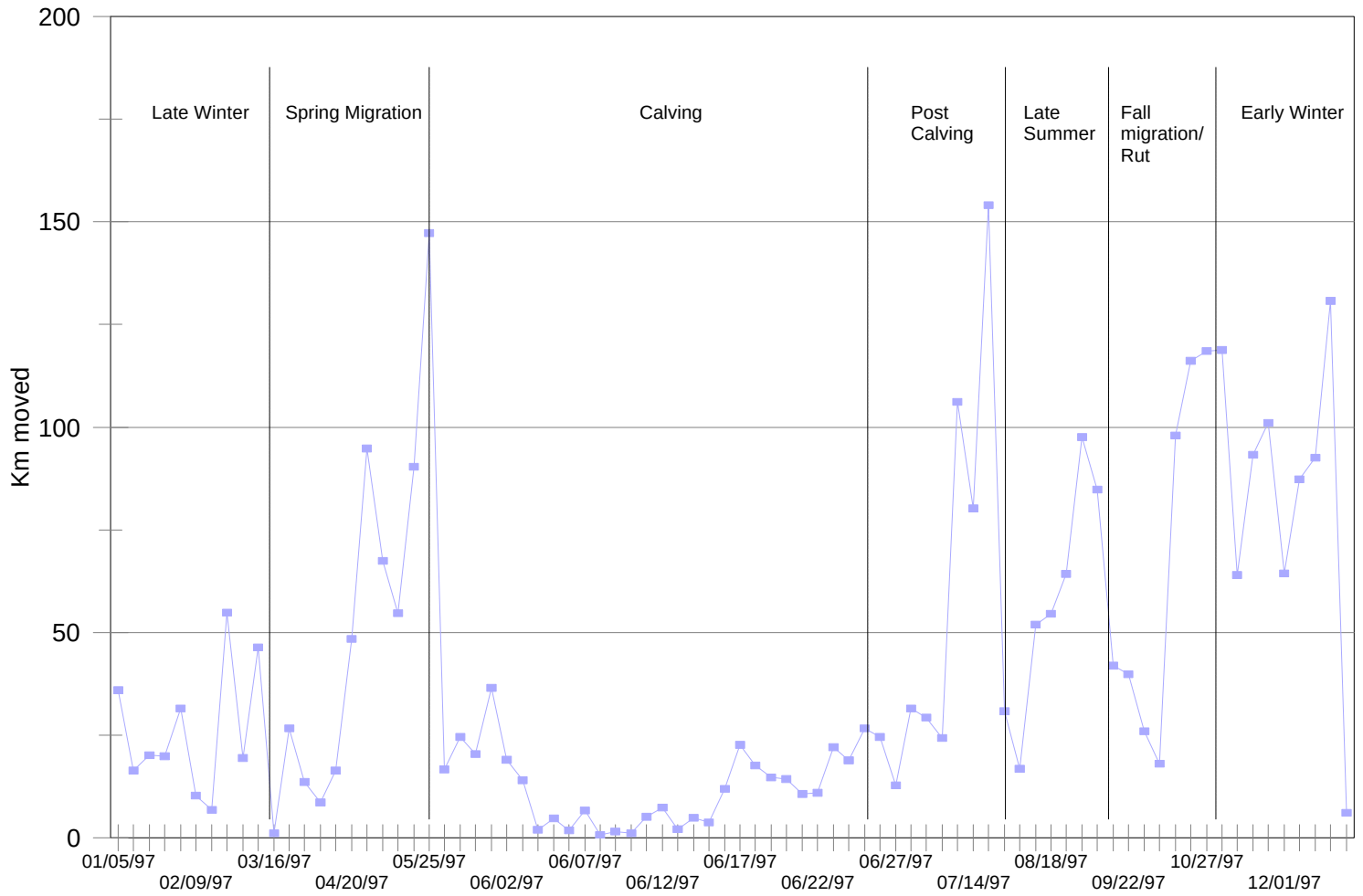
Seasonal Caribou Movement

Female B15b 1996 - 1999



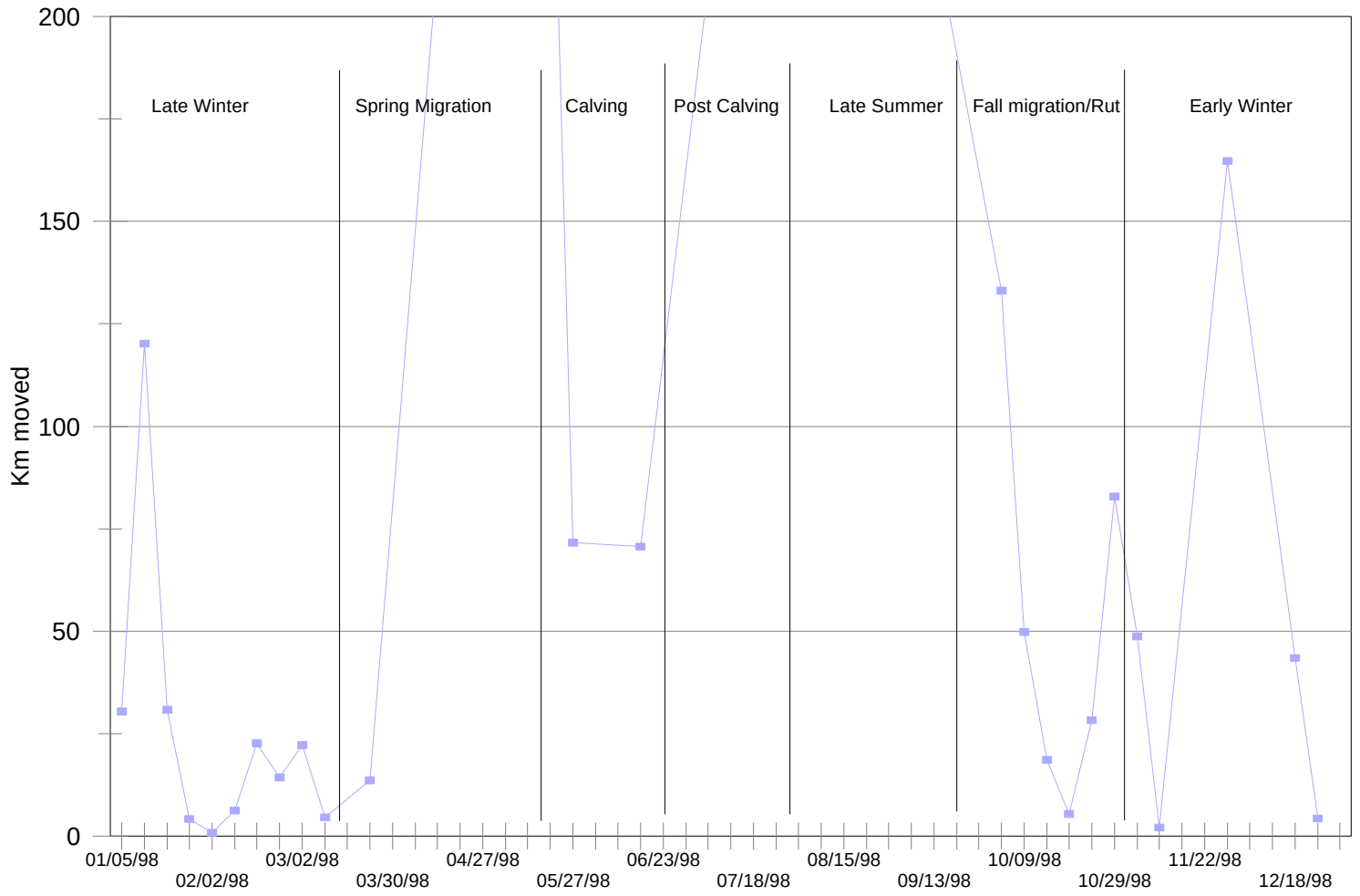
Seasonal Caribou Movement

Female B15b 1996 - 1999 cont'd.



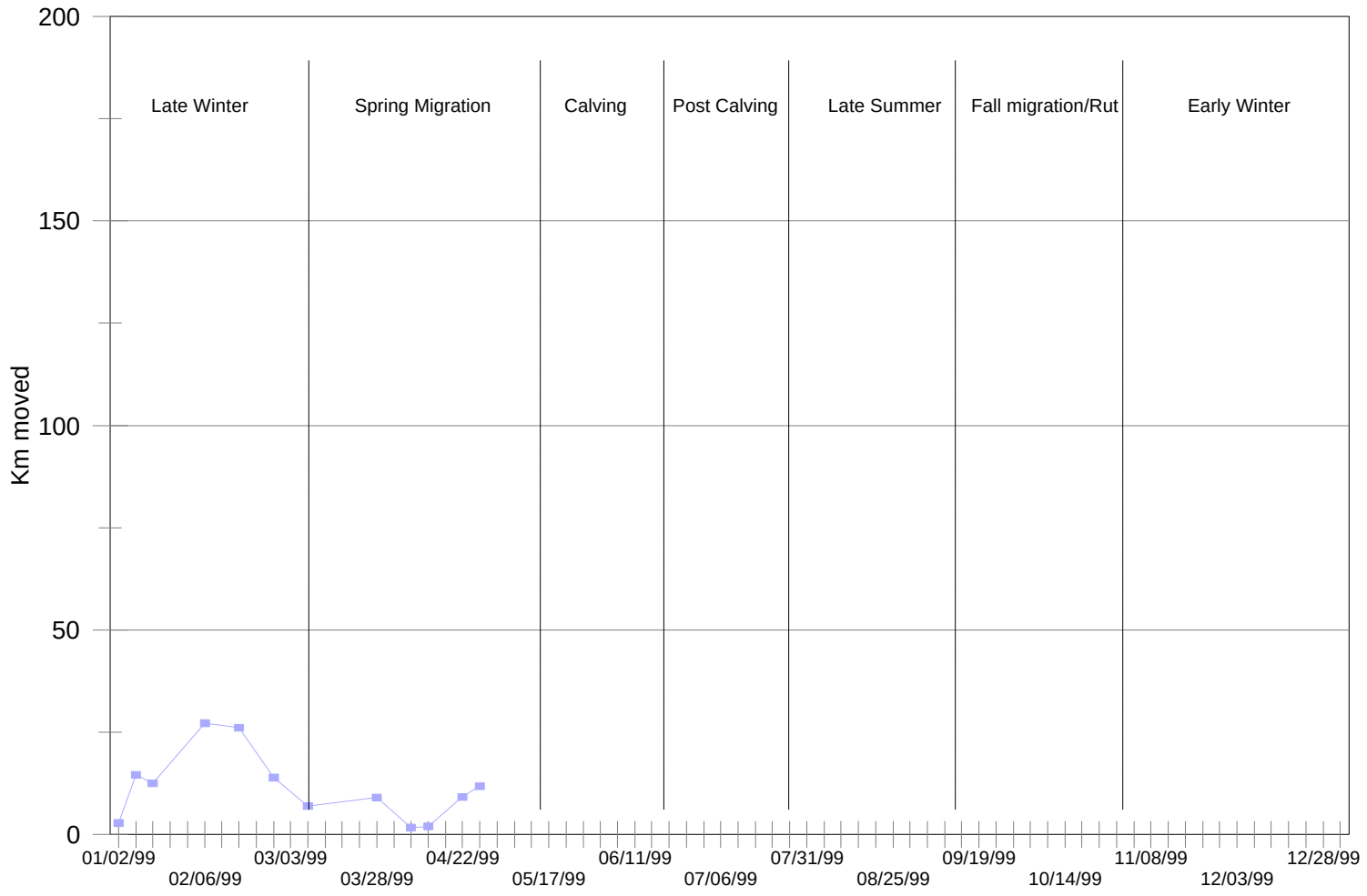
Seasonal Caribou Movement

Female B15b 1996 - 1999 cont'd.



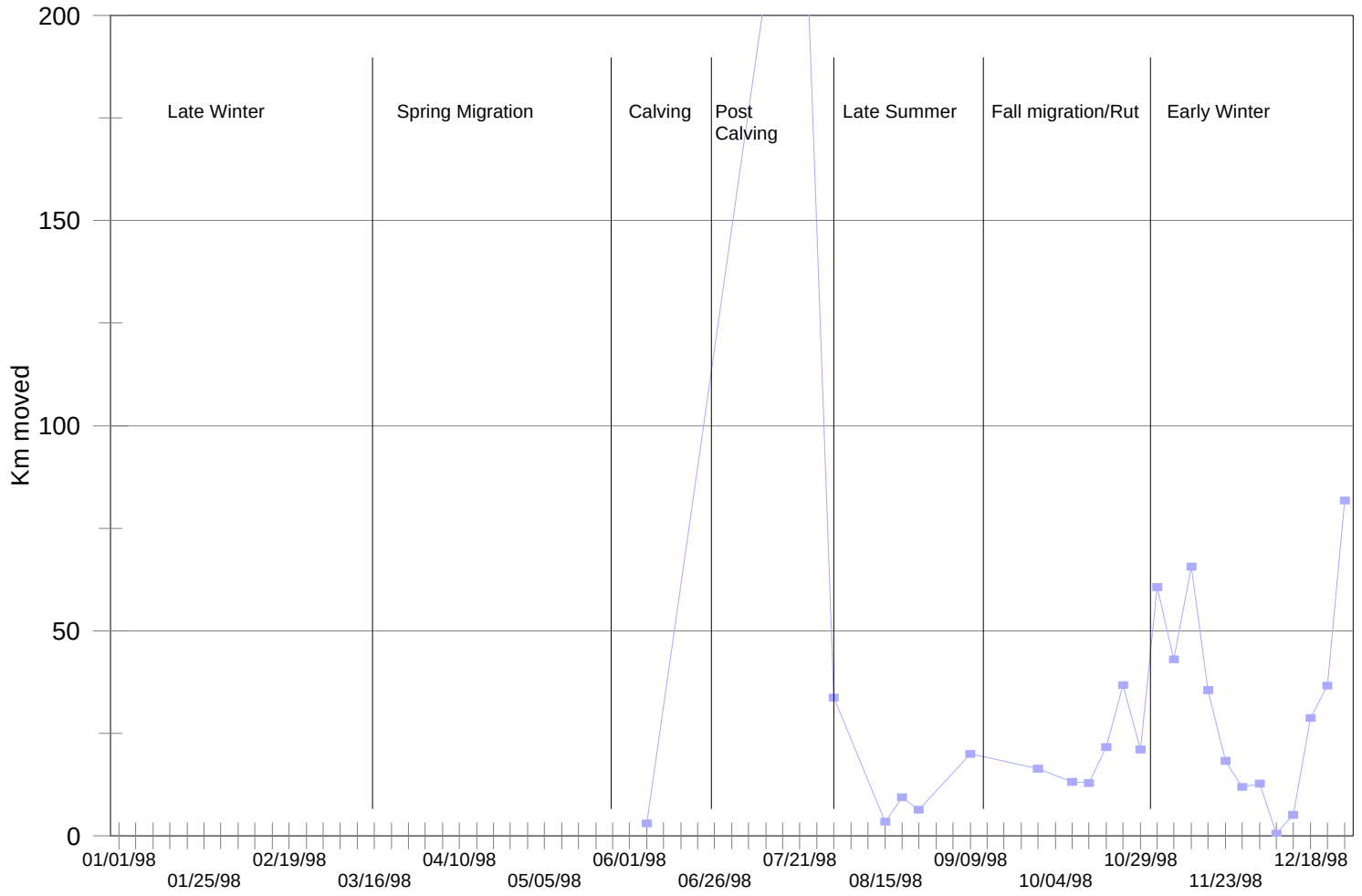
Seasonal Caribou Movement

Female B15b 1996 - 1999 cont'd.



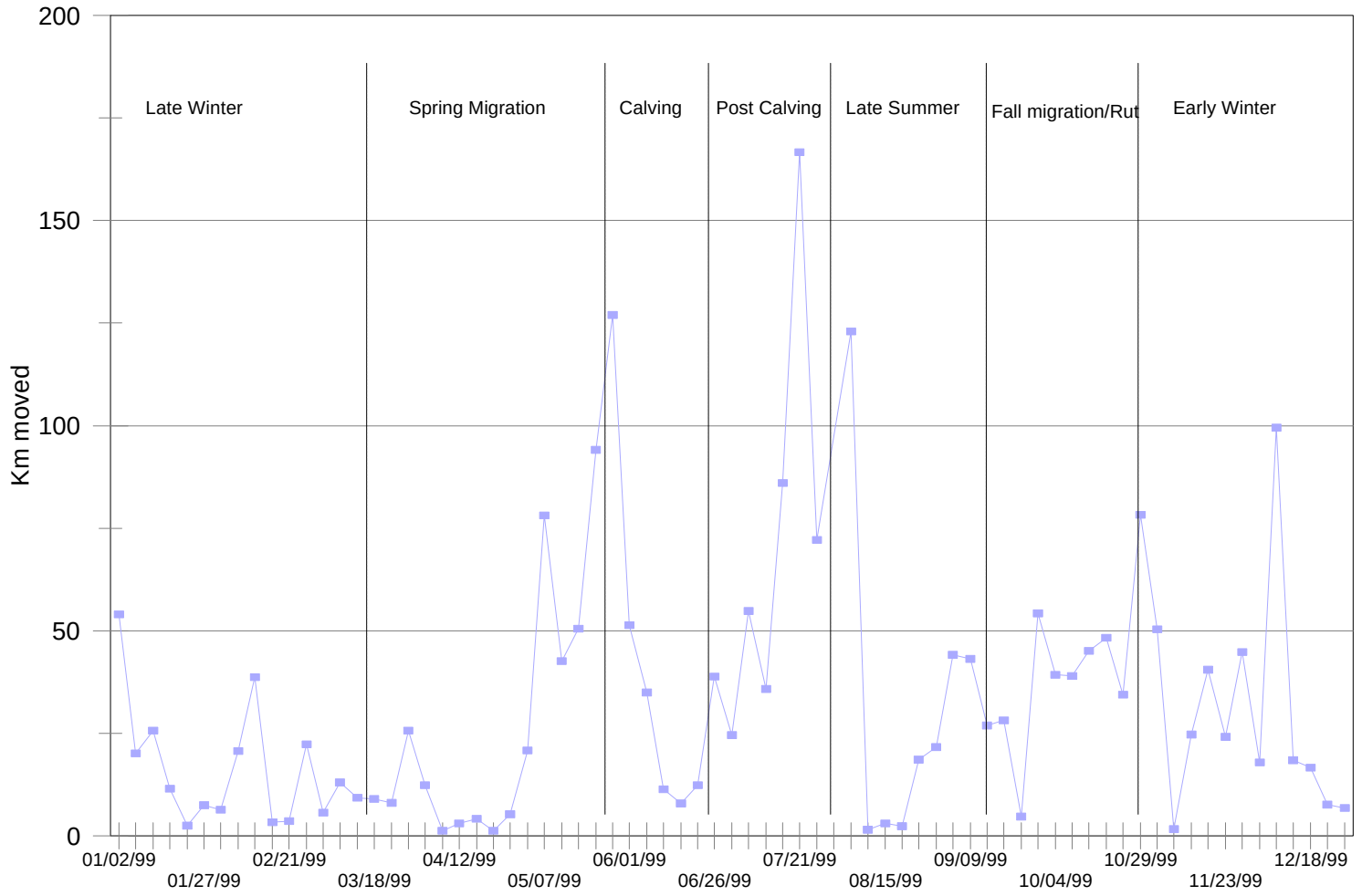
Seasonal Caribou Movement

Female B16 1998 - 2000



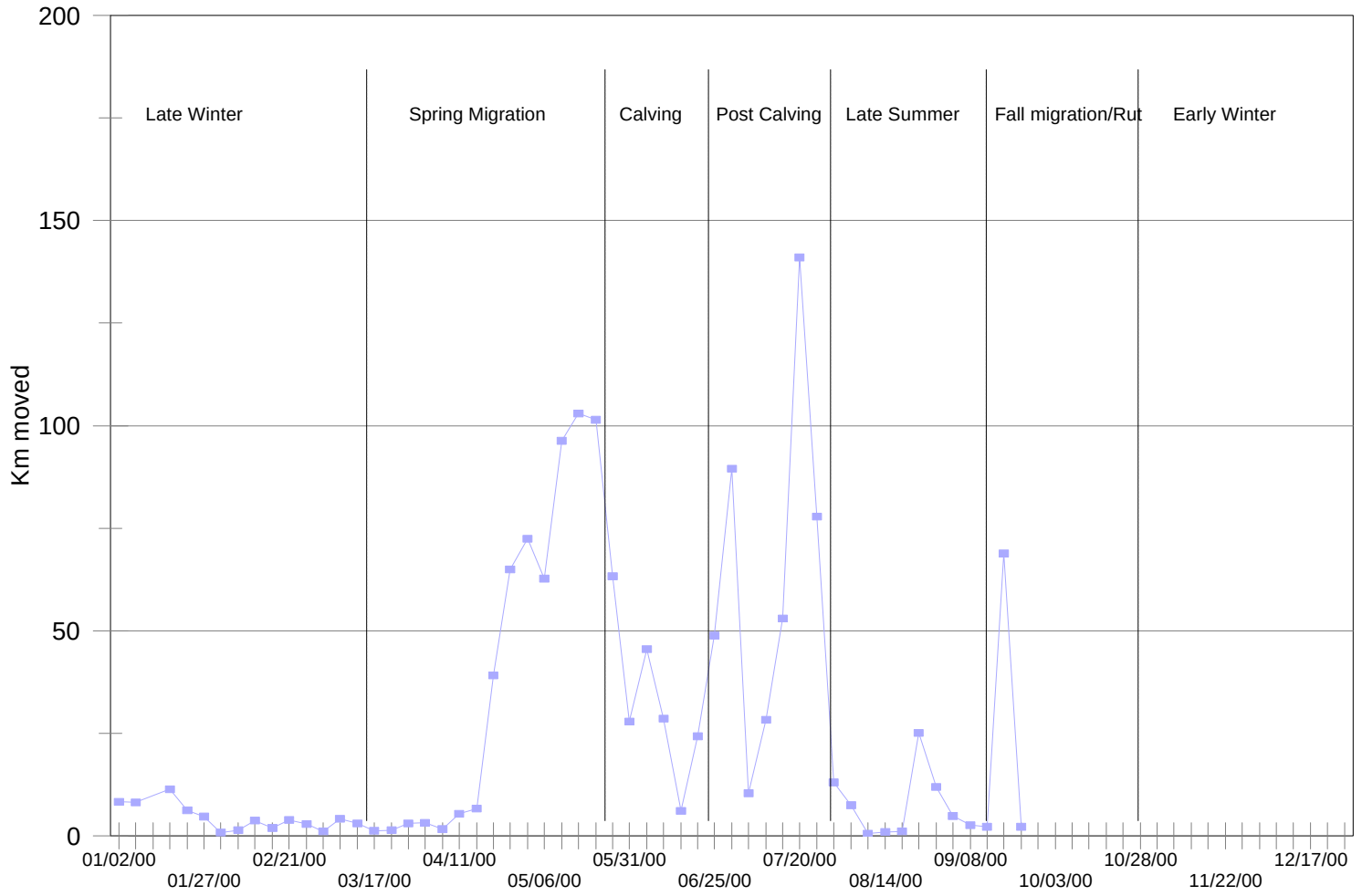
Seasonal Caribou Movement

Female B16 1998 - 2000 cont'd.



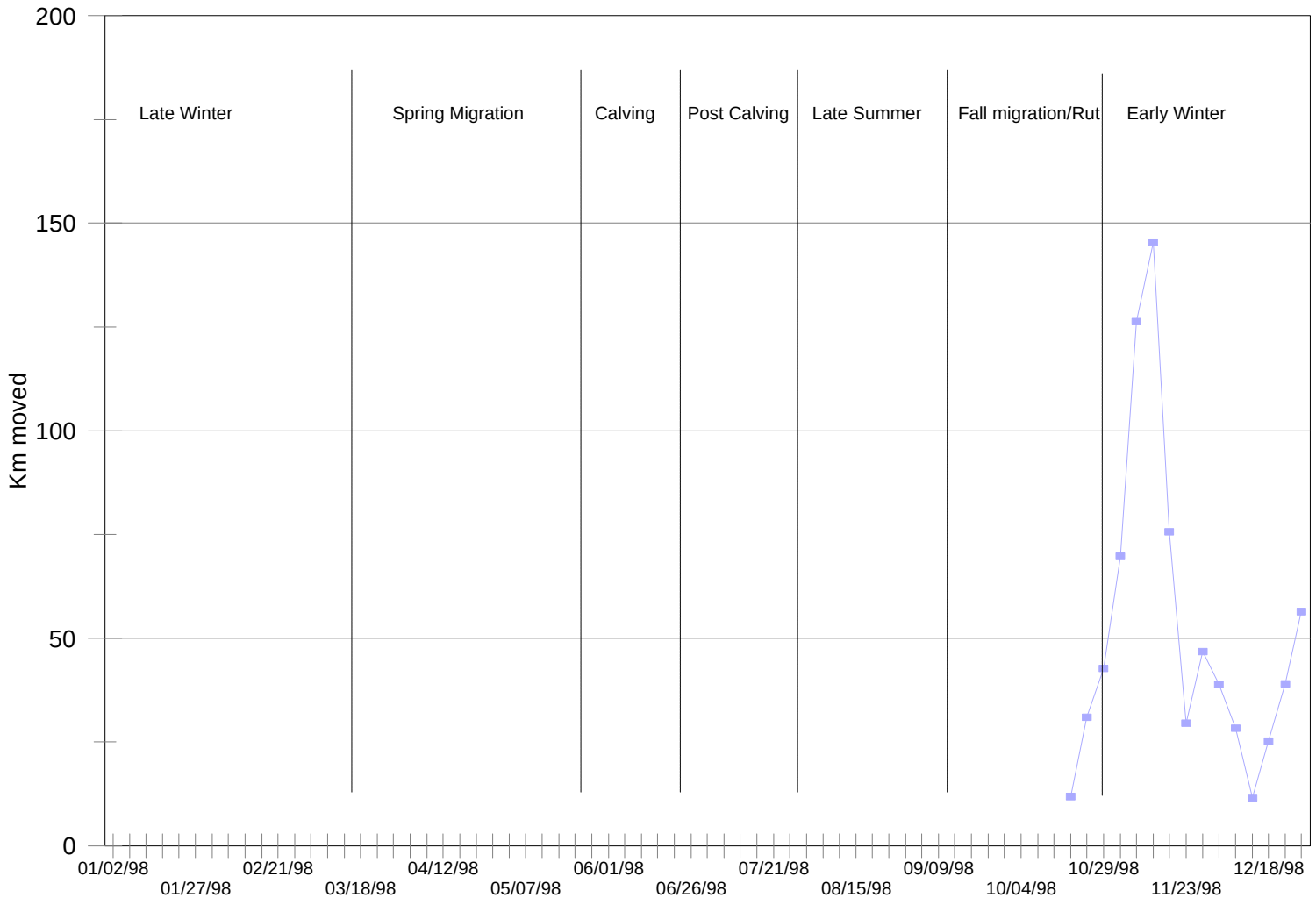
Seasonal Caribou Movement

Female B16 1998 - 2000 cont'd.



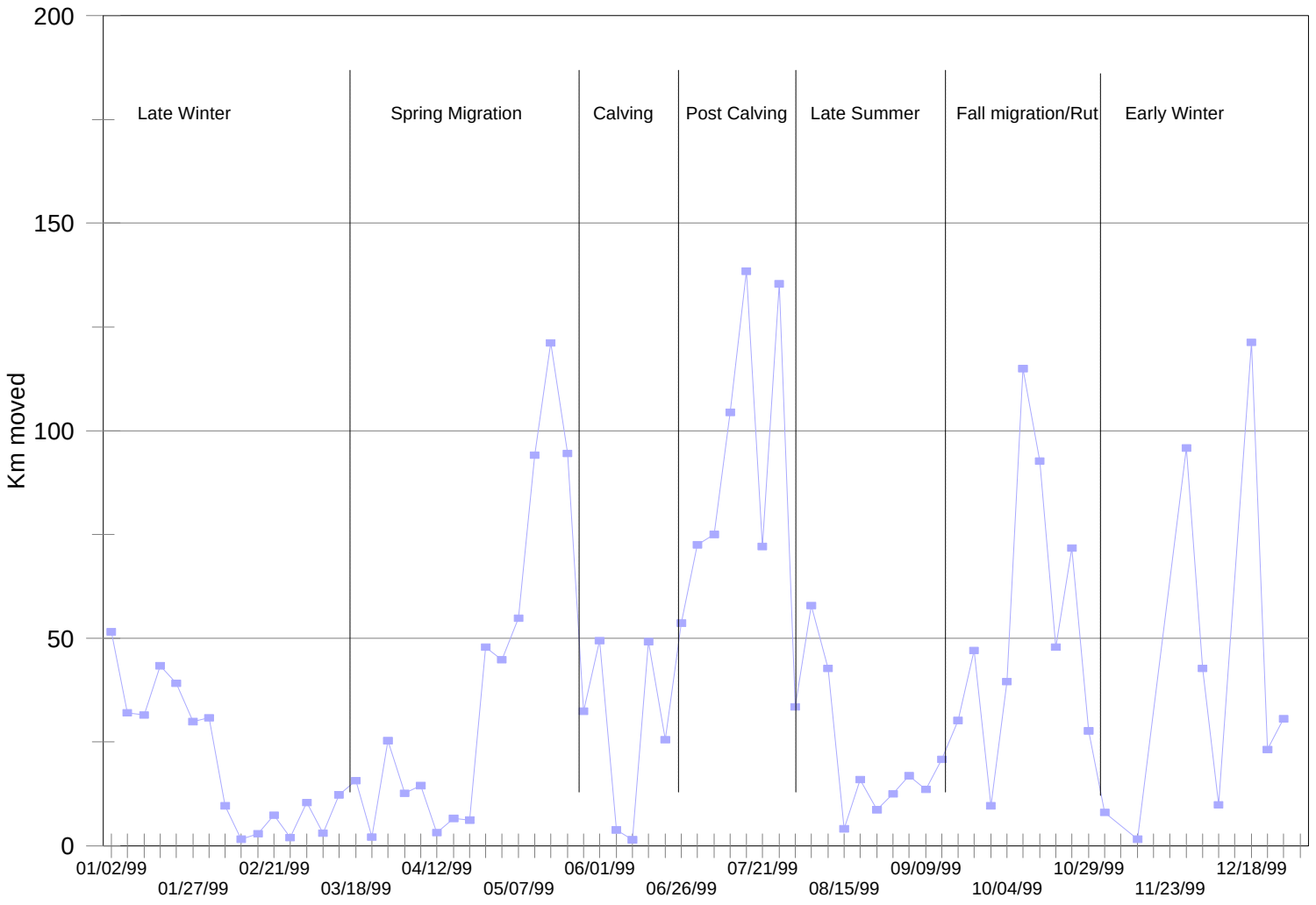
Seasonal Caribou Movement

Female B17 1998 - 2000



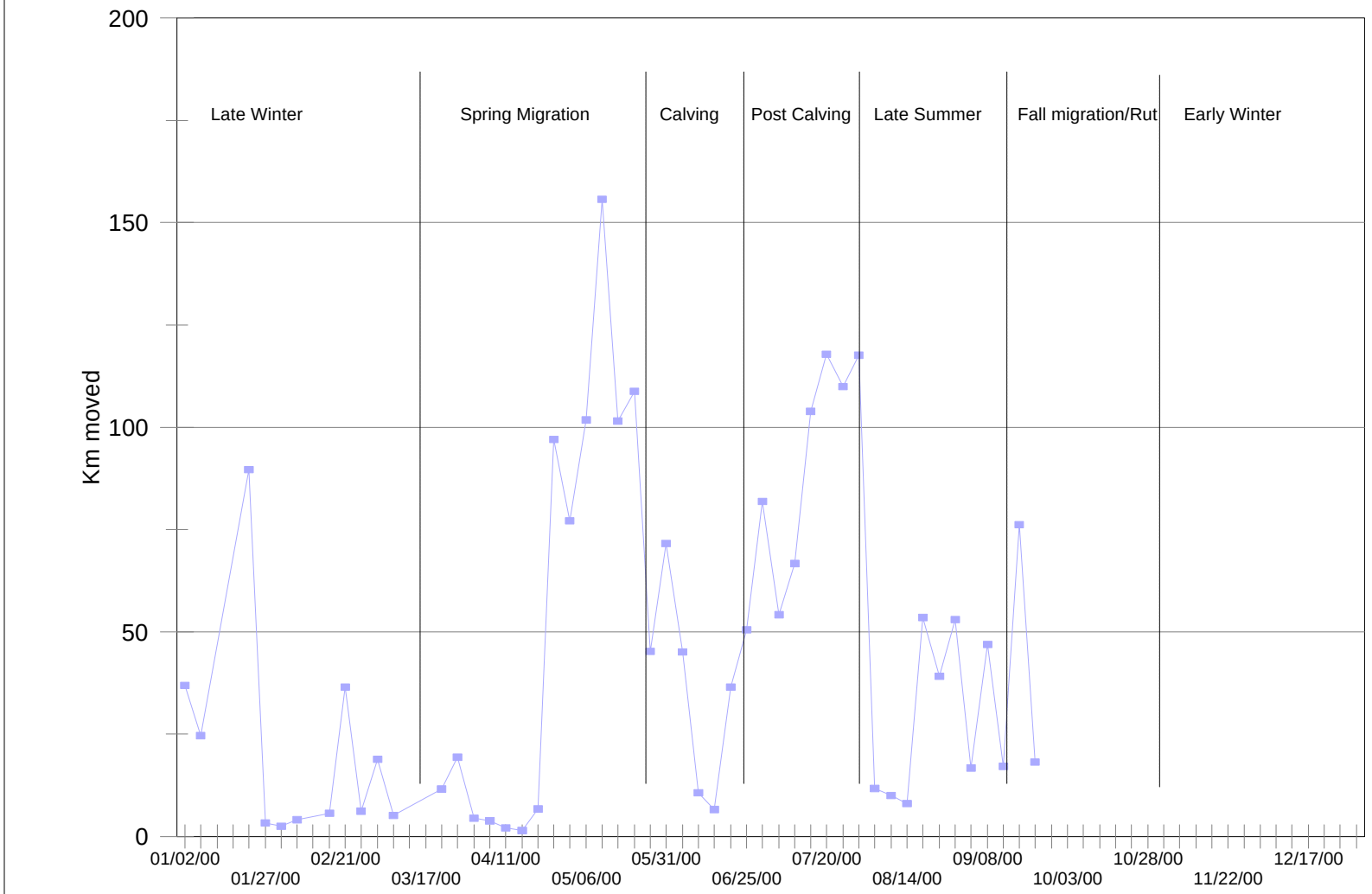
Seasonal Caribou Movement

Female B17 1998 - 2000 cont'd.



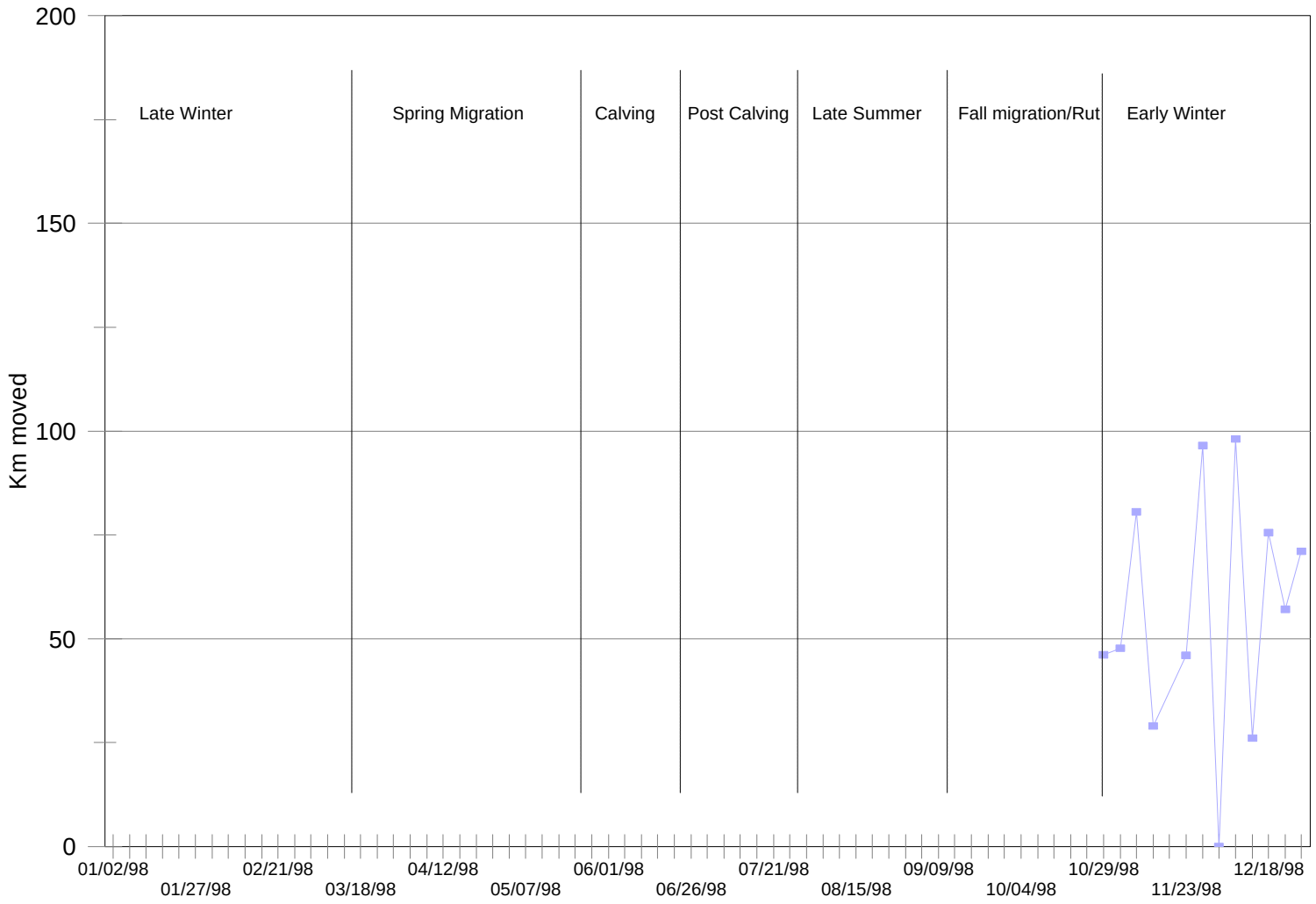
Seasonal Caribou Movement

Female B17 1998 - 2000 cont'd.



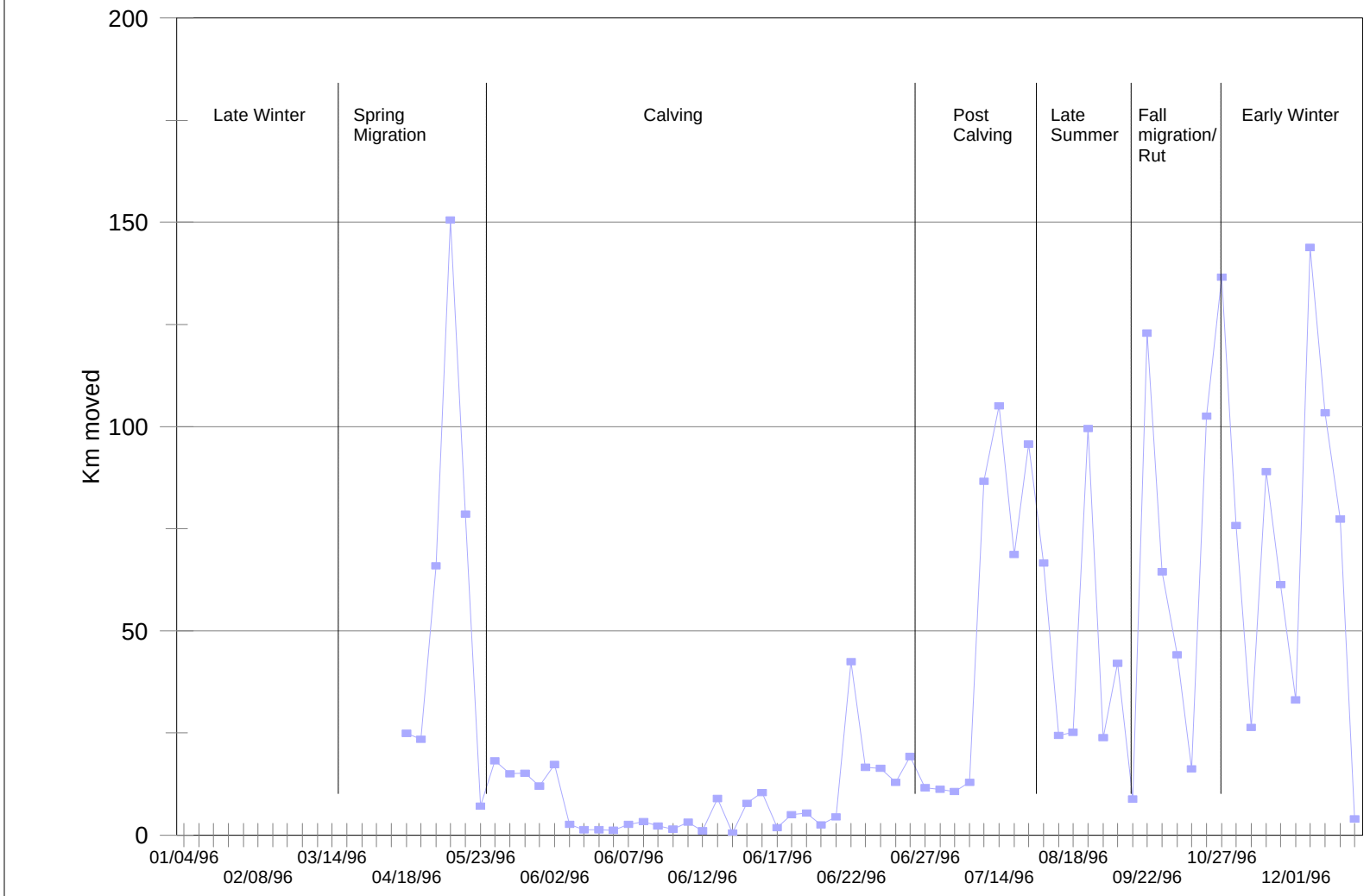
Seasonal Caribou Movement

Female B18 1998



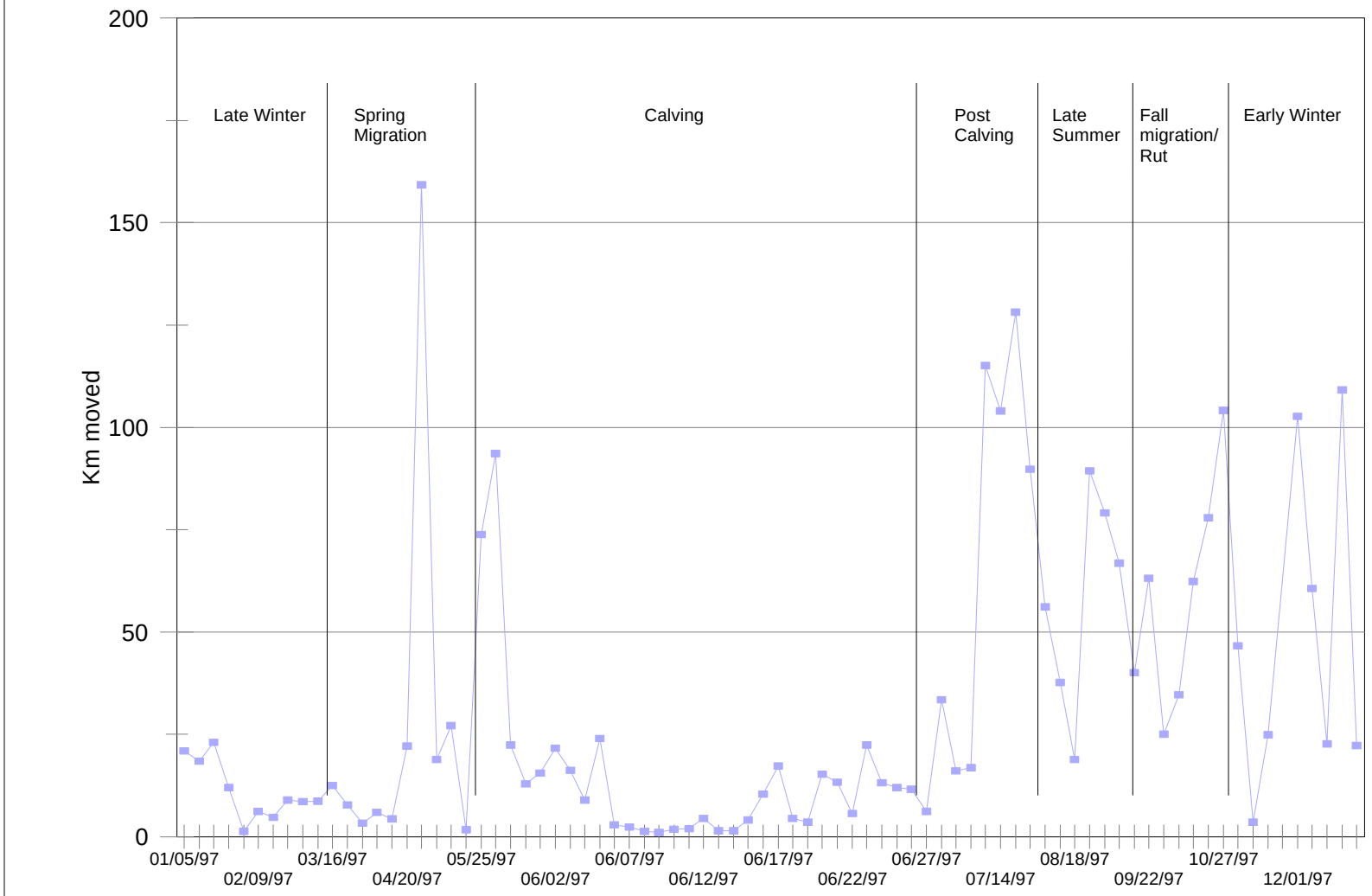
Seasonal Caribou Movement

Female B19b 1996 - 2000



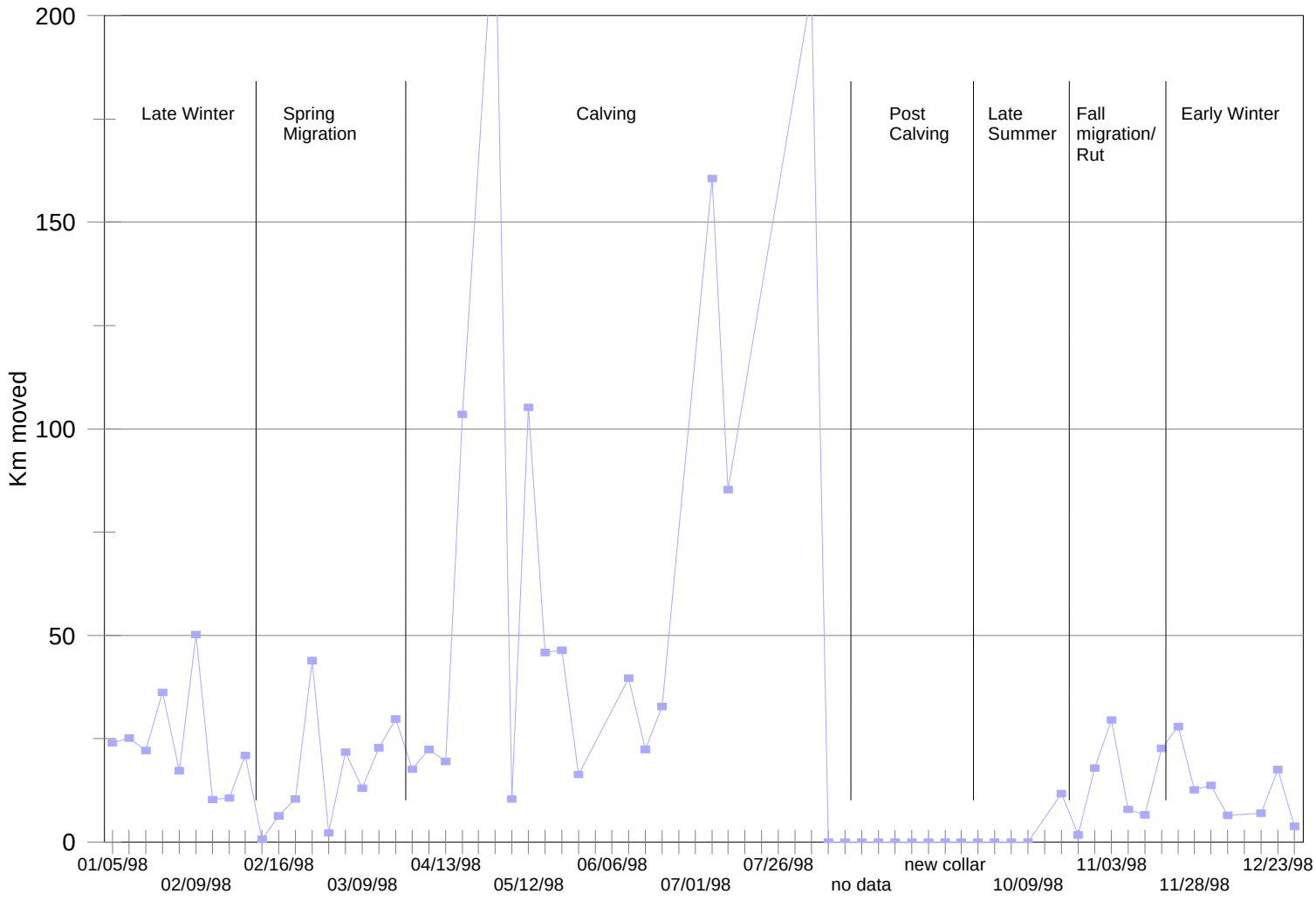
Seasonal Caribou Movement

Female B19b 1996 - 2000 cont'd.



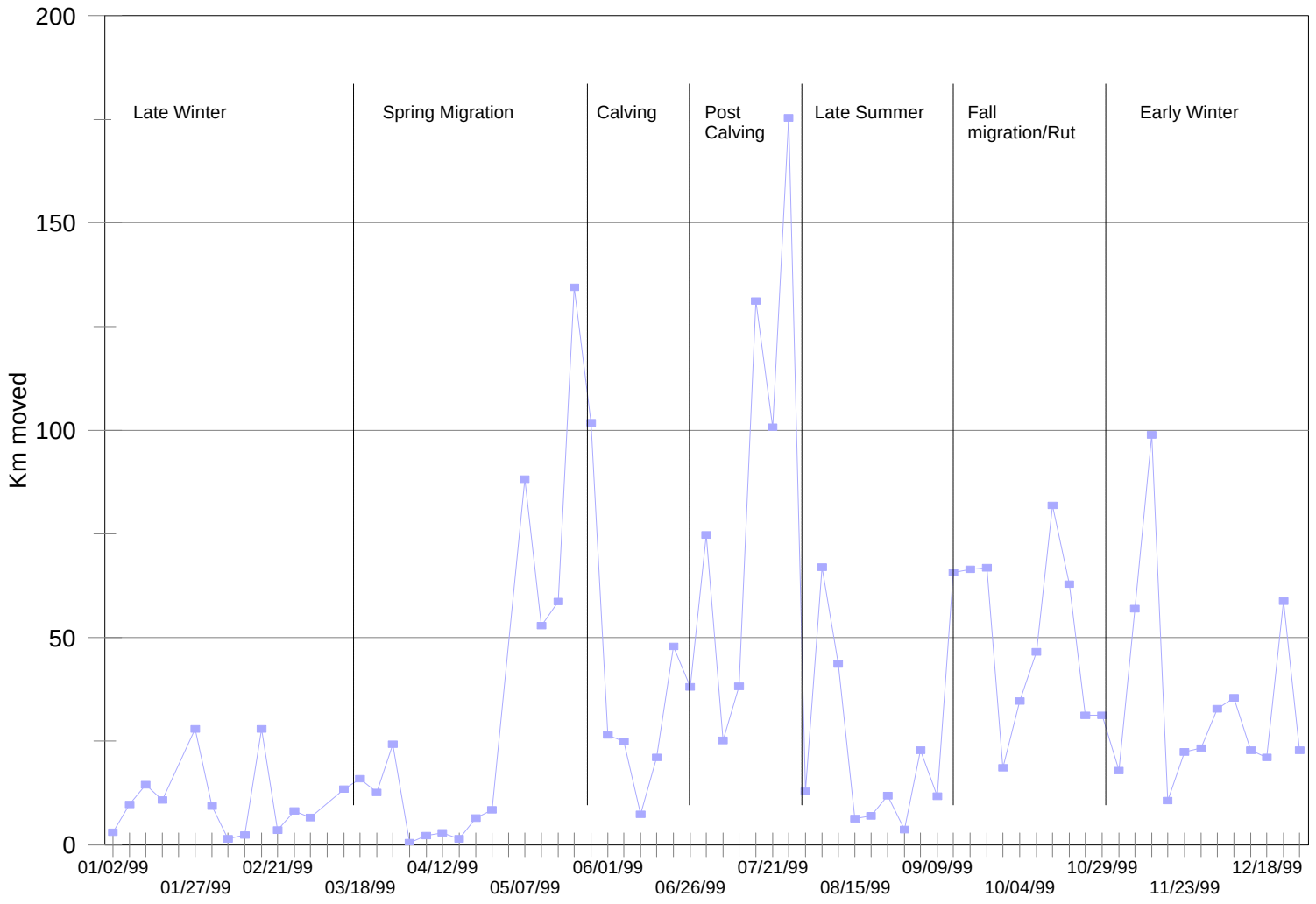
Seasonal Caribou Movement

Female B19b 1996 - 2000 cont'd.



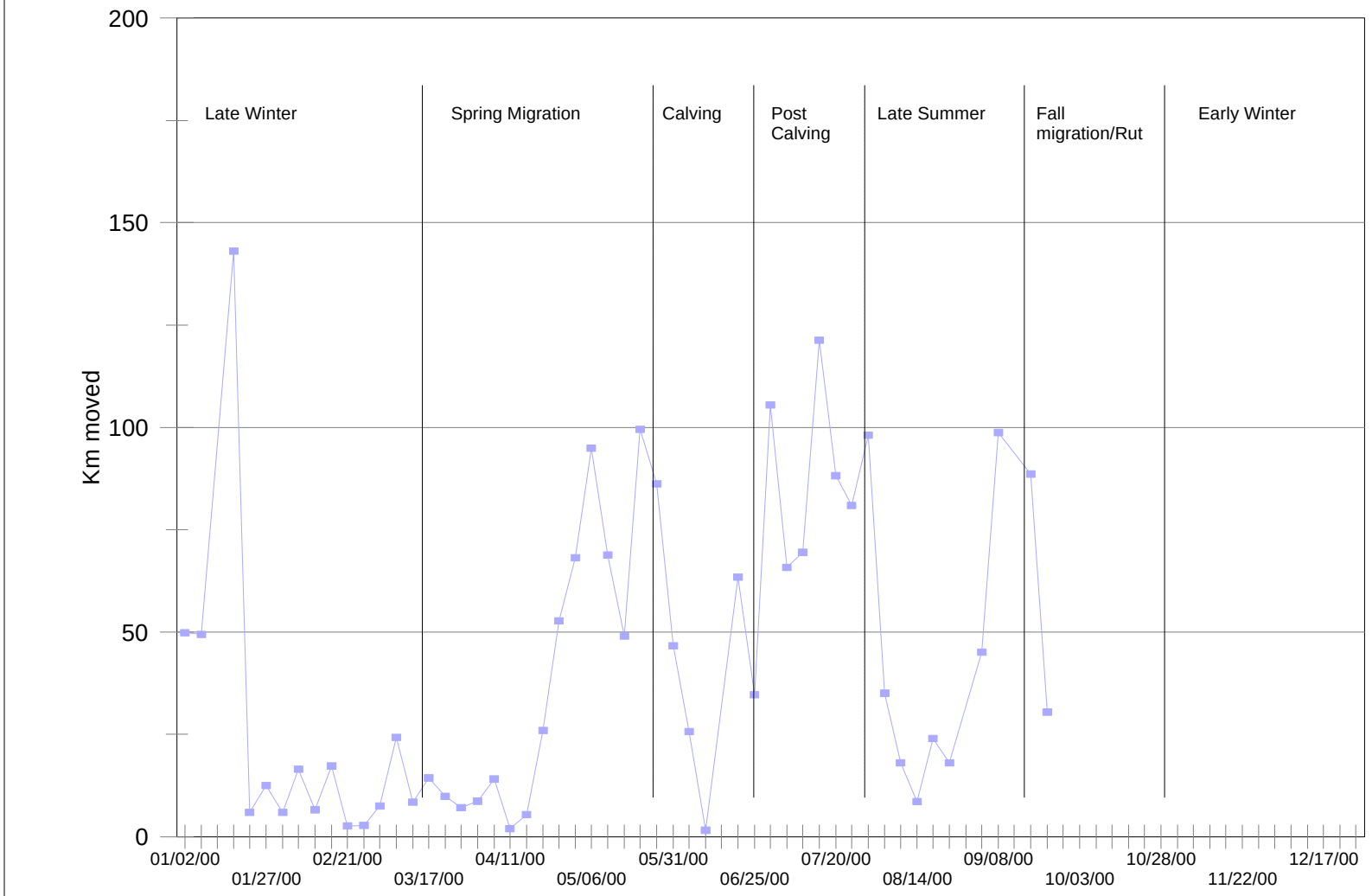
Seasonal Caribou Movement

Female B19b 1996 - 2000 cont'd.



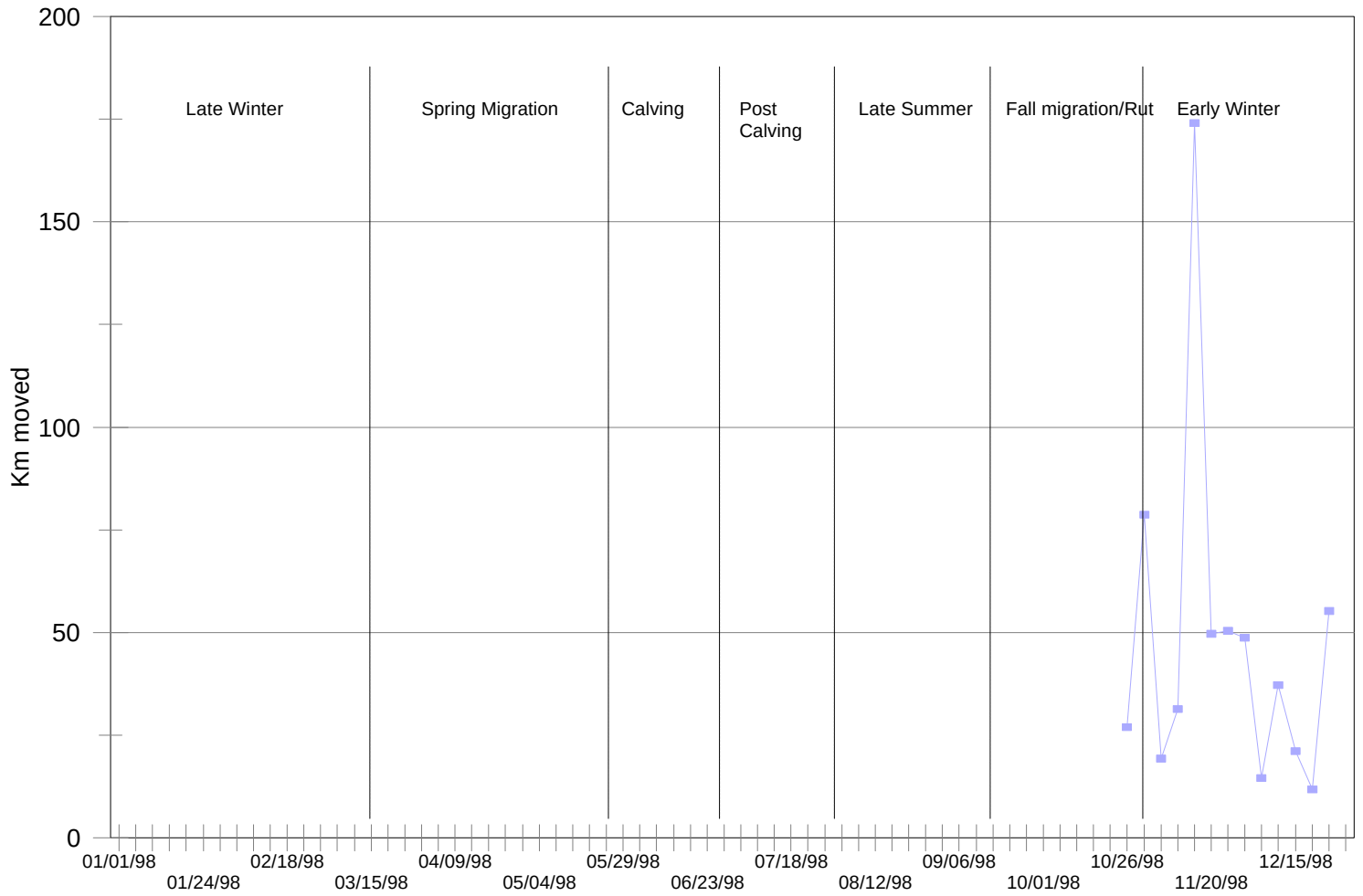
Seasonal Caribou Movement

Female B19b 1996 - 2000 cont'd.



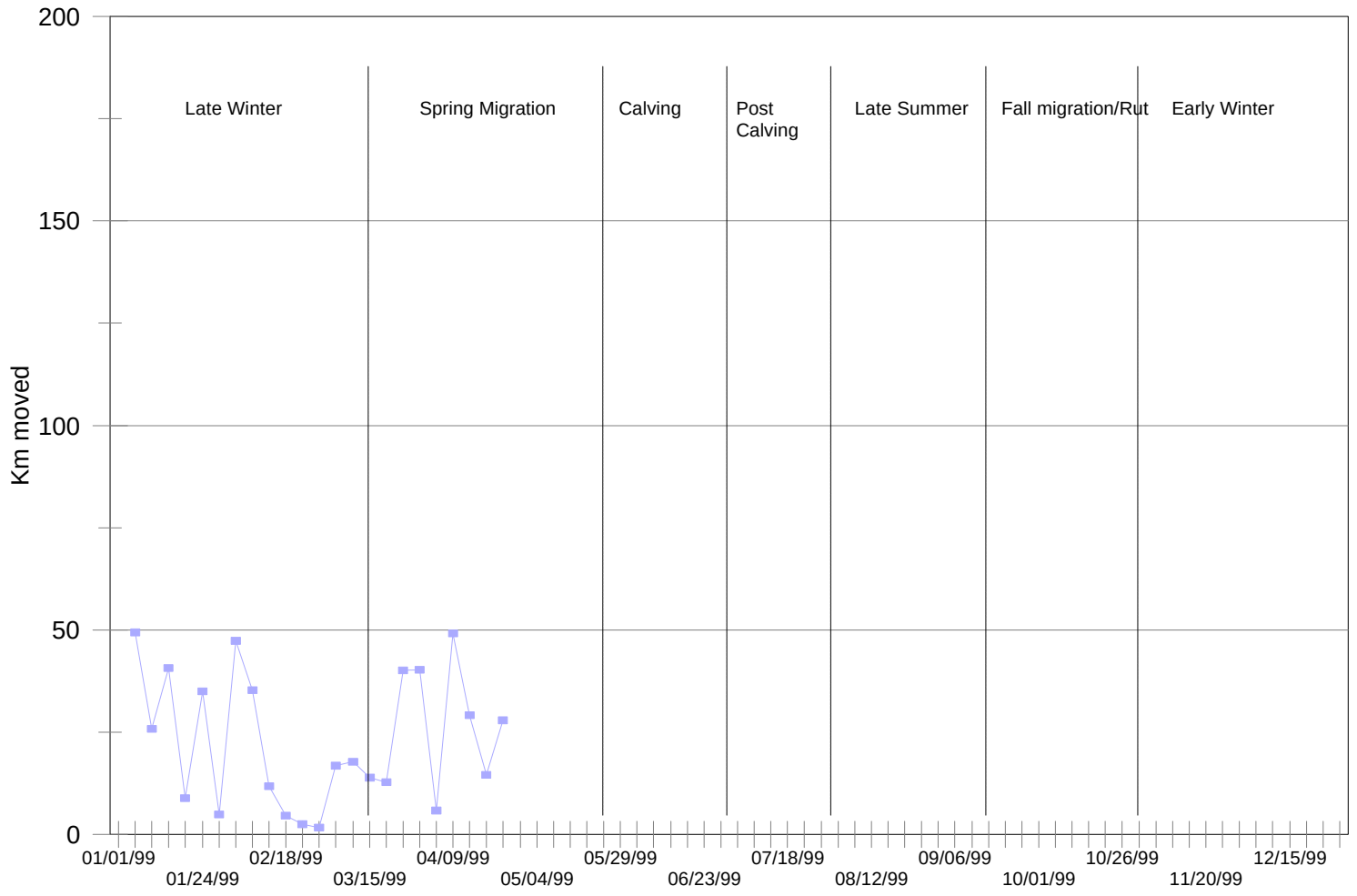
Seasonal Caribou Movement

Female B20 1998 -1999



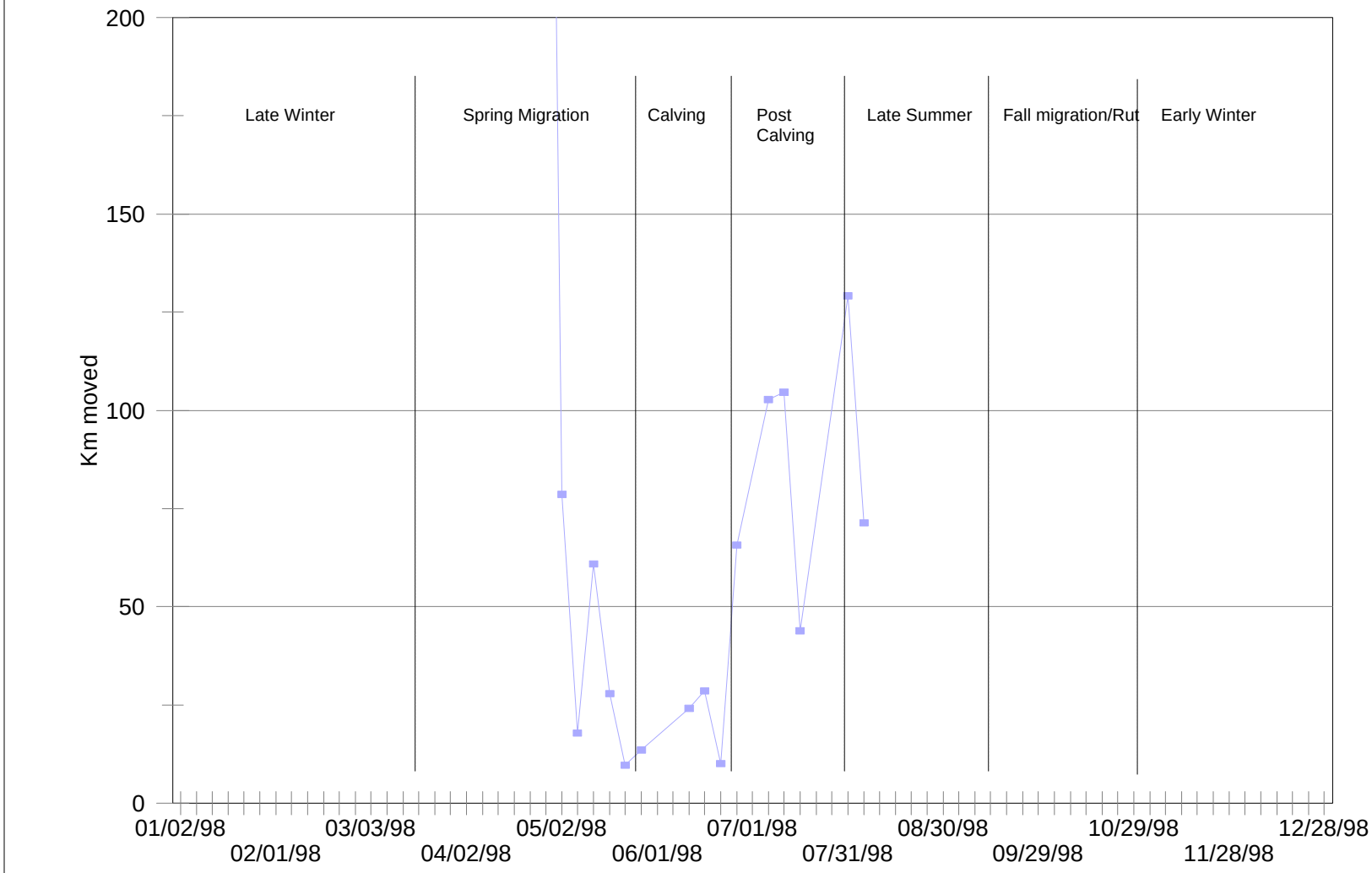
Seasonal Caribou Movement

Female B20 1998 -1999 cont'd.



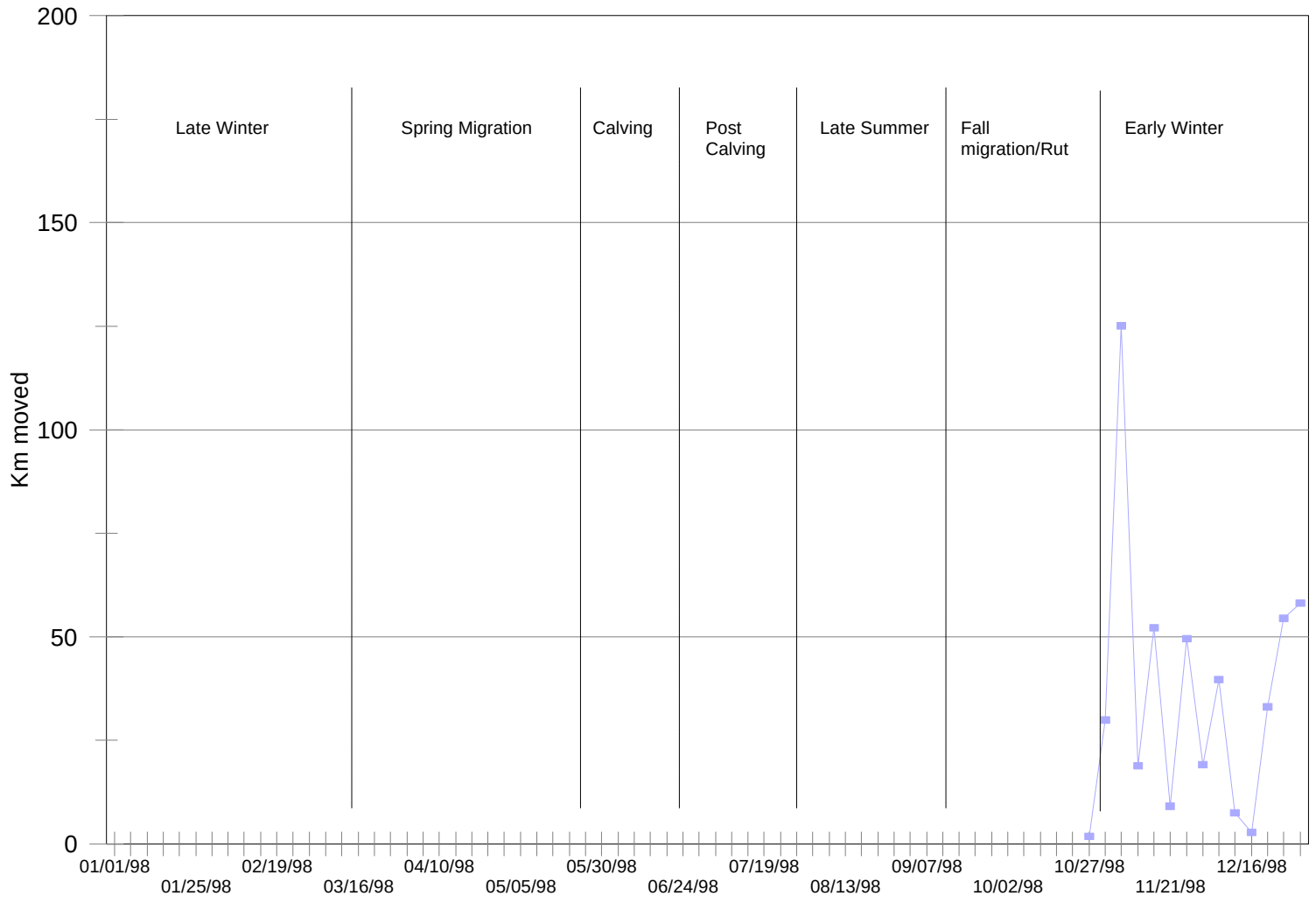
Seasonal Caribou Movement

Female B21 1998



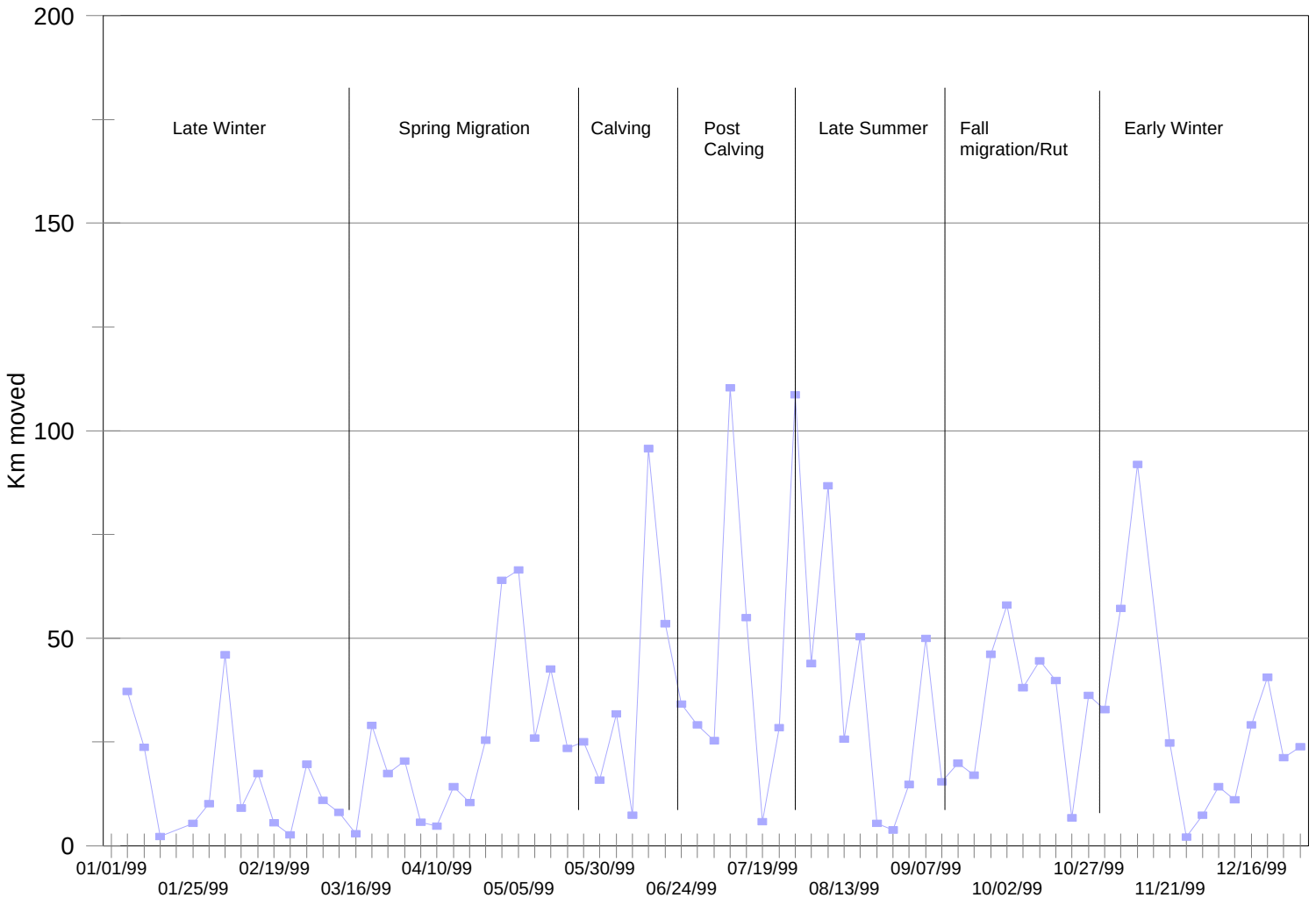
Seasonal Caribou Movement

Female B22 1998 - 2000



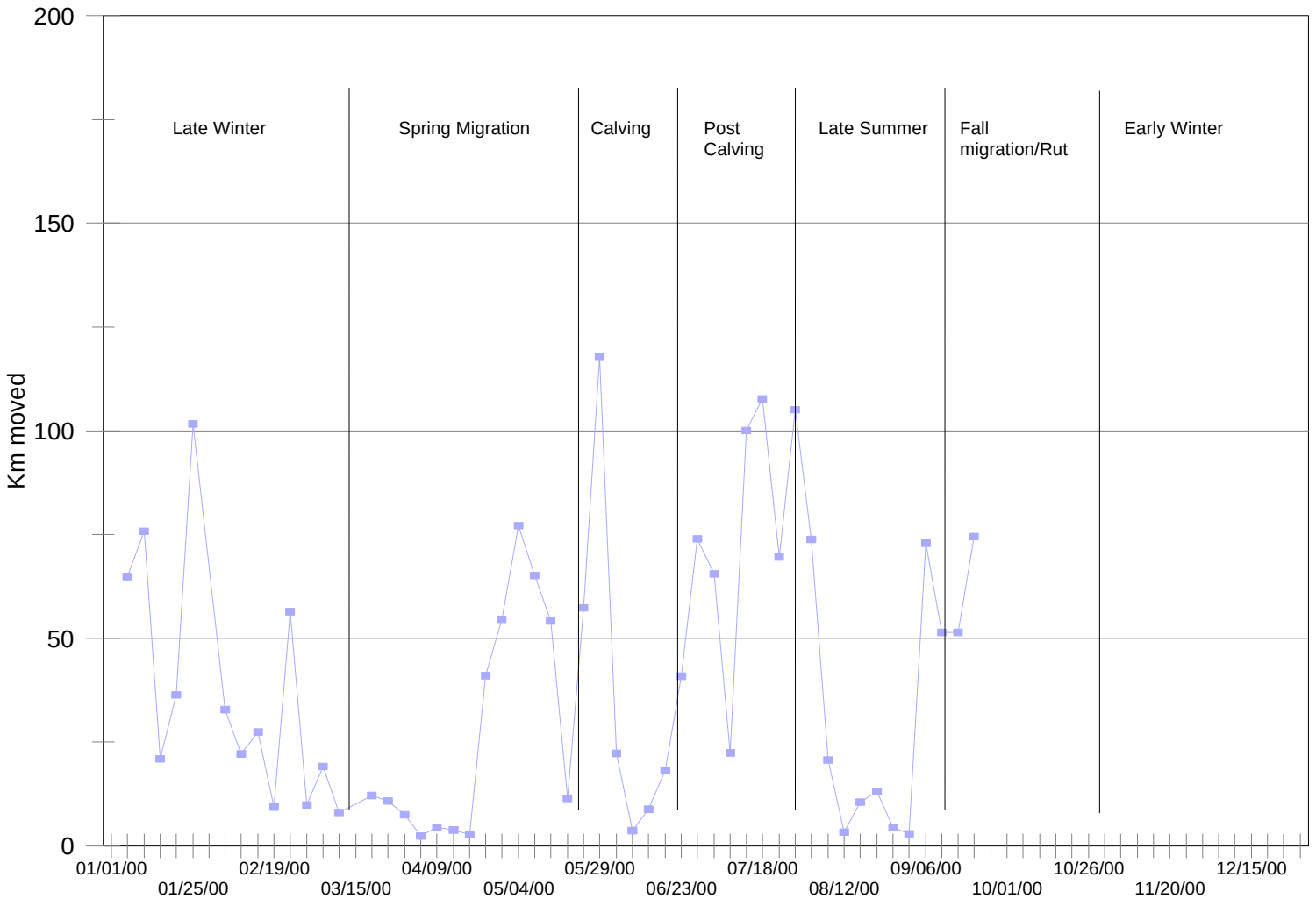
Seasonal Caribou Movement

Female B22 1998 - 2000 cont'd.



Seasonal Caribou Movement

Female B22 1998 - 2000 cont'd.

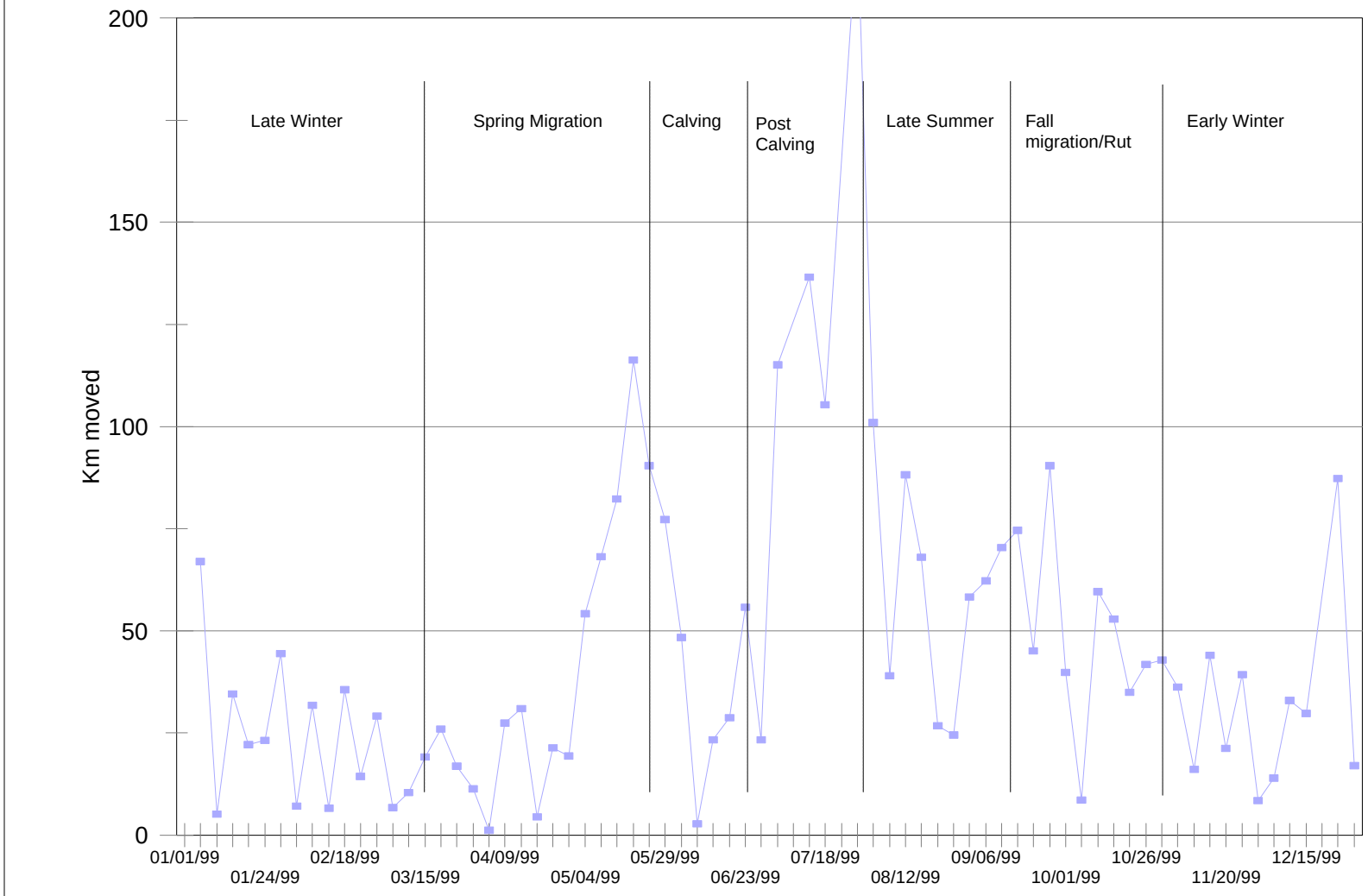


Seasonal Caribou Movement

Female B23 1998 - 2000

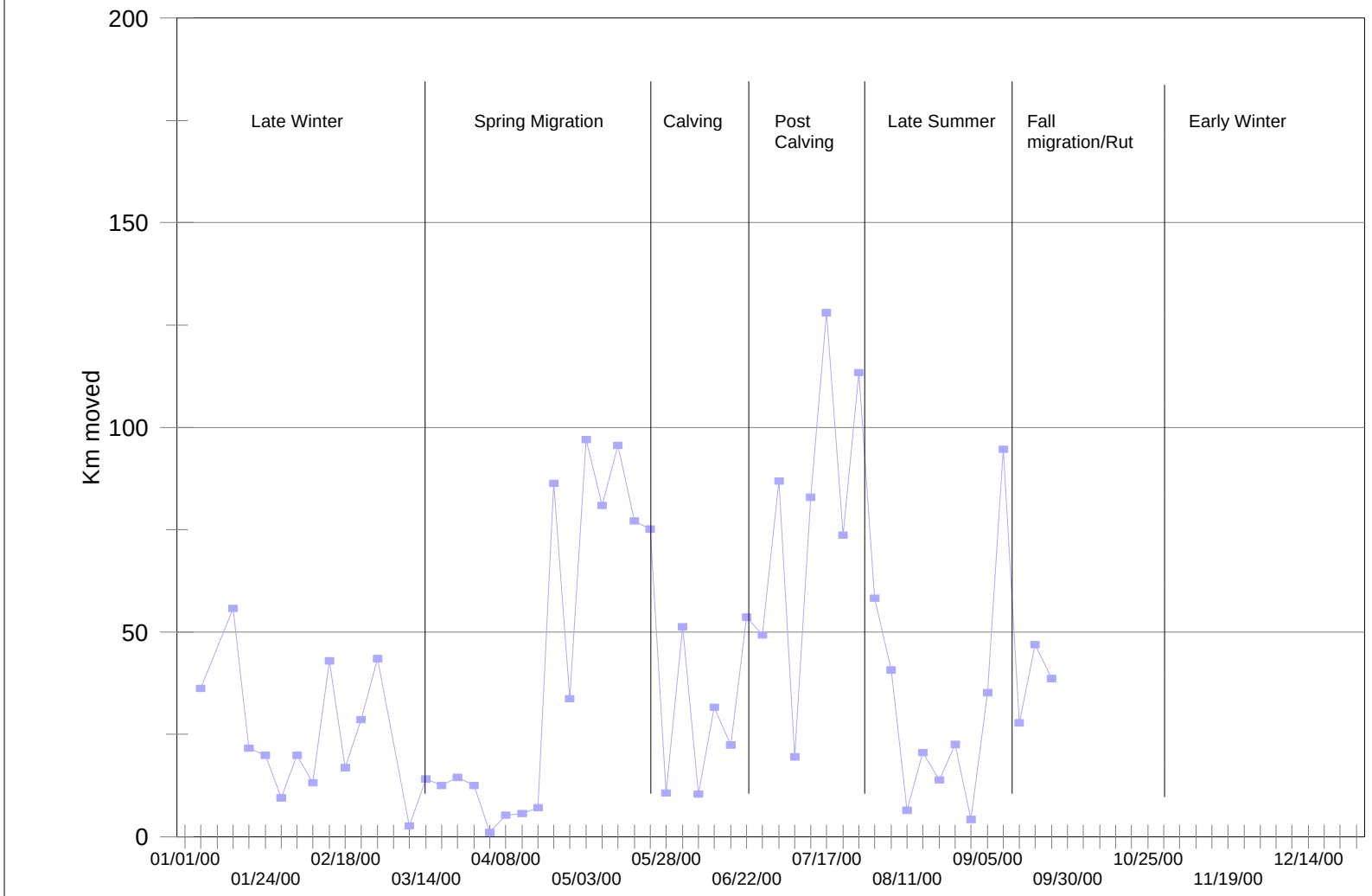
Seasonal Caribou Movement

Female B23 1998 - 2000 cont'd.



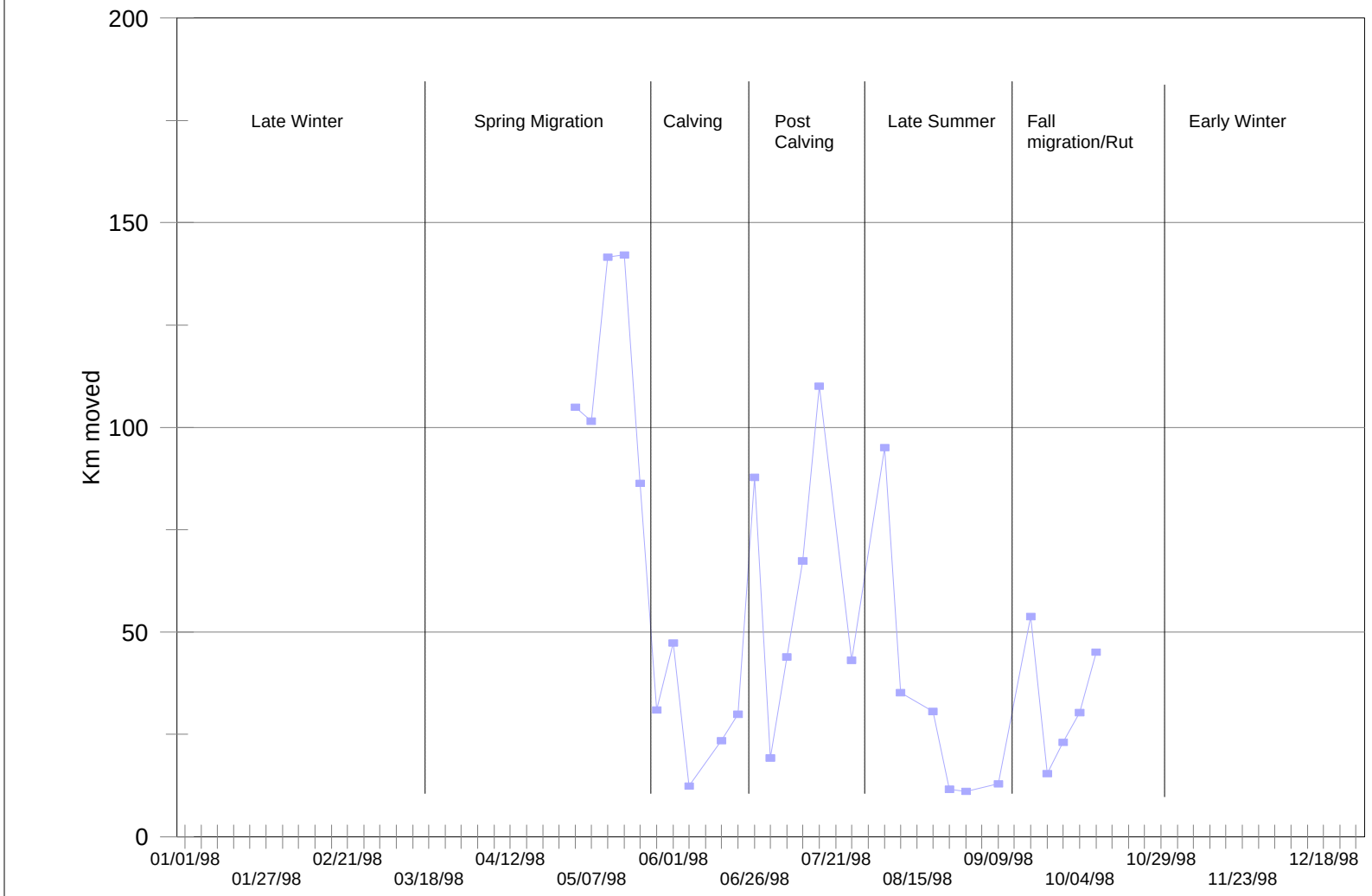
Seasonal Caribou Movement

Female B23 1998 - 2000 cont'd.



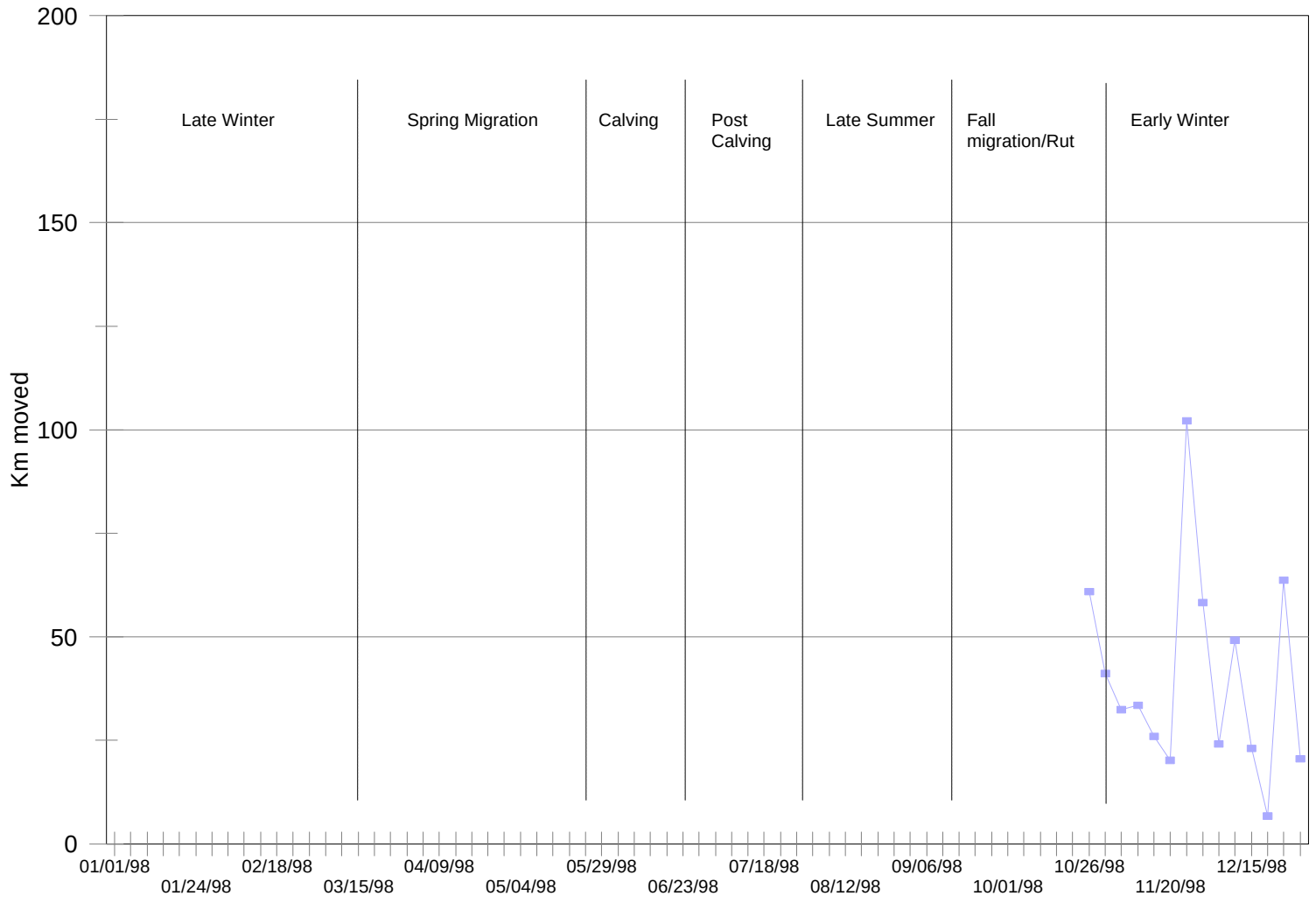
Seasonal Caribou Movement

Female B24 1998



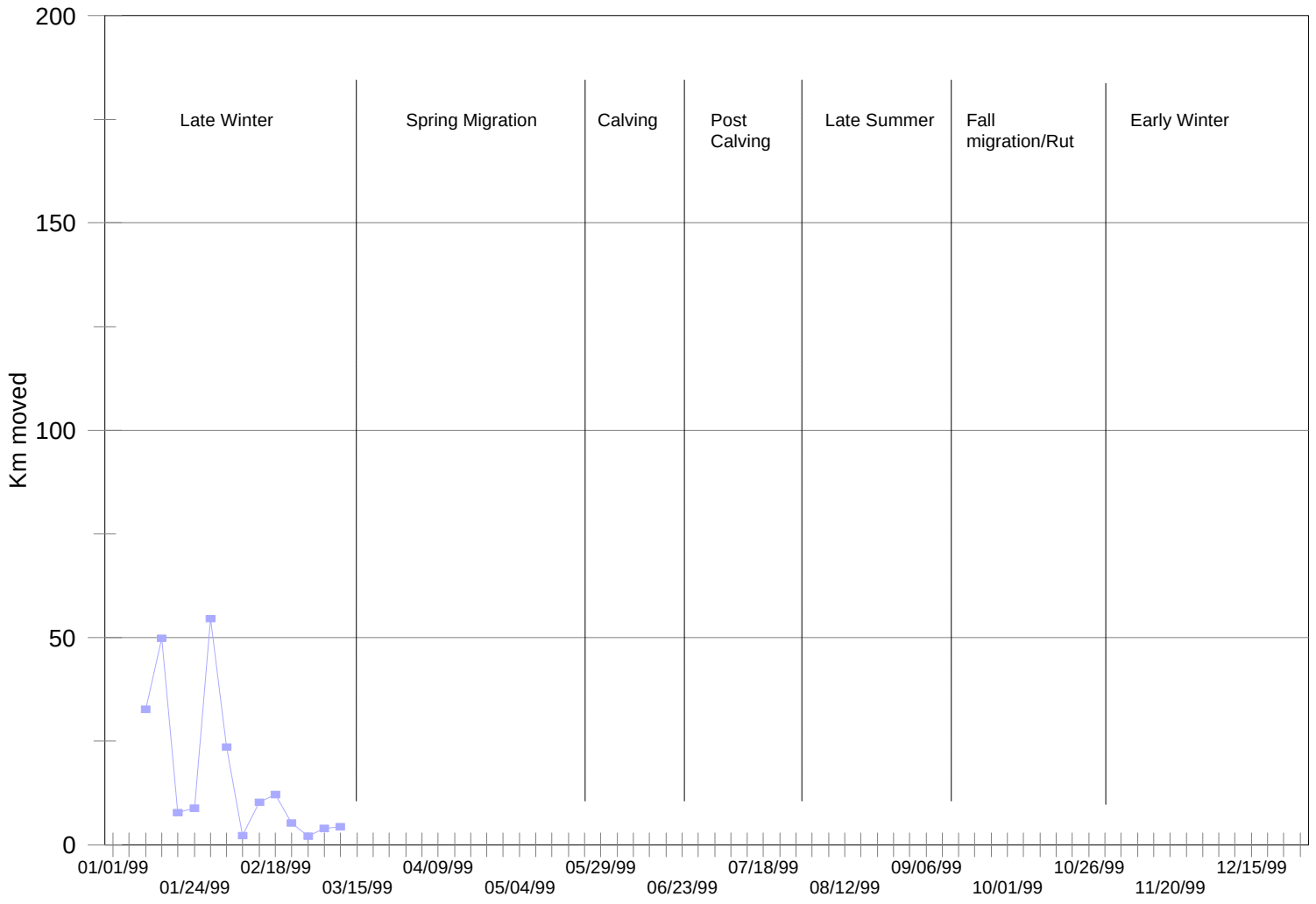
Seasonal Caribou Movement

Female B25 1998 - 1999



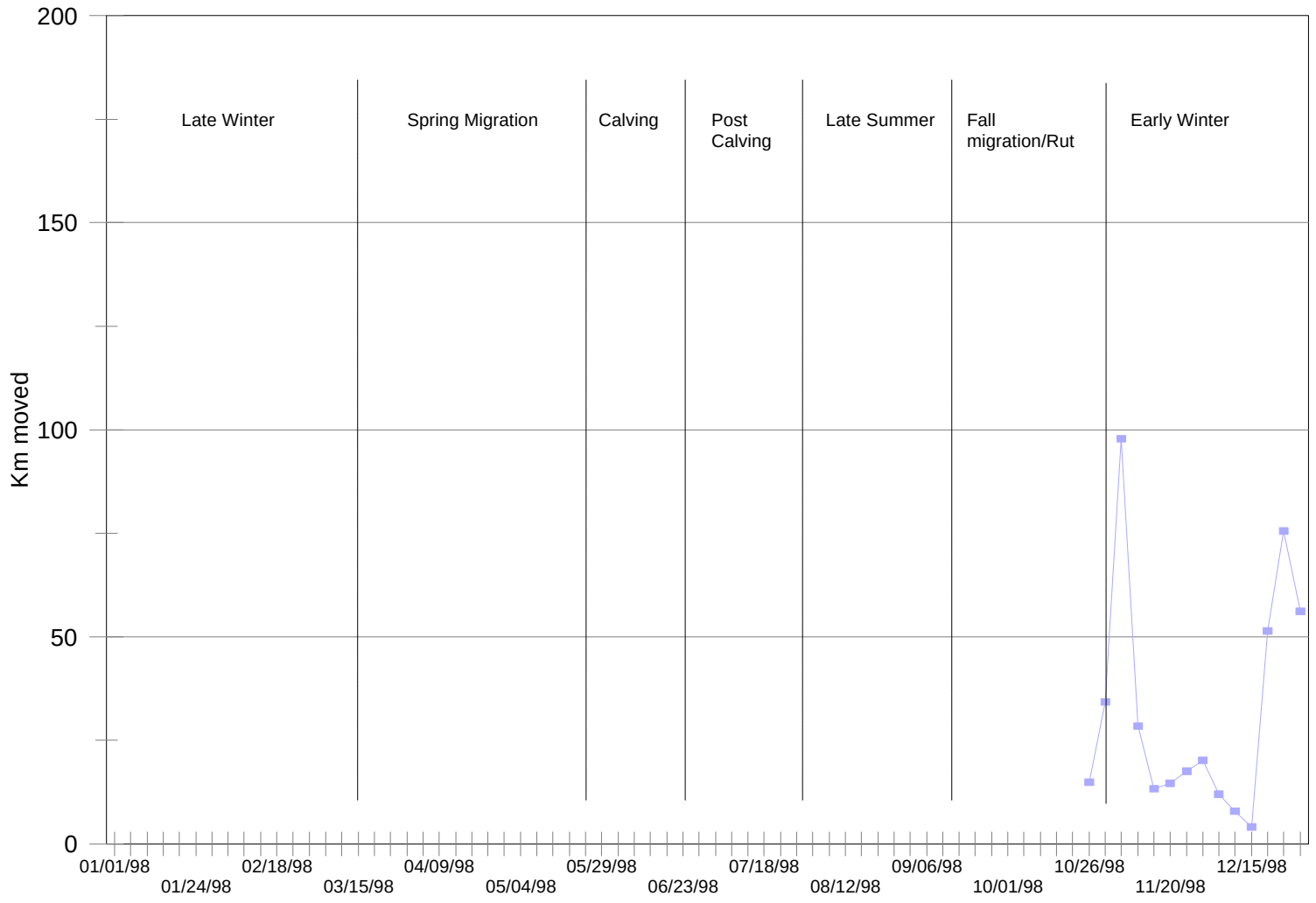
Seasonal Caribou Movement

Female B25 1998 - 1999 cont'd.



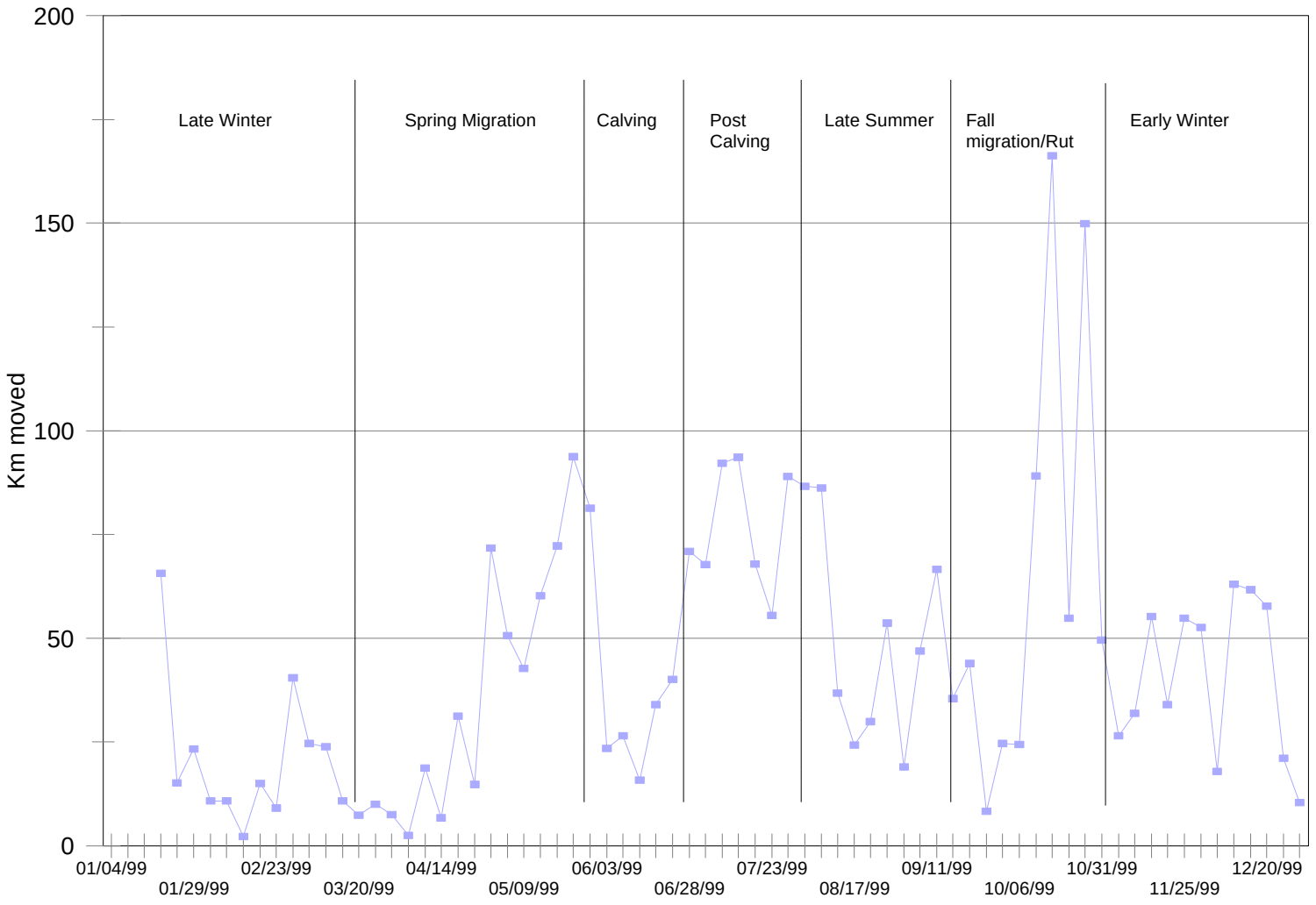
Seasonal Caribou Movement

Female B26 1998 - 2000



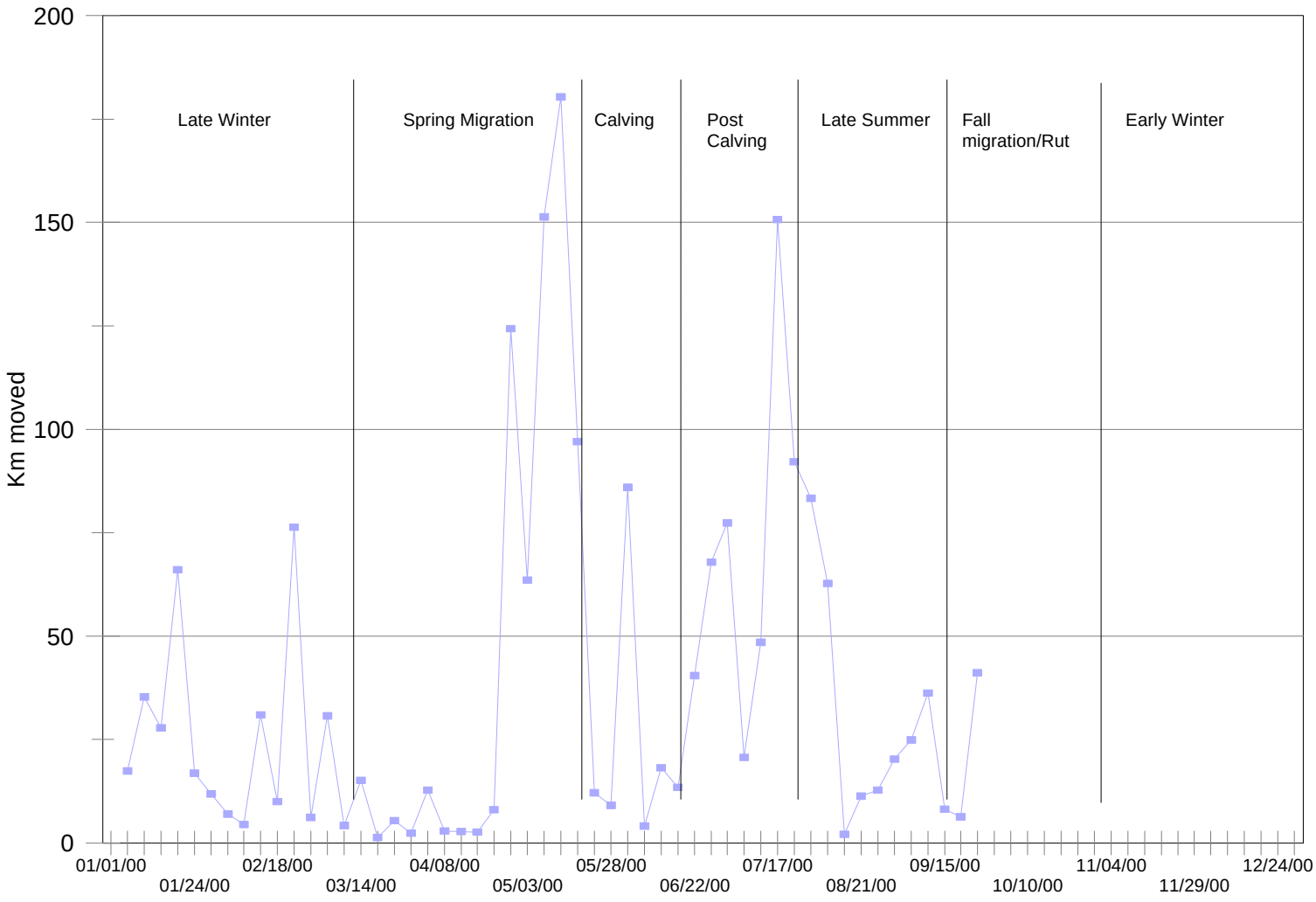
Seasonal Caribou Movement

Female B26 1998 - 2000 cont'd.



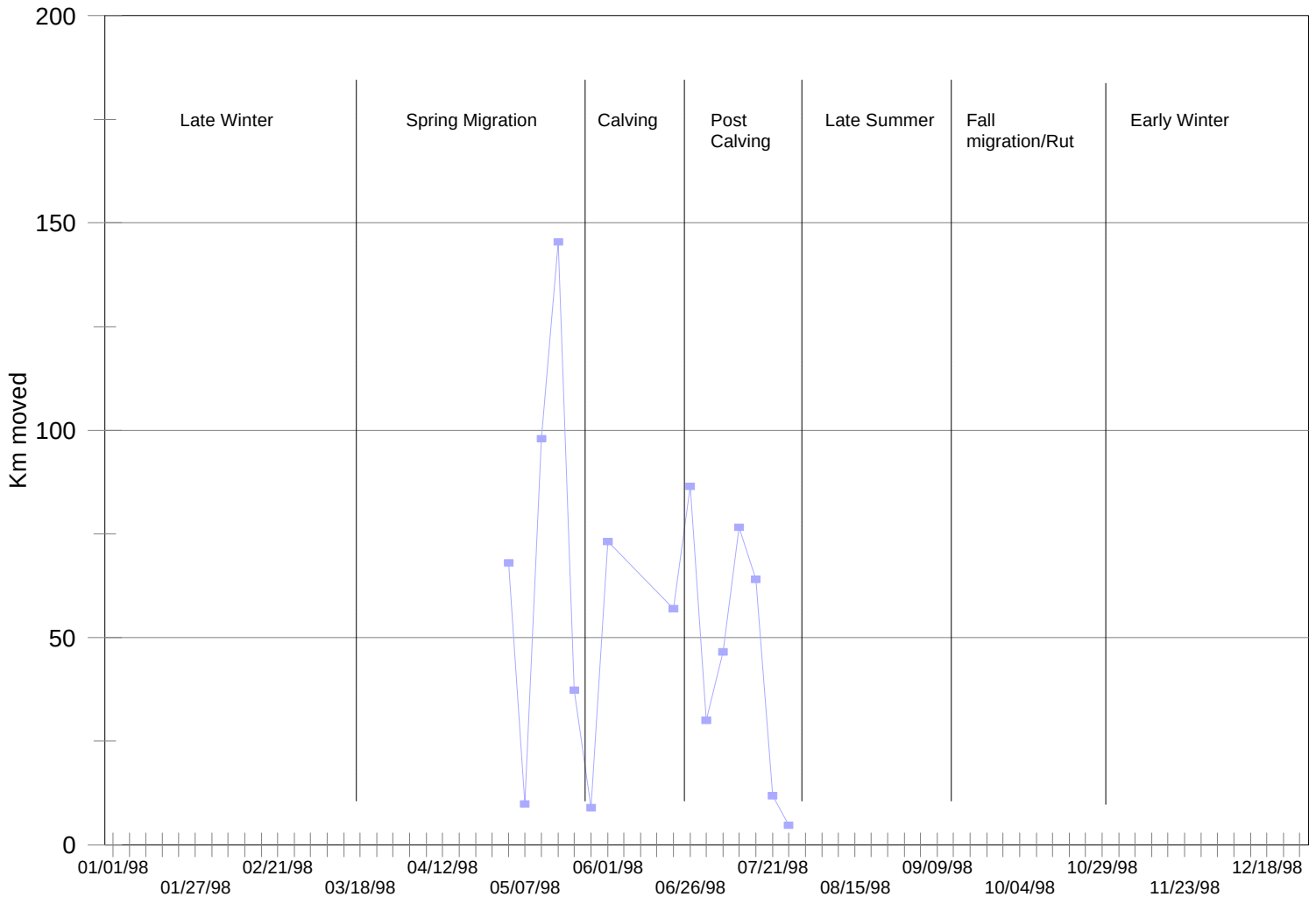
Seasonal Caribou Movement

Female B26 1998 - 2000 cont'd.



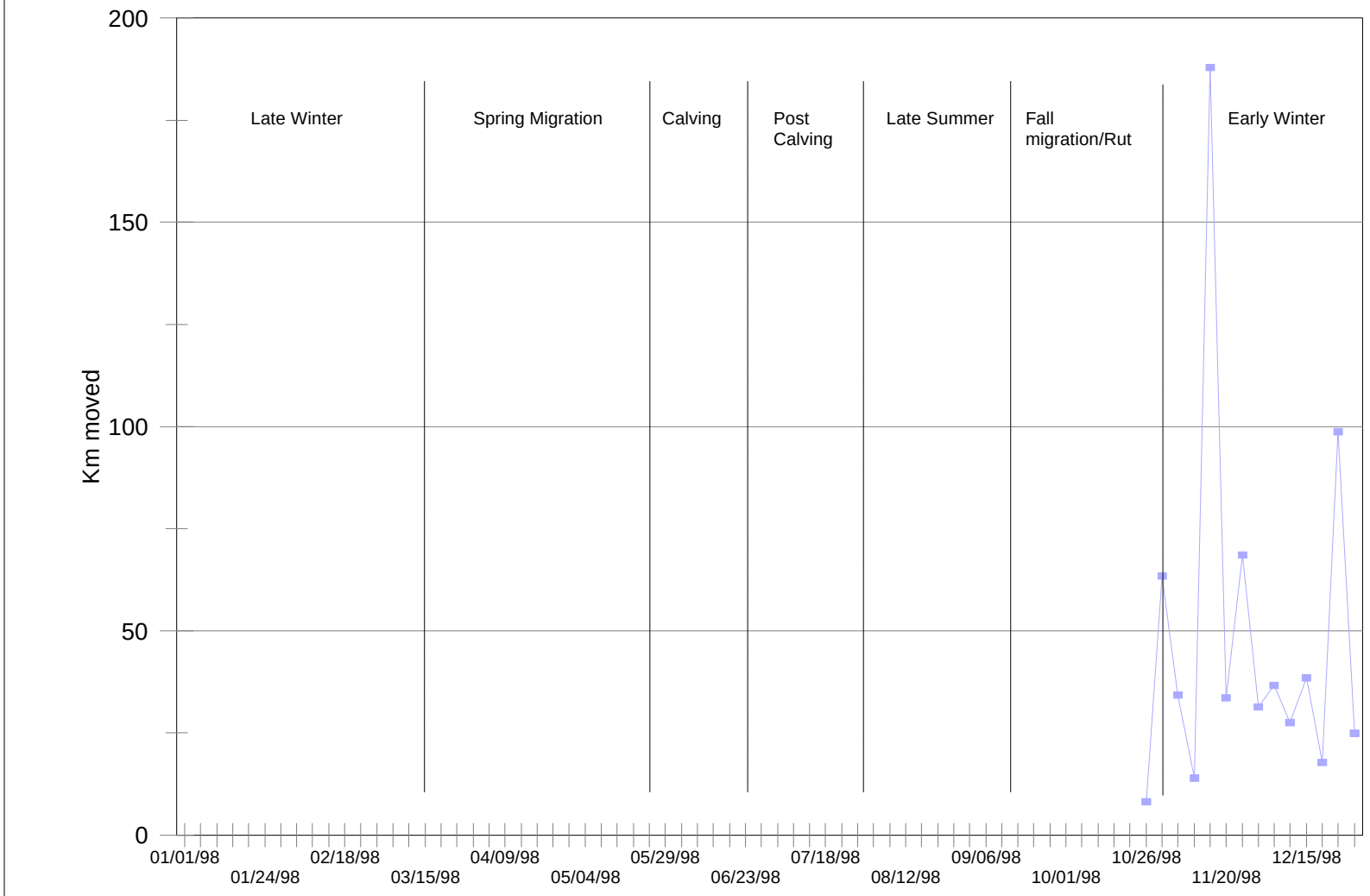
Seasonal Caribou Movement

Female B27 1998



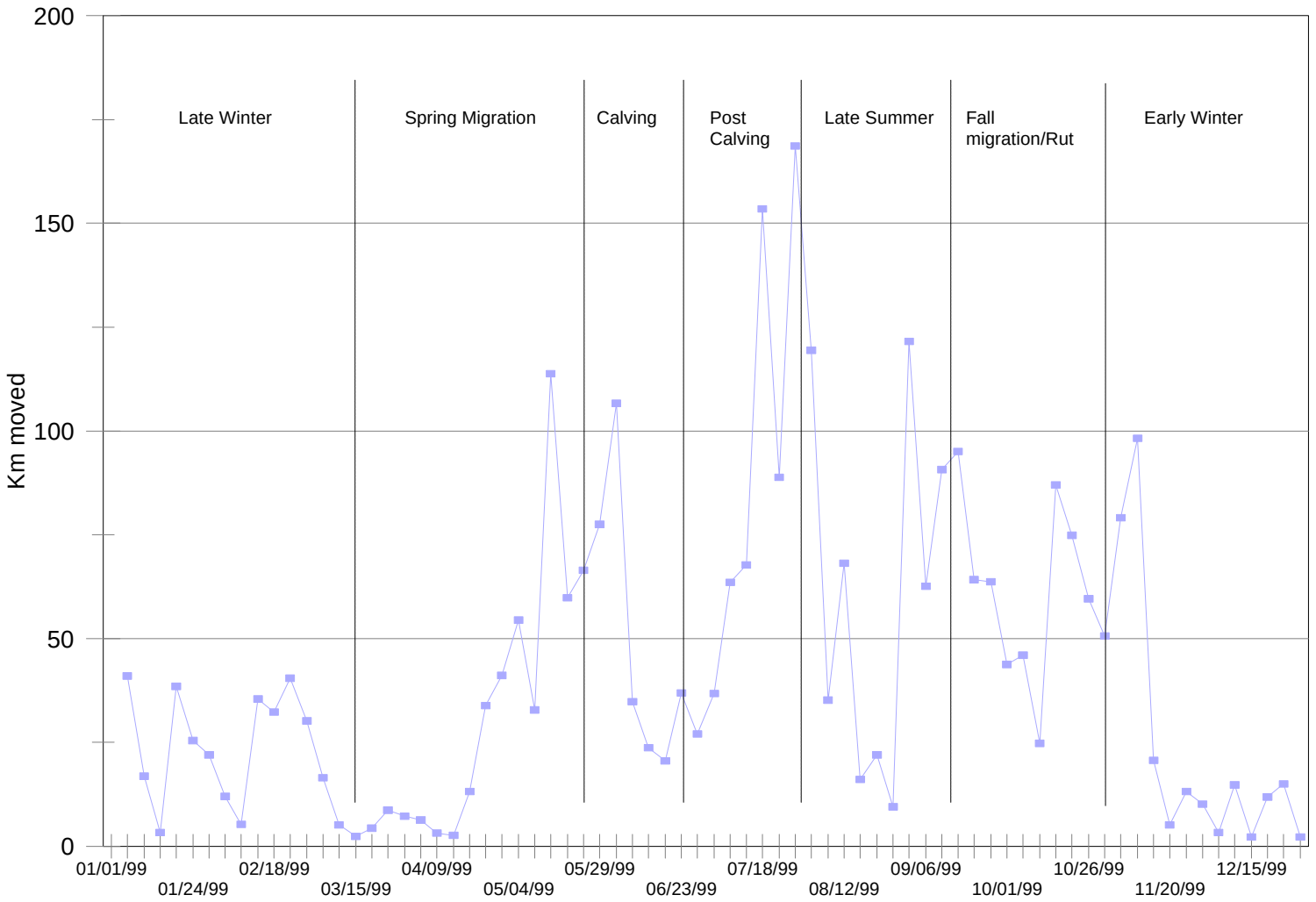
Seasonal Caribou Movement

Female B28 1998 - 2000



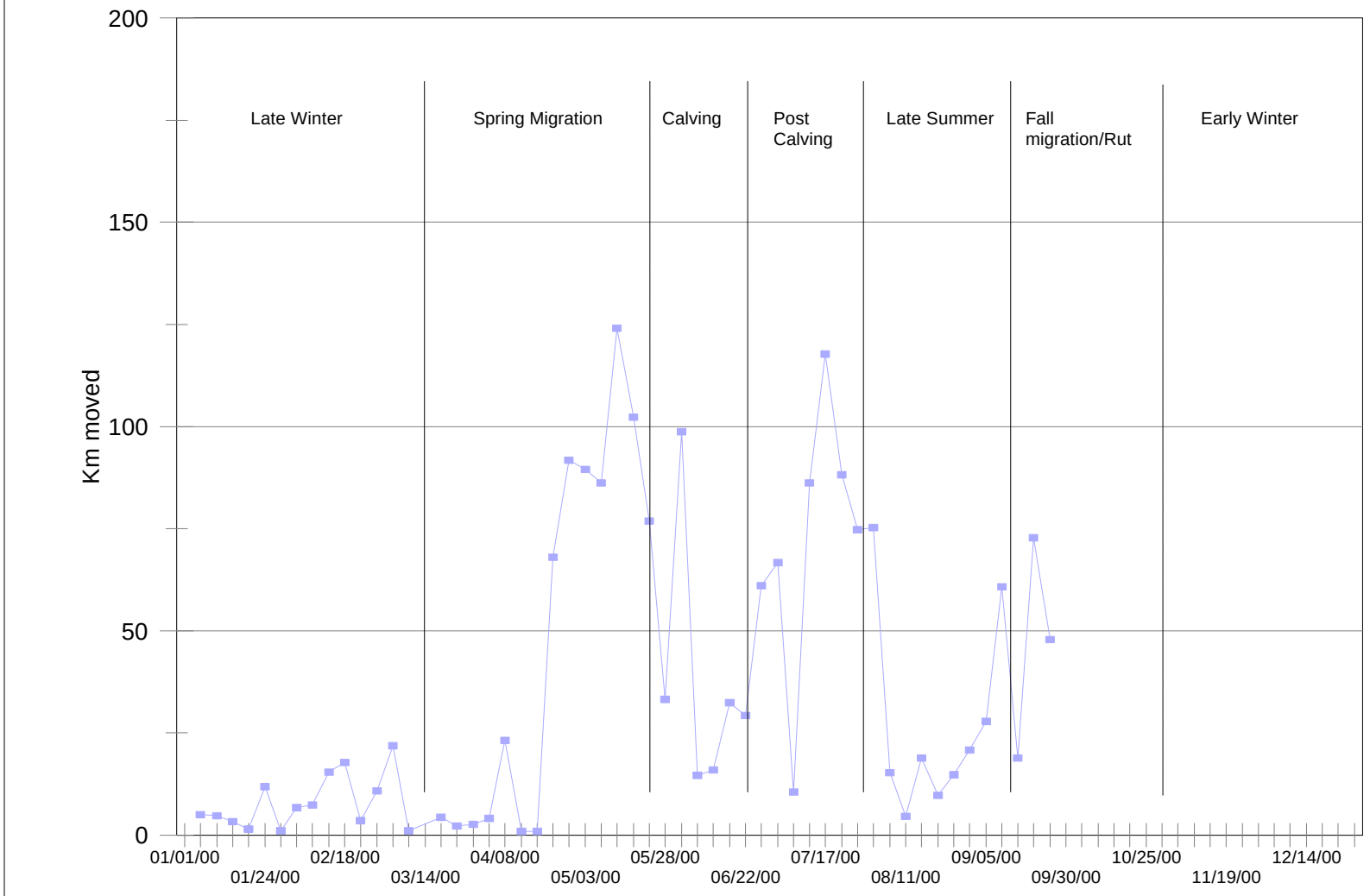
Seasonal Caribou Movement

Female B28 1998 - 2000 cont'd.



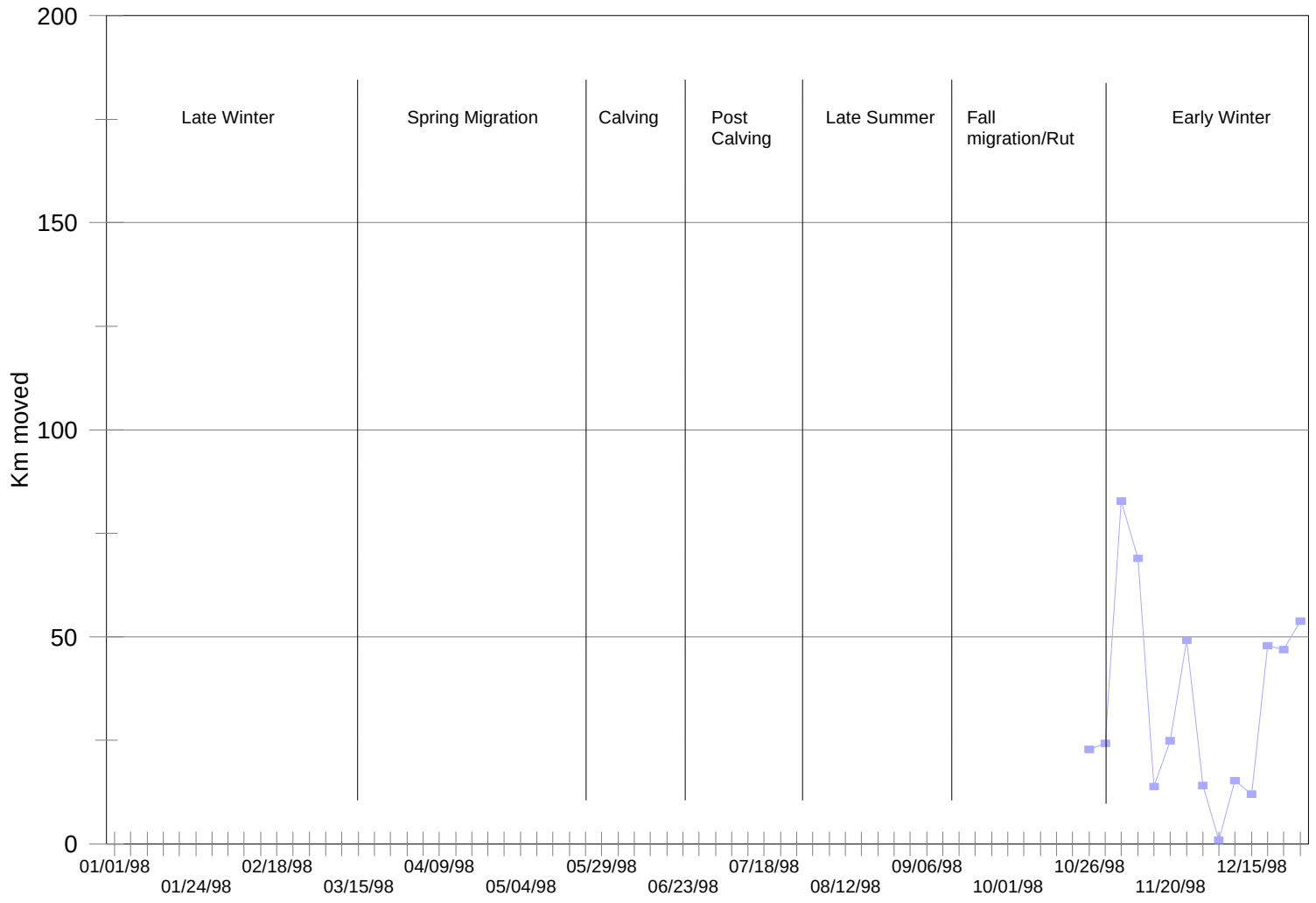
Seasonal Caribou Movement

Female B28 1998 - 2000 cont'd.



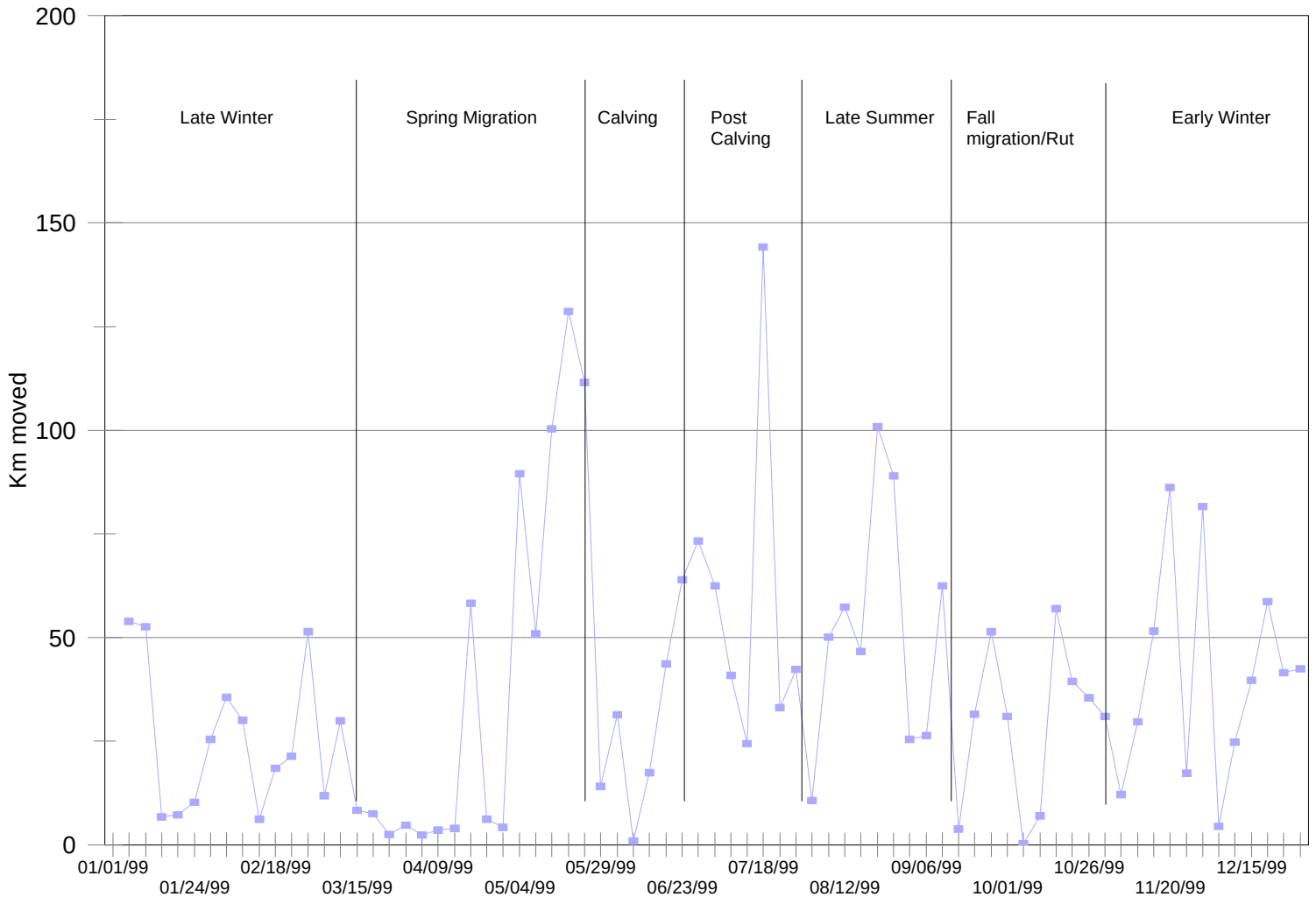
Seasonal Caribou Movement

Female B29 1998 - 2000



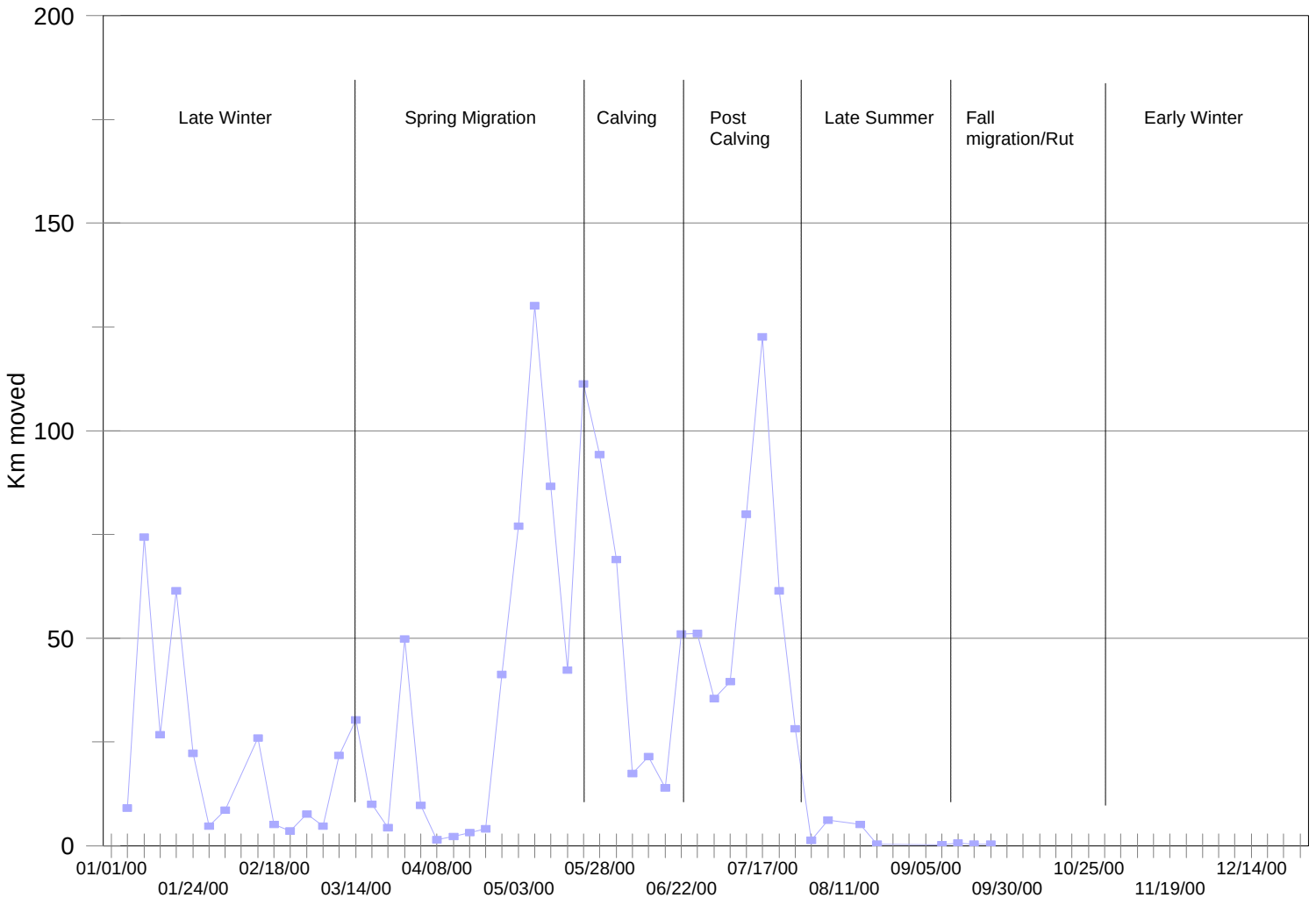
Seasonal Caribou Movement

Female B29 1998 - 2000 cont'd.



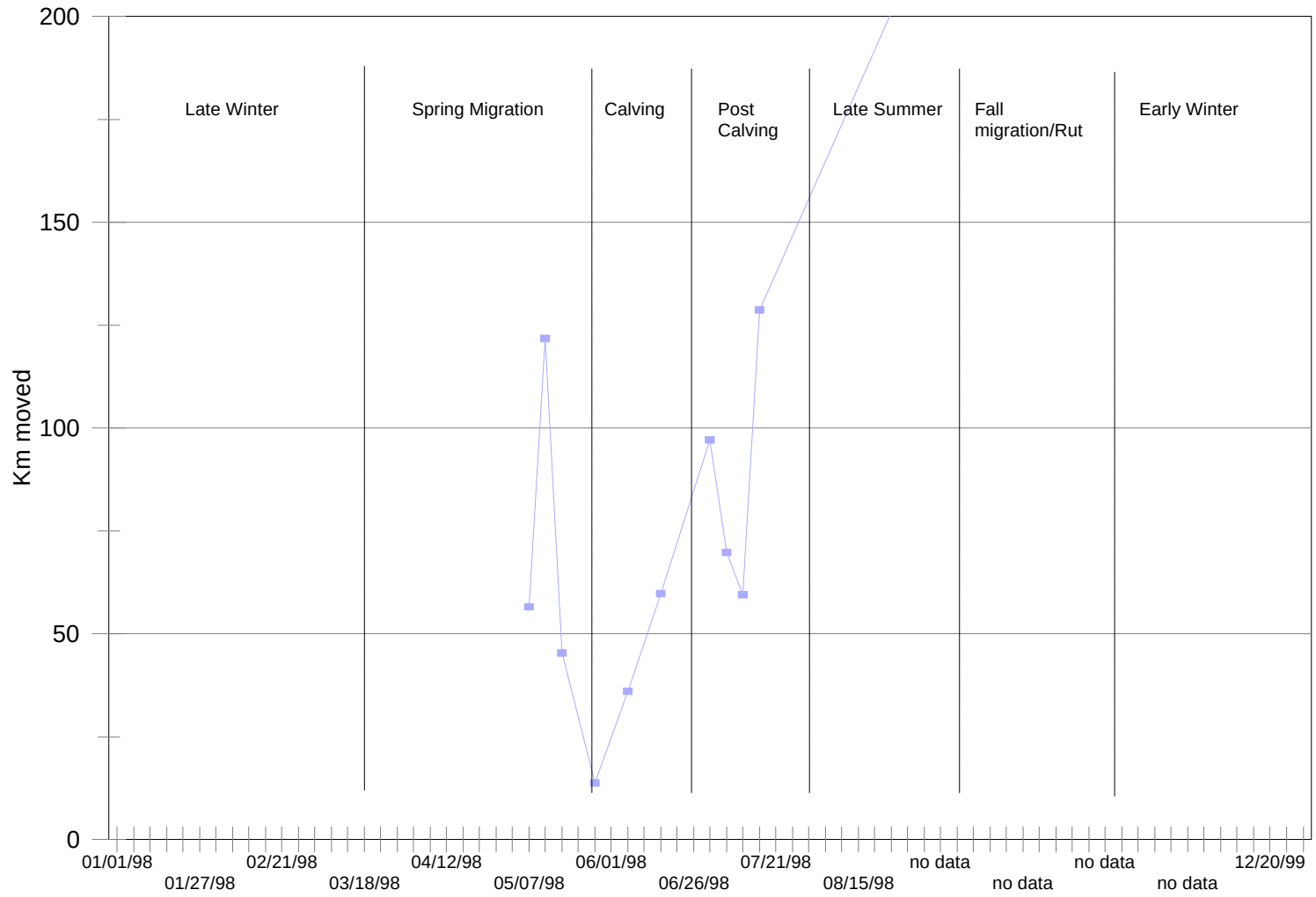
Seasonal Caribou Movement

Female B29 1998 - 2000 cont'd.



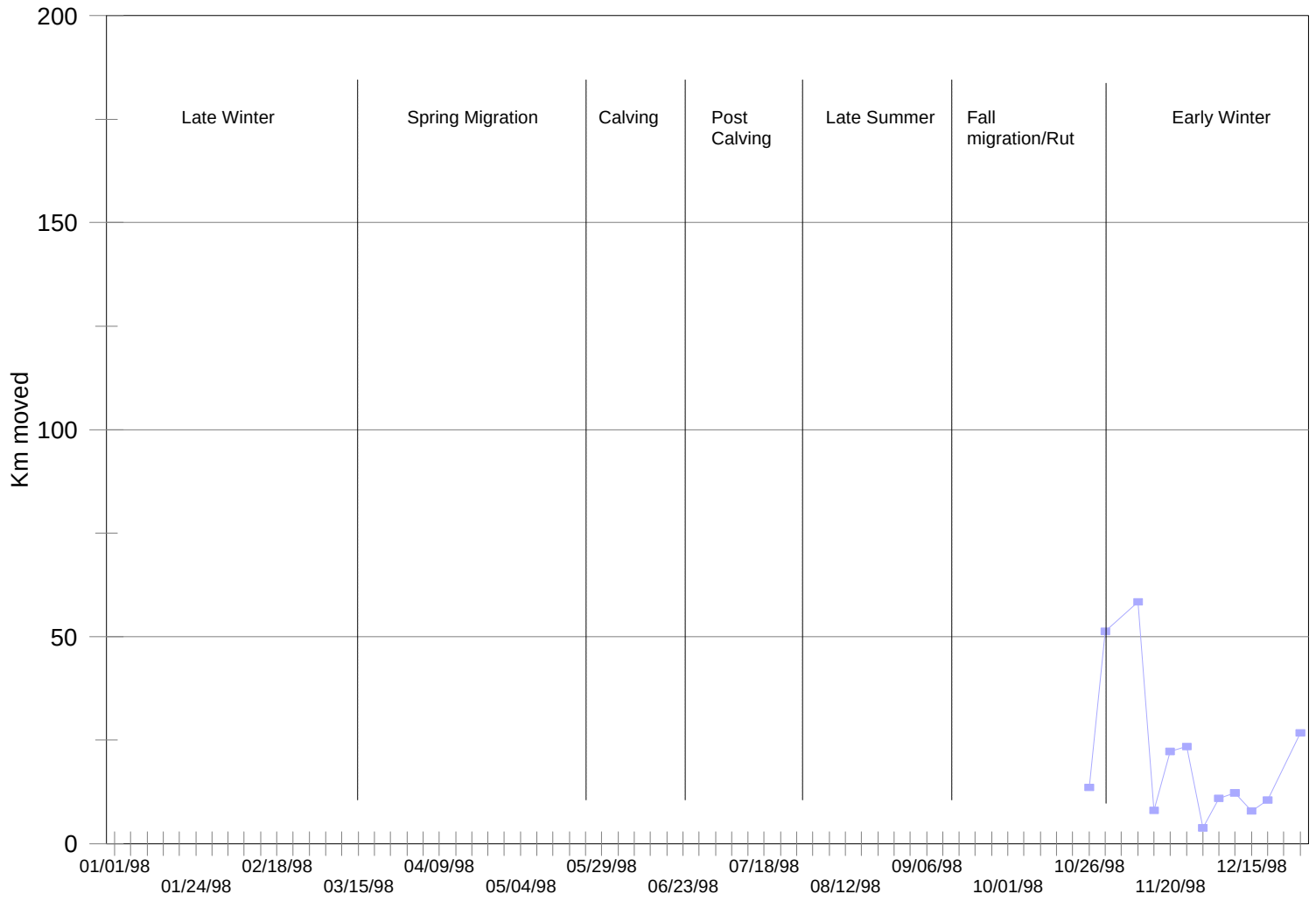
Seasonal Caribou Movement

Female B301998



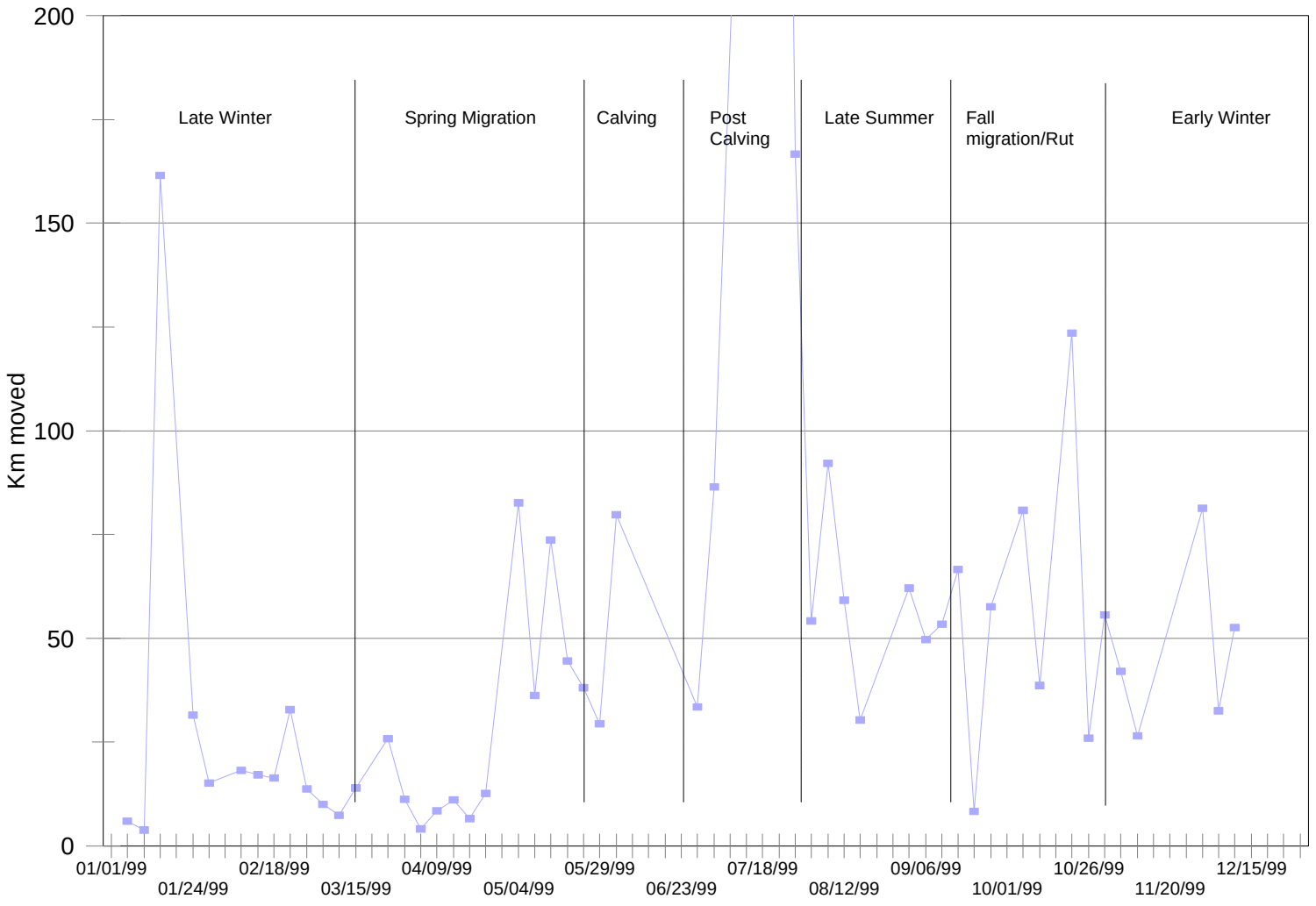
Seasonal Caribou Movement

Female B31 1998 - 2000



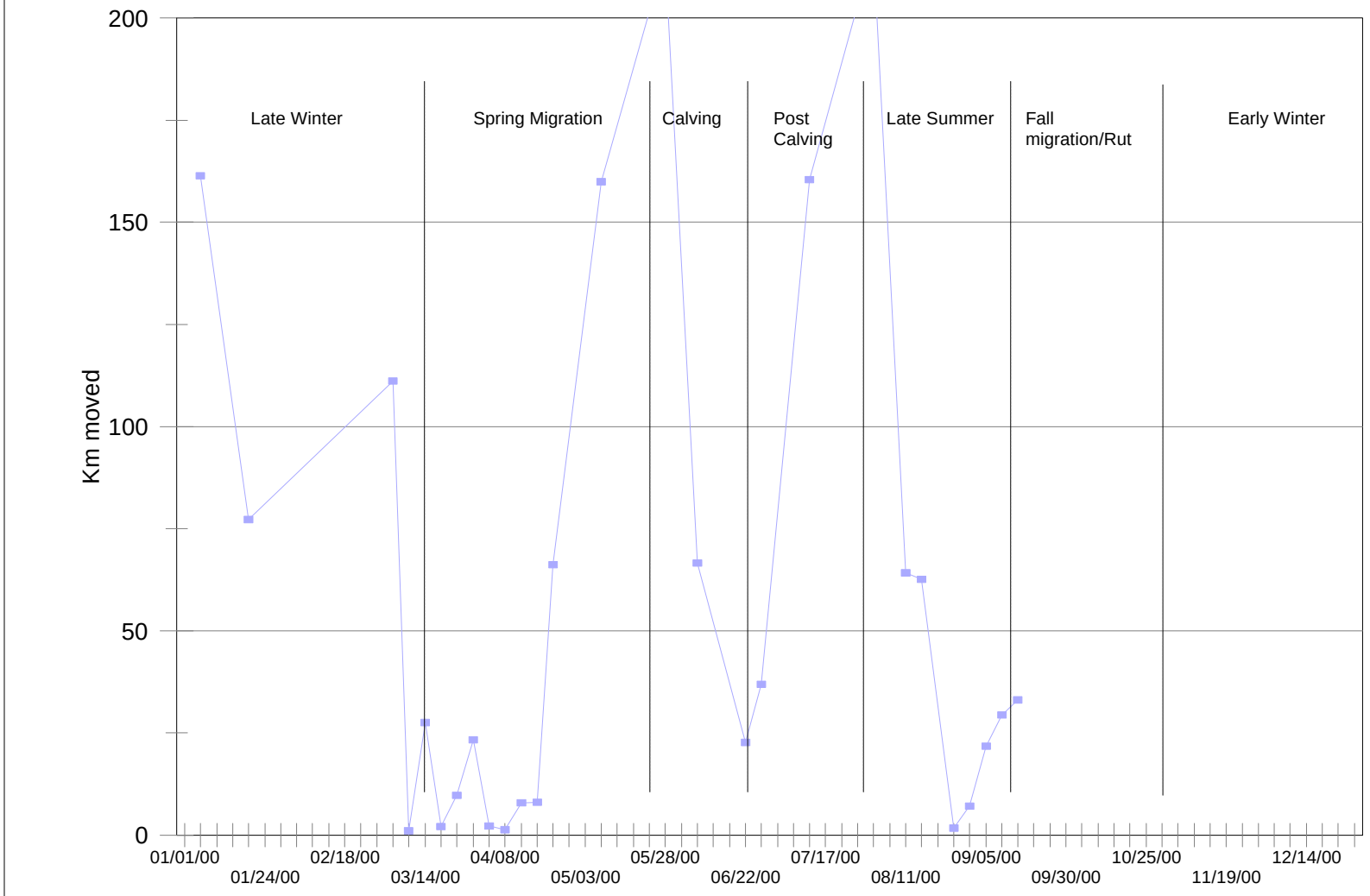
Seasonal Caribou Movement

Female B31 1998 - 2000 cont'd.



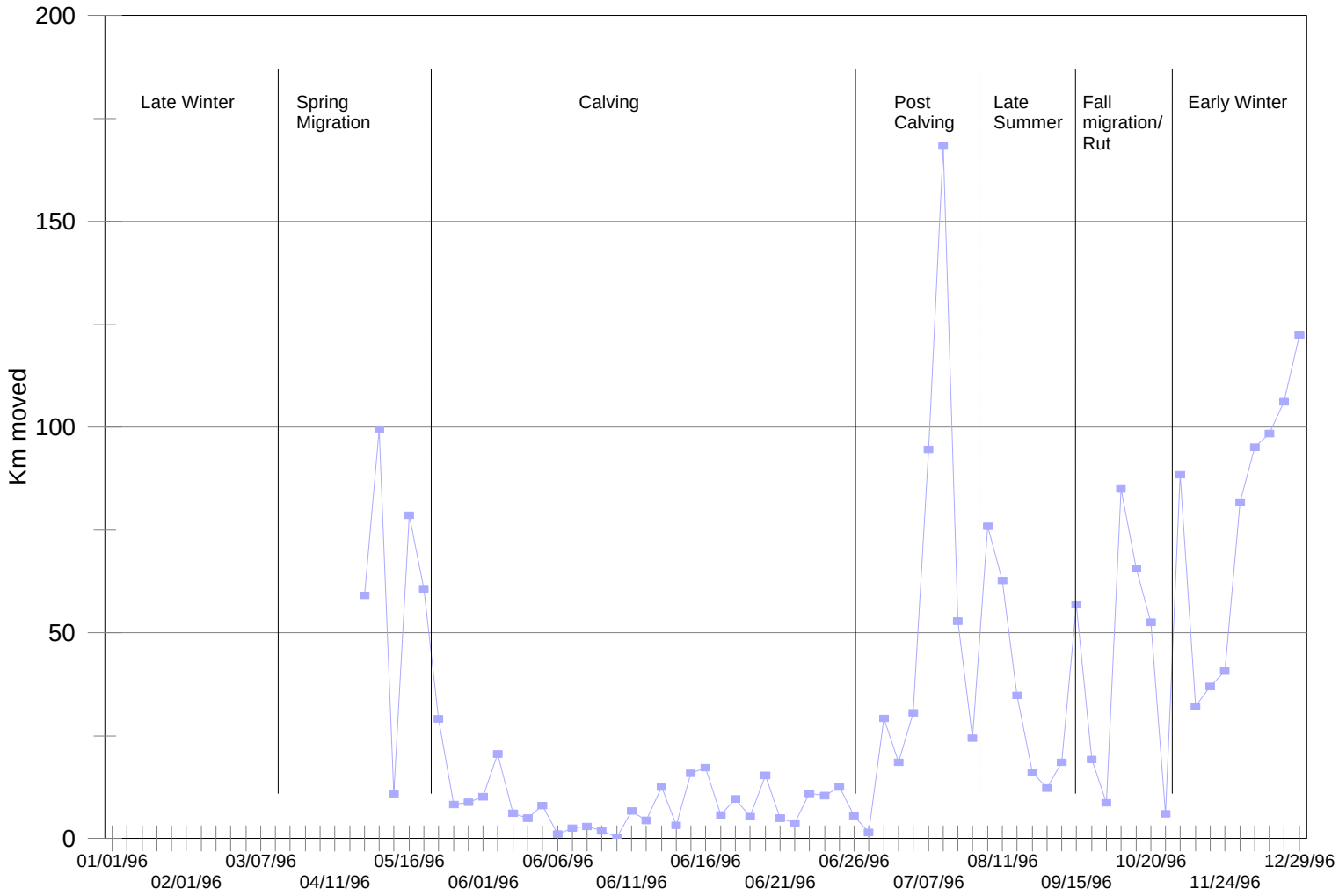
Seasonal Caribou Movement

Female B31 1998 - 2000 cont'd.



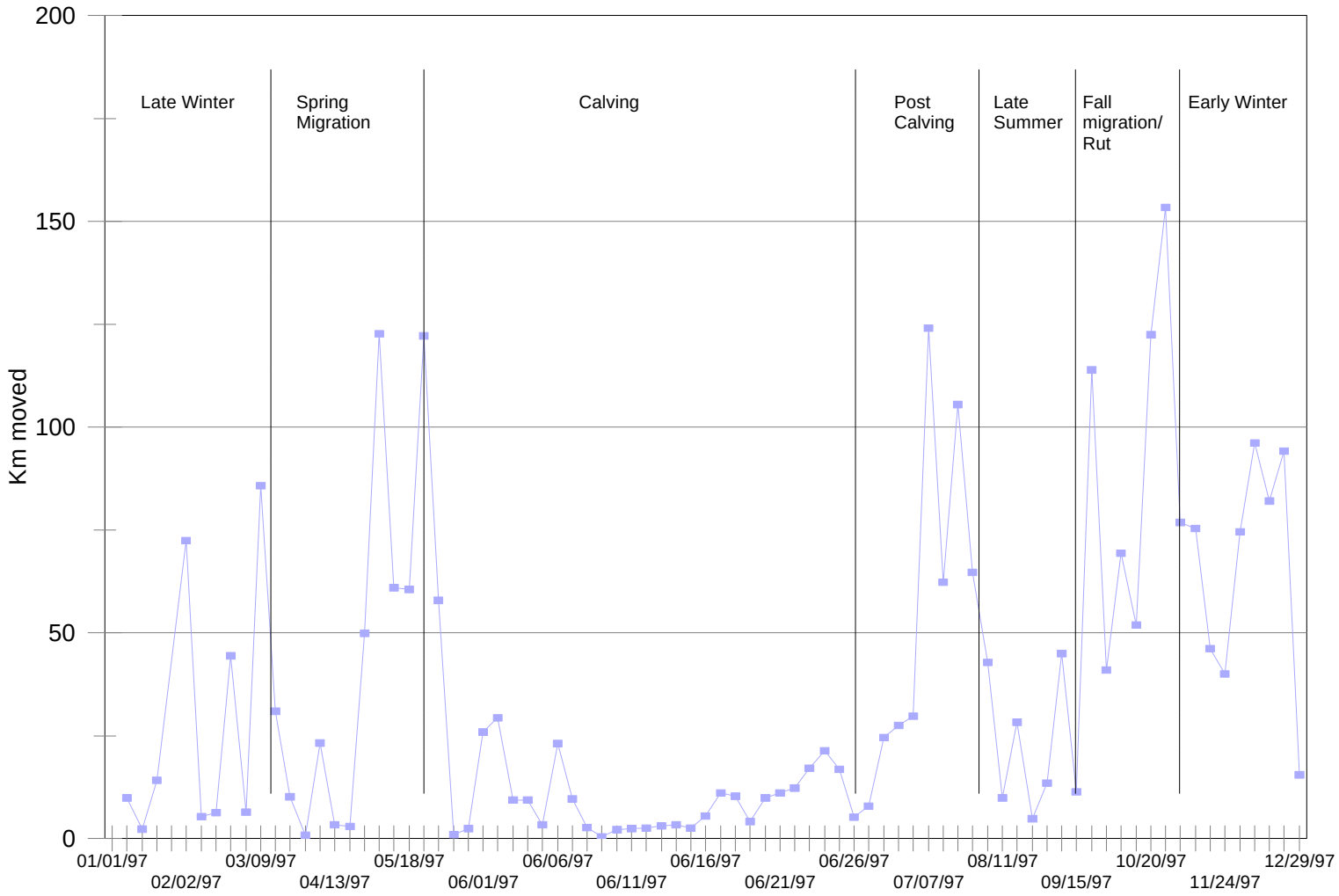
Seasonal Caribou Movement

Female B32 1996 - 2000



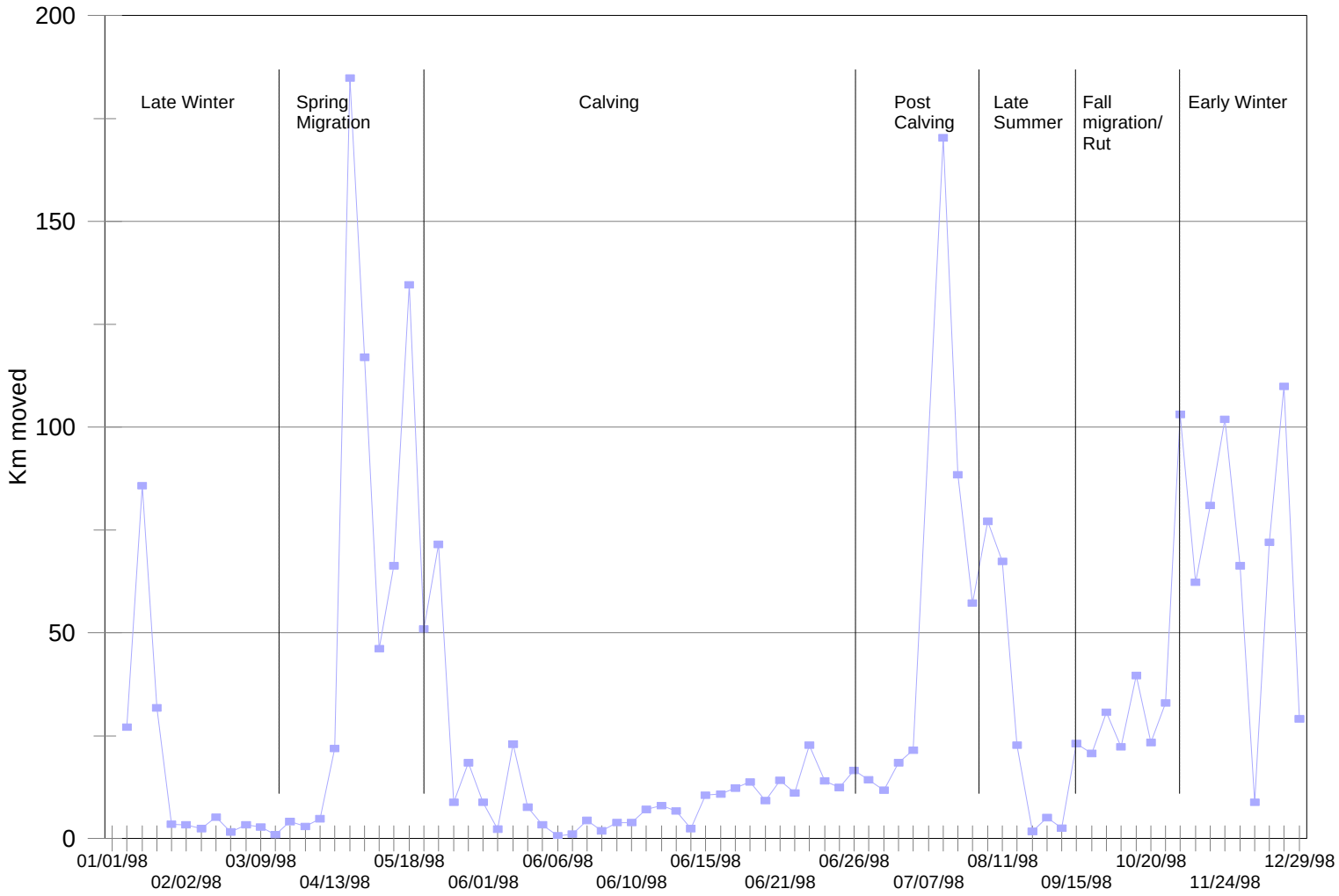
Seasonal Caribou Movement

Female B32 1996 - 2000 cont'd.



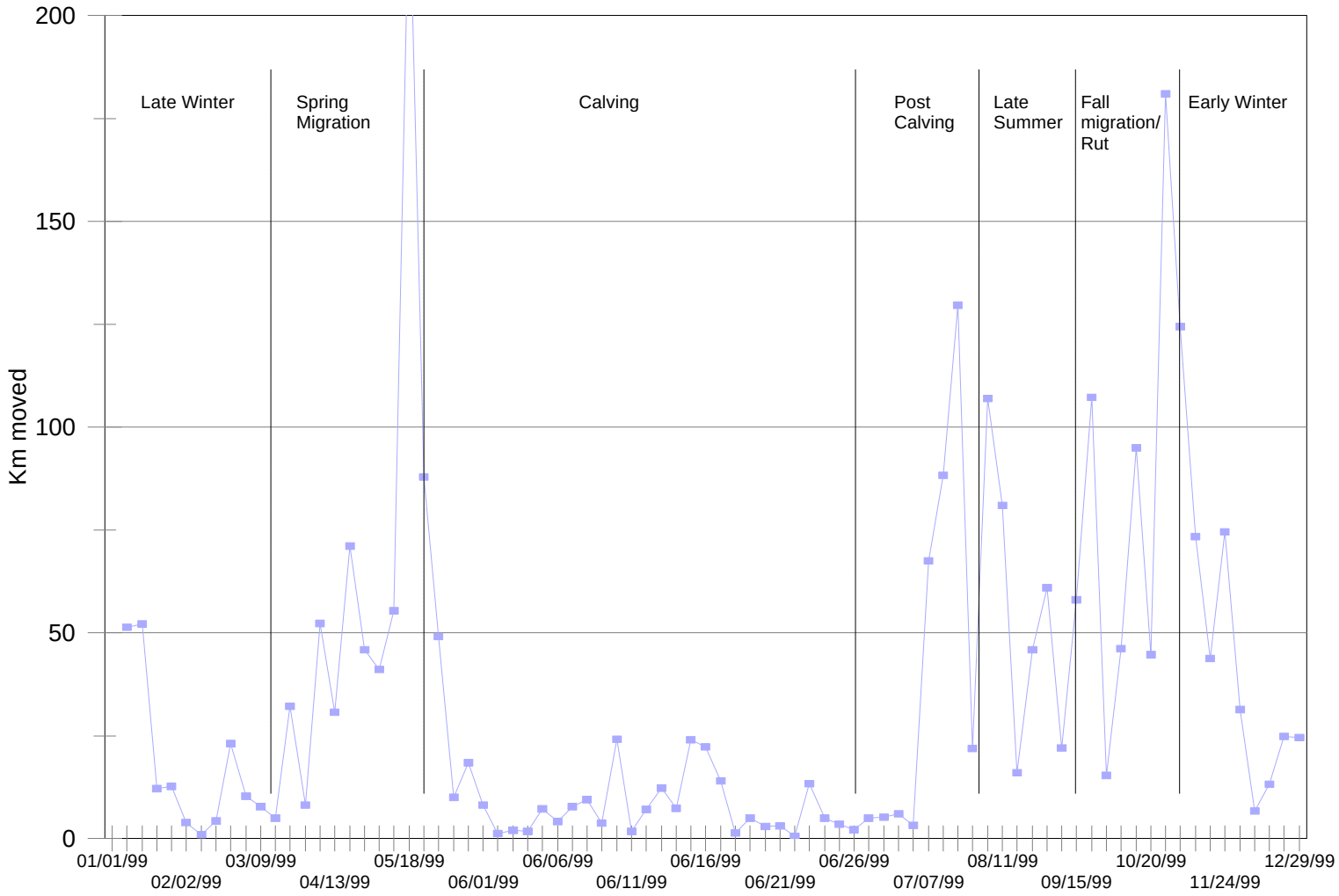
Seasonal Caribou Movement

Female B32 1996 - 2000 cont'd.



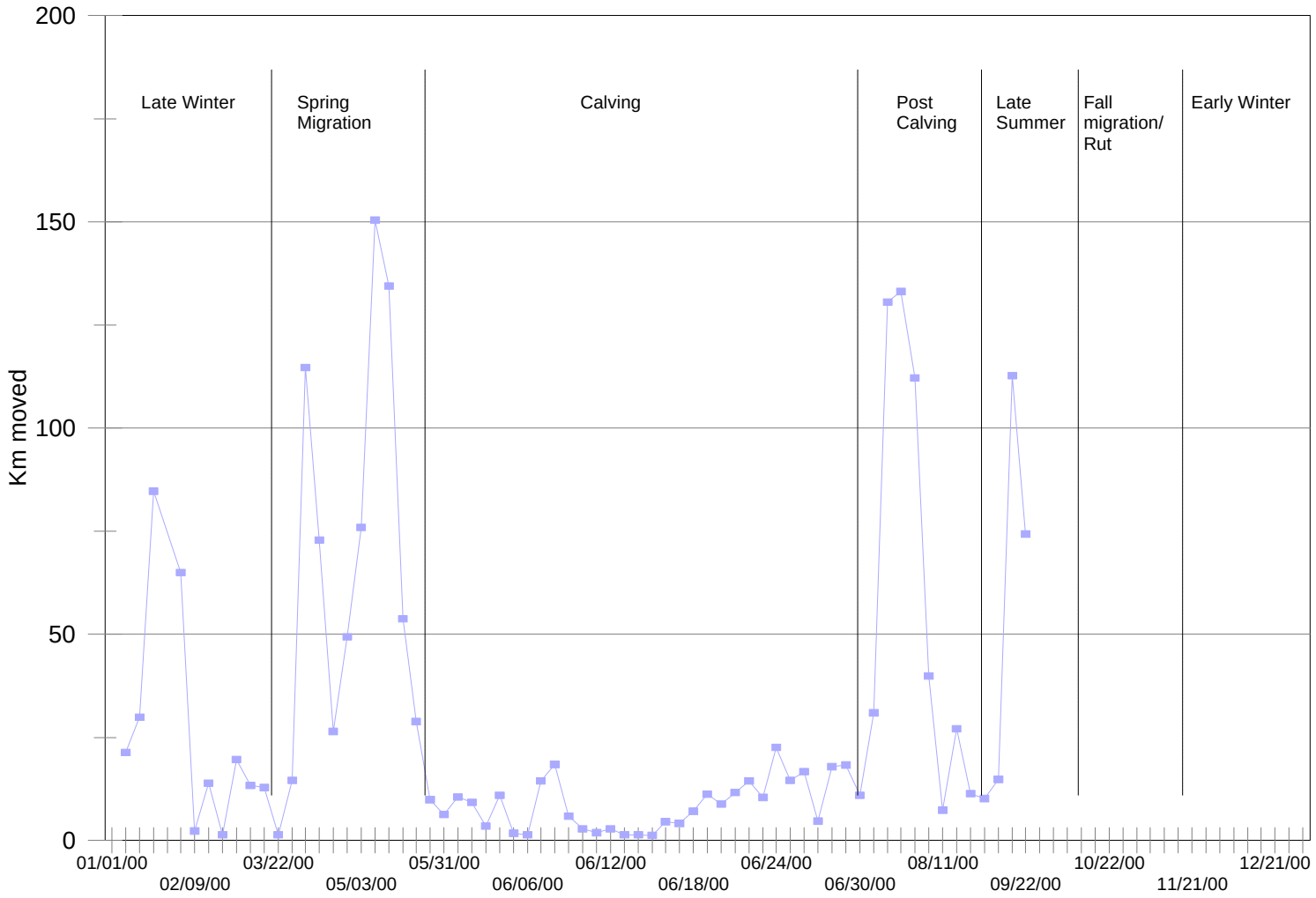
Seasonal Caribou Movement

Female B32 1996 - 2000 cont'd.



Seasonal Caribou Movement

Female B32 1996 - 2000 cont'd.



Appendix 7

1999 Caribou Trail Traverse Data in Jericho Project Area

Jericho Caribou Trail Mapping Data Form

	Date	04-Aug-99	Traverse:	Jericho wall to Jericho Lake				Traverse Direction:	West
	Bearing	Location - UTM	Terrain Notes	Distance		Interval	Trails	Map Location	Orig.
	(degrees)			L	R	(m est.)	Intersected		Ref #
1	285	7321902 x 481236	IS 0						34
2		481044	cobble with tr. parallel to hills			100	15		35
3		481025				100	9		36
4		480795				200	12		37
5		480763				100	9		38
6		480533				200	38		39
7		480395				200	30		40
8		480156				200	20		41
9		479973	birch seep			200	13		42
10		479792	birch and sand bluff			200	18		43
11		479565	all trails below sand ridge			200	7		44
12		479439				200	2	below airstrip east side	45
13			edge of strip			180	0		46
14									47
15		478820				200	29	from strip to west lip of sand flat	48
16		478649	across wet bog			200	4		49
17		4780524				150	5	all trails at lake shore	50

Jericho Caribou Trail Mapping Data Form

	Date	04-Aug-99	Traverse:	Carat to Contwoyto				Traverse Direction:	E/SE
	Bearing	Location - UTM	Terrain Notes	Distance		Interval	Trails	Map Location	Orig.
	(degrees)			L	R	(m est.)	Intersected		Ref #
1	90	732100 x 478720	at lake n/s	100+	100+				1
2		478815					50	up draw N of camp	2
3		478940					37	at road crossing	3
4		479050					20		4
5		479145	rocky tundra				20		5
6		479270	rocky tundra				20		6
7		479370					20		7
8		479665	upland terrace				20		8
9		479680	bog				20		9
10		479875					13		10
11		479875					1		11
12		479895					20		12
13		479940				100	20		13
14		480050				80	20		14
15		480050					1		15
16		480060					5		16
17		480060					1		17
18		480178					19	trails to base of rocky slope	18
19		480305				140	0		19
20		480600				300	17	south of pond	20
21	105	732100 x 481000					3		
22		481185	rocky to upland tundra			640	2		21
23		481345				140	0		22
24		**481500**					0		23
25		481650				350	10		24
26		481771				100	9	through swale	25
27		482110	upland tundra			300	2		26
28		482220				180	6	to brow over swale	27
29		482595				360	7	brow to brow through small swale	28
30		482838					6	brow to brow through small swale	29
31		482930				220	6	small swale above lake	30
32		483180	upland tundra			280	20		31
33		483300				155	0	Contwoyto Lake	32

Jericho Caribou Trail Mapping Data Form

	Date	05-Aug-99	Traverse:	Starting at Jericho Lake				Traverse Direction:	E/SE
				north of airstrip					
	Bearing	Location - UTM	Terrain Notes	Distance		Interval	Trails	Map Location	Orig.
	(degrees)			L	R	(m est.)	Intersected		Ref #
									51
1	92	7323500 x 479060							52
2		479197				70	14	to top of sand ridge	53
3		479205					0	across top of sand ridge	54
4		479560					9	down east side to stream	55
5		480006				600	50	at SE corner of lake	56
6		480220				200	40	wet meadow to sand beach	57
7		480432				200	8	over esker complex	58
8		480663					0	to stream within esker system	59
9		480858				200	7	within esker complex	60
10		481015				200	15	up ridge & across sand flat	61
11		481240				200	47	across sandy heath	62
12		481390				200	62	across sandy heath with many heavy trai	63
13		481610				200	18	across sandy heath & rocky upland	64
14		481725				160	26	across rocky heath	65
15		481950	rocky slope			200	7		66
16		482140	wet meadow swale & rocky slope			200	20		67
17		482330	rocky upland			200	28		68
18		482550	rocky upland			200	10		69
19		482671	rocky upland			200	15		70
20		482910				200	9	to brow of swale	71
21						100	0	swale wall	72
22		483100				100	13	swale floor	73
23		483272	rocky upland			200	7		74
24		483485	rocky upland			200	9		75
25		483686	rocky upland into swale			200	14		76
26							12	across swale floor	77
27		483905				200	0	up swale wall & across rocky upland	78
28		484107				200	11	upland to swale brow	79
29		484294				200	14	down swale & across floor	80
30		484520	up from swale & across rocky tundra			200	4		81
31		484700	across rocky tundra			200	12		82
32		484910	across rocky tundra			200	7		83
33	130	485000				100	0		e inserte
34		485080	across rocky tundra			200	2		84
35		485110	rocky upland			200	13		85
36		485300	rocky upland			200	52		86
37		485470	rocky upland			200	25		87
38		485600				140	11	Contwoyto Lake	88

Jericho Caribou Trail Mapping Data Form

	Date	05-Aug-99	Traverse:	Contwoyto Lake to the airstrip				Traverse Direction:	west
	Bearing	Location - UTM	Terrain Notes	Distance		Interval	Trails	Map Location	Orig.
	(degrees)			L	R	(m est.)	Intersected		Ref #
									89
									90
1	270	7322550 x 485170							91
2		485040	rocky upland			200	21		92
3		484794	rocky upland			200	55		93
4		484640	rocky upland			200	23		94
5		484400	rocky upland			200	30		95
6		484213				200	7	to swale floor stream	96
7		483970	rocky upland			200	8		97
8		483580				200	19	rocky upland east lakeshore	98
9		483700				200	18	rocky upland at west lakeshore	99
10	255	7322420 x 483180					10	west side of lake	100
11							14	to floor of swale	101
12		483030				200	8	across floor of swale	102
13		482735				200	13	across ridge & down into swale	103
14		4825600	rocky upland			200	13		104
15		482370	rocky upland			200	12		105
16		482220	rocky upland			200	19		106
17		482060	rocky upland			200	26		107
18	285	7322260 x 481760	rocky upland			200	16		108
19							4	to narrows of pond	109
20		481520	rocks			200	12		110
21		481320	rocks			200	10		111
22		481110				200	11	to base of rocky slope	112
23		480940	heath & bedrock			200	36		113
24		480730	heath & bedrock			200	40		114
25		480550				200	27	along cliff face	115
26		480350				200	19	off cliff & along base on sand	116
27		480170	very heavy trails parallel to traverse - photo here v			200	0		117
28		479965	sandy heath			200	17		118
29		470750				200	0	sandy esker	119
30		479560				200	20	esker/valley/esker with trails in valley	120
31		airstrip				460	3		121
32	airstrip to	478940				200	38	to lip of hill	122
33		723200 x 478830				92	17	at Jericho Lake	123

Jericho Caribou Trail Mapping Data Form

	Date	06-Aug-99	Traverse:	Carat /Long Lake/Contwoyto				Traverse Direction:	SE
	Bearing	Location - UTM	Terrain Notes	Distance		Interval	Trails	Map Location	Orig.
	(degrees)			L	R	(m est.)	Intersected		Ref #
									125
1	180	7320042 x 477550							126
2		477441	meadow with birch and willow				57	to first scarp	127
3		477170	first height of land rock upland				5		128
4		477250					28	rocky upland to west end of pond	129
5		477266					22	rocky upland to height of land above Lon	130
6		477266					4	at Long Lake north shore	131
									132
									133
7	90	7318475 x 477432						at Long Lake - east end	134
8		477722					31	first height of land	135
9		477990	rocky upland				10	second height of land	136
10		478245					14	rocky upland to wet swale	137
11							0	across swale	138
12		478555					7	to brow over key lake swale rocky upland	139
13		478671					5	wet bog across swale floor	140
14		478860	rocky upland				0		141
15						200			142
16		479020	rocky upland			200	10		143
17							14	to swale	144
18		479190				200	7	in swale	145
19							13	end swale	146
20		479505				200	4	rocky upland to swale	147
21							77	across birch heath swale	148
22		479676				200	5	up rocky swale wall	149
23							1	into new swale	150
24							28	across swale floor	151
25		479802				200	0	up swale wall	152
26		480053	rocky upland			200	13		153
27		480234	rocky upland			200	16		154
28		480428				200	17	rocky upland to swale brow	155
29							12	swale floor	156
30		480657	rocky upland heath			200	7		157
31		480867	rocky upland heath			200	13		158
32		481010	rocky upland			200	13		159
33		481223	rocky upland			200	10		160
34		481429	rocky upland			200	23		161
35		481700	bog			200	8		162
36		481682				80	1	at Contwoyto Lake	163

Jericho Caribou Trail Mapping Data Form

	Date	06-Aug-99	Traverse:	winter road land fall to Portal				Traverse Direction:	west
	Bearing	Location - UTM	Terrain Notes	Distance		Interval	Trails	Map Location	Orig.
	(degrees)			L	R	(m est.)	Intersected		Ref #
									164
1	275	7318756 x 481489							165
2		481368				200	5		166
3		481168	heavy trails down north wall			200	20		167
4		481036	heavy trails down north wall			200	27		168
5		480838	heavy trails down north wall			200	15		169
6	265	7319089 x 480682	heavy trails down north wall			200	13		170
7		480500	heavy trails both walls			200	24		171
8		480340				200	3	along south side Lynne Lake	172
9		480140				200	1	along south side Lynne Lake	173
10		479979				200	0	along south side Lynne Lake	174
11		479780				200	0	along south side Lynne Lake	175
12		479620				200	2	near Lynne Lake west end	176
13	280	7318980 x 479520				130	8	at west end Lynne lake take bearing on p	177
14		479310	upland heath			200	83		178
15		479140	birch thicket and heath			200	51		179
16		478956				200	19	rocky upland first height of land from Lyn	180
17		478760				200	7	rocky upland first height of land from Lyn	181
18							4	height of land east of portal	182
19		478614				200	2		183
20		478416				200	14		184
21		7319382 x 478279				150	16	portal pad	185

Jericho Caribou Trail Mapping Data Form

	Date	07-Aug-99	Traverse:	SE Carat to Contwoyto				Traverse Direction:	SE/E
	Bearing	Location - UTM	Terrain Notes	Distance		Interval	Trails	Map Location	Orig.
	(degrees)			L	R	(m est.)	Intersected		Ref #
									187
1	120	7320150 x 478400							188
2		478474	birch thickets				50		189
3		478748					46	birch thickets at road	190
4	90	7319480 x 479260					41	at height of land	191
5		479426	rocky upland			200	39		192
6		479641	rocky upland			200	50		193
7		479830	rocky upland			200	43		194
8		480017				200	3	up escarpment	195
9		480176	rocky upland			200	4		196
10		480380	rocky upland			200	28		197
11		480576	rocky upland			200	13		198
12		480769	rocky upland			200	7		199
13		480941	rocky upland			200	6		200
14		481130	rocky upland			200	13		201
15		481350				200	6	down escarpment	202
16							36	across swale floor	203
17							0	up escarpment	204
18		481561				200	2	back on top	205
19		481756	rocky upland			200	3		206
20		481922	rocky upland			200	6		207
21		482170	rocky upland with bog			200	5		208
22		482336	rocky upland			200	13		209
23		482544	rocky upland			200	8		210
24		482745	rocky upland			200	3		211
25		482901				180	19	at Contowyto Lake	212

Jericho Caribou Trail Mapping Data Form

	Date	07-Aug-99	Traverse:	Contwoyto to Carat				Traverse Direction:	NW/W
	Bearing	Location - UTM	Terrain Notes	Distance		Interval	Trails	Map Location	Orig.
	(degrees)			L	R	(m est.)	Intersected		Ref #
1	290	7320100 x 483241							213
2		483059	upland			200	3		214
3		482882	upland			200	7		215
4							1	down scarp wall	216
5							15	across swale floor	217
6		482750				200	0	up scarp	218
7		482520				200	3		219
8		482401				200	10	down scarp and across birch heath swale	220
9		482162				200	1	around north end of lake	221
10	270	7320350 x 482000	rocky upland			200	8		222
11		481172	rocky upland			200	1		223
12		481550	rocky upland			200	13		224
13		481361	rocky upland			200	14		225
14		481200	rocky upland			200	1		226
15		481050	rocky upland			200	5		227
16		480833	rocky upland			200	10		228
17		480588	rocky upland			200	5		229
18							3	down scarp	230
19							7	across swale floor	231
20		480417				200	2	up scarp	232
21		480190	rocky upland			200	8		233
22		479984				200	4	down scarp	234
23		479803	rocky upland			200	67		235
24		479652	rocky upland			200	65		236
25		479500	rocky upland			200	47		237
26		479350				140	20	east lake shore	238
27		479350					35	west lake shore to road (gps)	239
28		7320645 x 478596					101	Carat Lake	240

Jericho Caribou Trail Mapping Data Form

	Date	08-Aug-99	Traverse:	highlands to Jericho Lake				Traverse Direction:	west
	Bearing	Location - UTM	Terrain Notes	Distance		Interval	Trails	Map Location	Orig.
	(degrees)			L	R	(m est.)	Intersected		Ref #
1	270	7323100 x 481810	at lake shore heading west						242
2							4	to top of hill	243
3		481624				200	0		244
4		481525				200	5	to bottom of hill	245
5		481328	very dry cobble with lichen			200	22		246
6		481160	very dry cobble with lichen			200	38		247
7		480969	very dry cobble with lichen			200	33		248
8		480820	very dry cobble with lichen			200	18		249
9		480649	very dry cobble with lichen			200	17		250
10		480479	very dry cobble with lichen			200	20		251
11		480276	very dry cobble with lichen			200	10		252
12		480065	very dry cobble with lichen			200	35		253
13		479942	very dry cobble with lichen; sand ridges			200	3		254
14		479671	very dry cobble with lichen; heath			200	31		255
15		479488	sandy ridges			200	7		256
16		479313				200	9	sandy ridges to base of strip	257
17							3	top of strip	258
18		479130				200	0	edge of strip	259
19		7323131 x 478920				220	14	edge of Jericho Lake	260

Jericho Caribou Trail Mapping Data Form

	Date	09-Aug-99	Traverse:	from airport road to Carat				Traverse Direction:	
				outflow and return					
	Bearing	Location - UTM	Terrain Notes	Distance		Interval	Trails	Map Location	Orig.
	(degrees)			L	R	(m est.)	Intersected		Ref #
									262
1		7321680 x 478520						at road beside pond	263
2		478294					5 trails	at lake north of narrows	264
3									265
4		7321440 x 478242						at lake south of narrows	266
5		478280					2 trails	at road beside pond	267
6									268

Jericho Caribou Trail Mapping Data Form

	Date	10-Aug-99	Traverse:	around plant				Traverse Direction: W / S / E / N / W	
								NOT SHOWN ON MAP	
	Bearing	Location - UTM	Terrain Notes	Distance		Interval	Trails	Map Location	Orig.
	(degrees)			L	R	(m est.)	Intersected		Ref #
									314
1	270	7319450 x 478150						west side of portal pad	315
2		478090	bedrock			100	3		316
3		477964	bedrock & heath			50	9		317
4		477915	bedrock & heath			50	7		318
5	180	7319378 x 477915	bedrock & heath; many trails 45 deg. to traverse			100	17		320
6		7319273	bedrock & heath; many trails 45 deg. to traverse			100	15		321
7	90	7319270 x 477992	bedrock & heath; many trails 45 deg. to traverse			100	9		323
8		478088	bedrock & heath; many trails 45 deg. to traverse			100	3		324
9		478184				100	1	bedrock opposite portal	325
10		478272	bedrock & heath			100	1		326
11		478332	heath			50	12		327
12		478383	heath & boulder			50	5		328
13	36	7319305 x 478380	bedrock & heath; many trails parallel to traverse			100	8		330
14		7319370	bedrock & heath; many trails parallel to traverse			100	10		331
15	270	478303	bedrock & heath; many trails parallel to traverse			100	2		332
16		478239	bedrock & heath; many trails parallel to traverse			80	1	at portal pad east	333
17	end all trail traverse data								334