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CANADA

DEPARTMENT OF ENERGY, MINES AND RESOURCES

Geological Survey of Canada



BOTANICAL STUDIES NEAR THE MACKENZIE RIVER,
NORTHWEST TERRITORIES

by

C.D. Bird

Department of Biology
University of Calgary

January 9, 1972

OPEN FILE 225

Price, \$10.00

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INTRODUCTION

The writer, in company with Mr. A.H. Marsh, carried out botanical research, mainly lichenological, in the vicinity of Norman Wells, Northwest Territories, from May 31 to June 10, 1971, in connection with Dr. O.L. Hughes' Geological Survey of Canada Project 710020. The overall purpose of this research was twofold: (1) to ascertain the plant species that occupied certain areas that were of interest from the standpoint of their surficial geology, and (2) to determine the amount of ground covered by these plants so that this information could be used in the interpretation of aerial photographs.

Phase I of this research, carried out from May 31 to June 6, was involved with studies above timberline on two mountain areas, the Plains of Abraham (elevation 4,300-5,600 ft.) in the Mackenzie Mountains, and Mt. Clark (elevation 3,700-4,750 ft.) in the Franklin Mountains. The first of these areas was unglaciated and had a mantle composed mainly of dolomite while the second was glaciated and had a quartzite mantle. The purpose of choosing them was to describe the flora of two different alpine areas and to determine the effect on the flora, if any, of different rock type and of glaciation.

Phase II, carried out from June 7 to 10, was concerned with studies in forested areas (elevation 200-300 ft.) in the vicinity of Sans Sault Rapids and Rorey Lake. These studies were made in company with A.H. Marsh, O.L. Hughes, S. Zoltai and W. Pettapiece.

LITERATURE REVIEW

No papers have been published on the lichen and bryophyte floras of the area. The closest lichen research in the Northwest Territories is that of Scotter and Thomson (1966) on the Thelon River and Kaminuriak Lake regions, Thomson et al. (1969) on the Great Slave Lake region, and Thomson (1970) on the vicinity of Coppermine; for Alaska, there is that of Weber and Viereck (1967) for Mt. McKinley National Park and that of Krog (1968) for the entire State. The closest bryophyte research in the Northwest Territories is that of Steere (1958) on the Mackenzie River Delta, Scotter (1962) on the Gordon Lake region, and that of Scotter (1966) and Holmen and Scotter (1967) on the Thelon River and Kaminuriak Lake regions; for Alaska there is that of Persson and Gjaerevoll (1957) on the Interior region; and for northwestern Manitoba there is that of Scotter (1965) on the Cochrane River region.

The earliest botanical work to have been carried out in the area is that of John Richardson whose data appears in Hooker (1829-40). The next is that of A.E. Porsild who botanized along the Canol Road on the East Slope of the Mackenzie Mountains from September 5 to 10, 1944. His report (Porsild 1945) contains an enumeration of the vascular plant flora observed and a brief description of the vegetation at a number of places along the Road, including the Plains of Abraham where he recorded 60 species. Cody (1960) enumerated the vascular plants found in the vicinity of Norman Wells, based on studies he carried out during the summers of 1953 and 1957. Porsild (1961) and Cody (1963) report on small collections of vascular plants made in the Mackenzie Mountains, N.W.T. No other papers have appeared on the vascular plants of the area although the Plains of Abraham have recently been visited by Cody. Cody and Porsild are now working together to produce a vascular plant flora of the Northwest Territories.

DESCRIPTION OF THE AREAS

The Plains of Abraham

The Plains of Abraham is a flat-topped mountain 55 air miles south of Norman Wells. Its summit is located near Mile 82 E of the Canol Road. The elevation reaches a maximum of 5,700 feet with most of the top averaging about 5,000 feet. The plateau is covered by a thick mantle of carbonaceous dolomite and limestone with some chert and quartzite of the Mt. Kindle and Bear Rock Formations of Ordovician to Silurian (possibly Devonian) age (Hume 1954, Macqueen 1970) which are evident as weathered rubble through which ledges or cliffs of solid rock protrude. Solifluction and stone stripes are evident on most areas of sloping ground while active polygon formation is visible on level ground. The absence of erratics, till, and glacial striae indicate that the mountain escaped Laurentide glaciation (cf. Hughes 1970, Prest 1969).

Plates 1, 2 and 3 illustrate the topography and vegetation of a number of communities on The Plains of Abraham.

Mt. Clark

Mt. Clark is 100 air miles SE of Norman Wells and is 105 miles east of The Plains of Abraham. It rises some 4,500 feet above the Mackenzie River 12 miles to the SW and reaches a maximum elevation of 4,798 feet. Its dimensions above 2,500 feet are 7 miles NW-SE by 3 miles NE-SW. The mantle is of quartzite of the Mount Clark Formation of Lower Cambrian age (Williams 1923). Due to its abrupt topography the effect of frost action on the soil is less evident than was the case on The Plains of Abraham and stone stripes, polygons, and solifluction slopes are not as prevalent while outcrops and talus slopes are common. Numerous erratics of a wide variety of metamorphic and igneous rocks indicate that the mountain was overridden by Laurentide ice.

Plates 4 and 5 illustrate the topography and vegetation of a number of communities on Mt. Clark.

Mackenzie Valley

The areas studied in the vicinities of Sans Sault Rapids, 65 miles WNW of Norman Wells, and Rorey Lake, 45 miles north of Fort Good Hope, were all in the 200-300 foot elevation range and were within the broad valley of the Mackenzie River. Islands in the river are dominated by a thick growth of Salix spp. with some Picea glauca on a thick deposit of silt. Muskeg forest and swamps are found on the somewhat higher ground back of the river, the dominant trees being Picea mariana, Populus balsamifera ssp. balsamifera, Picea glauca, Betula papyrifera ssp. humilis and Larix laricina. Most forested areas show evidence of repeated burns. Rock outcroppings were not encountered in the vicinity of the sites examined and are of rare occurrence in the valley.

Plates 6 and 7 illustrate the topography and vegetation of a number of communities in the Mackenzie River Lowlands.

CLIMATE

A summary of the climate of the region is given in Kendrew and Currie (1955). Only one station for which extensive data is given, Fort Good Hope, is within the area studied and the climate there can be regarded as typical only of the lowland sites.

The main air-stream is from the NW and W. Winter is long and cold, summer is short and warm. The warmest months are July and August, the coldest month is January. Precipitation is in the 10 to 13 inch range with most falling during the summer. The ground tends to be covered with snow for 8 months.



Plate 1, Figure 1. The Plains of Abraham. Aerial view of the eastern side of the mountain.



Plate 1, Figure 2. The Plains of Abraham. Lichen ground cover in Site 1 on a ridge top, showing Asahinea chrysantha, Alectoria ochroleuca and Thamnolia subuliformis.



Plate 2, Figure 1. The Plains of Abraham. Site 4 in a hummocky, wet sedge meadow in which the leading lichen was Cetraria cucullata, and the leading mosses were Hypnum bambergeri and Aulacomnium turgidum.



Plate 2, Figure 2. The Plains of Abraham. Site 7 in a north-facing, 40° slope of dolomite talus. The leading lichen was Rhizocarpon chionaeum.



Plate 3, Figure 1. The Plains of Abraham. Site 15 in a Dryas integrifolia - stone stripe community.

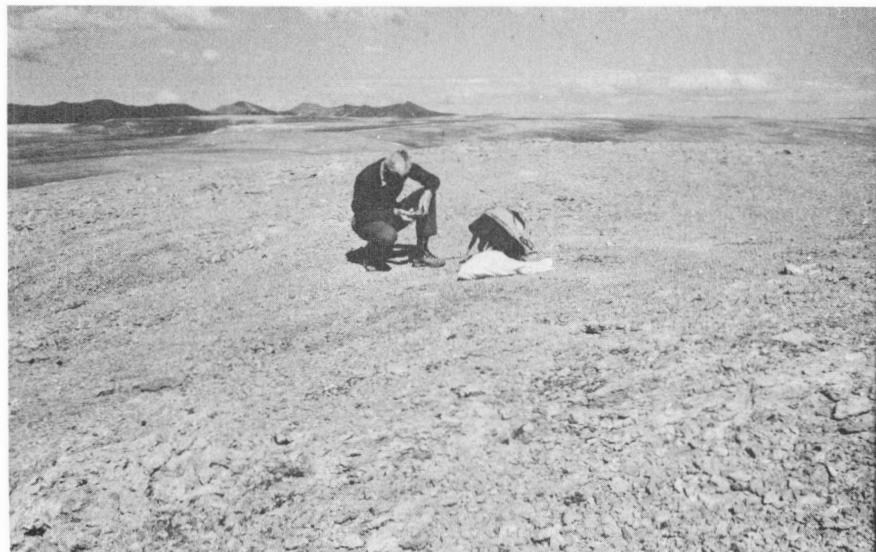


Plate 3, Figure 2. The Plains of Abraham. Site 16 in a limestone rubble community.



Plate 4, Figure 1. Mt. Clark. Aerial view of the northwest side of the mountain.



Plate 4, Figure 2. Mt. Clark. Site 28 in a rocky saddle where the leading plants were the lichens Alectoria ochroleuca, Lecidea armeniaca, Cetraria cucullata, and C. nivalis.



Plate 5, Figure 1. Mt. Clark. Site 31 in a hummocky, wet, sedge meadow in which the leading plants, after sedges, were the bryophytes Aulacomnium turgidum and Sphagnum girgensohnii.



Plate 5, Figure 2. Mt. Clark. A polygon in Site 33 where the leading plants were the lichens Cetraria cucullata, Rhizocarpon spp., and Lecidea armeniaca.



Plate 6, Figure 1. Mackenzie River Lowlands. The raised palsa designated as Site 44. The dominant plants were species of reindeer lichens (Cladina).



Plate 6, Figure 2. Mackenzie River Lowlands. Cladina alpestris in Site 44.



Plate 7, Figure 1. Mackenzie River Lowlands. Site 47 in a Betula glandulosa carr with the leading plant being the peat moss Sphagnum rubellum.



Plate 7, Figure 2. Mackenzie River Lowlands. Site 51 in stunted, open Picea glauca woods with a light albedo because of a lichen, mainly Cladina, cover of 46%.

	J	F	M	A	M	J	J	A	S	O	N	D	Mean or Total
Temp. (°F)	-17	-10	-2	21	41	52	60	54	45	31	10	-9	23
Prec. (in.)	0.6	0.5	0.5	0.4	0.8	1.2	1.1	1.3	1.5	1.1	1.4	0.7	11.1

Table 1. Mean temperature and precipitation per month at Fort Good Hope based on 31 years of observations (Kendrew and Currie 1955).

METHODS

The Plains of Abraham and Mt. Clark were reached by helicopter from Norman Wells. The lowland sites were visited by means of a helicopter and a Beaver operating out of Sans Sault Rapids.

Upon reaching an area a visual understanding of the landform - vegetation types was gained and then representative types were chosen for study. The size of each varied somewhat depending on the type involved; bird rock sites, for example, were small, while other sites, such as solifluction slopes, were up to several acres in size. Within each site a listing of all plants observed was compiled and one or more photographs taken. After this was done percentage cover was estimated for each species as well as for rock, soil and duff. An attempt was made to examine several different sites of each type but this was often prevented because of shortage of time. Appendix I contains the data obtained at each of the 54 sites studied.

An attempt was made to collect voucher samples of all plant species. This was done by placing vascular plants in plant presses and by putting lichens and bryophytes into 2 lb. size paper bags on which the site number had been recorded. The bags were then stapled and placed in 100 lb. sugar sacks for transport. These were later shipped to Calgary in sealed metal pails. Each bag was then opened. its contents placed in distilled water and allowed to soak to lose brittleness, after which

the material was hand sorted and put in plant presses. After drying it was sorted to species or groups of species and these were placed in packets on which the site number had been recorded. The specimens were then identified with the aid of a Bausch and Lomb Stereo-Zoom dissecting microscope and a Wild M-20 compound microscope. Lastly, labels giving the identification, complete collection data, and a voucher number were attached to each packet.

A small collection of spiders was made at each of the two alpine areas. Information about them is given in Appendix II.

THE SPECIES ENCOUNTERED

This section describes the distribution and occurrence of the 363 species of plants found during investigations at each of the three study areas.

The names of the three areas have been abbreviated throughout to PA = Plains of Abraham, MC = Mt. Clark, and MRL = Mackenzie River Lowlands.

Relative abundance in each of the three areas has been indicated according to the following subjective procedure: a species encountered in 22-27 of the sites on PA is abundant, one at 6-21 is common, one at 2-5 is occasional, and one found at only 1 site is rare; at MC the numbers are 10-14 = abundant, 4-9 = common, 2-3 = occasional, and 1 = rare; and at MRL the numbers are 9-13 = abundant, 4-8 = common, 2-3 = occasional, and 1 = rare.

The cover percentages refer to the estimated amount of ground covered by individual species. A "+" indicates that a species covered less than 1% of the area in a site.

A set of each of the specimens indicated by a voucher number is on deposit in the Herbarium of the University of Calgary (UAC). Partial sets of lichens are on deposit at the University of Wisconsin (WIS) and at the National Herbarium of Canada (CANL). A partial set of bryophytes is on deposit at the National Herbarium of Canada (CANM).

Lichens

One hundred and ninety-six species of lichens were encountered during the study: 96 at PA, 111 at MC, and 74 at MRL.

The distribution of each species in nearby areas is indicated by the citation, under "Literature Reports", of the following sources: Northwest Territories - Coppermine Area (Thomson 1970), Great Slave Lake Region (Thomson et al. 1969), Thelon River and Kaminuriak Lake Region (Scotter and Thomson 1966); Alaska - macrolichens of the entire State (Krog 1968), Mt. McKinley National Park (Weber and Viereck 1967); and Greenland - Central Western Region (Hansen 1962), North East Region (Lynge 1940), Southern Region (Hansen 1971).

The "General distribution" of each taxon was determined from the above sources, from Herbarium specimens, and from Poelt (1969).

Nomenclature is based on Hale and Culberson (1970).

Acarospora glaucocarpa (Wahlenb. ex Ach.) Körb.

Substrate: dolomite bird rock.

Relative abundance: PA - rare, MC - absent, MRL - absent.

Cover: PA - present in 1 site at +.

Literature reports: Lynge 1940, Thomson et al. 1969, Thomson 1970.

General distribution: Circumpolar, Arctic-Boreal Alpine-Montane.

Voucher specimen: PA - 26165.

Agyrophora rigida (Du Rietz) Llano

Synonymy: Umbilicaria rigida (Du Rietz) Frey.

Substrate: chert and quartzite.

Relative abundance: PA - common, MC - common, MRL - absent.

Cover: PA - present in a bird rock site at 5%, in 1 at 2%, and in 5 at +; MC - present in a site on a north-facing talus slope at 6%, in 2 at 2%, in 4 at 1%, and in 2 at +.

Literature reports: Hansen 1971, Krog 1968, Thomson 1970.

General distribution: Circumpolar, Arctic-Alpine.

Voucher specimens: PA - 26127, 26166, 26313, 26383, 26384, 26385, 26420, 26459, 26729; and MC - 26794, 26888, 26960, 26998, 27068, 27114, 27115, 27167, 27229, 27243, 27288.

Alectoria chalybeiformis (L.) S. Gray

Substrate: soil.

Relative abundance: PA - absent, MC - occasional, MRL - absent.

Cover: MC - present in 3 sites at +.

Literature reports: Hansen 1962, Hansen 1971, Krog 1968, Scotter and Thomson 1966, Thomson et al. 1969.

General distribution: Circumpolar, Arctic-Temperate Alpine-Montane.

Voucher specimens: MC - 26762, 27083, 27247.

Alectoria glabra Mot.

Substrate: found twice on Picea mariana, and once each on Betula papyrifera, Larix laricina, Salix sp., and on a rotten log.

Relative abundance: PA - absent, MC - absent, MRL - common.

Cover: MRL - present in 5 sites at +.

Literature reports: Krog 1968, Scotter and Thomson 1966, Thomson et al. 1969,
Weber and Viereck 1967.

General distribution: American, Boreal-Montane.

Voucher specimens: MRL - 27352, 27401, 27439, 27447, 27497, 27524.

Alectoria minuscula Nyl.

Substrate: quartzite.

Relative abundance: PA - absent, MC - common, MRL - absent.

Cover: MC - present in 8 sites at +.

Literature reports: Hansen 1962, Hansen 1971, Krog 1968, Thomson et al. 1969,
Thomson 1970, Weber and Viereck 1967.

General distribution: Circumpolar, Arctic-Alpine.

Voucher specimens: MC - 26795, 26809, 26961, 27072, 27123, 27168, 27230,
27289, 27290.

Alectoria nigricans (Ach.) Nyl.

Substrate: soil.

Relative abundance: PA - occasional, MC - common, MRL - absent.

Cover: PA - present in 2 sites at +; MC - present in 9 sites at +.

Literature reports: Hansen 1962, Hansen 1971, Krog 1968, Scotter and Thomson 1966,
Thomson et al. 1969, Thomson 1970, Weber and Viereck 1967.

General distribution: Circumpolar, Arctic-Alpine.

Voucher specimens: PA - 26099, 26731; MC - 26763, 26862, 26933, 26975, 27084, 27137, 27182, 27248, 27302.

Alectoria nitidula (Th. Fr.) Vain.

Substrate: soil.

Relative abundance: PA - occasional, MC - absent, MRL - absent.

Cover: PA - present in 5 sites at +.

Literature reports: Hansen 1971, Scotter and Thomson 1966, Thomson et al. 1969, Thomson 1970.

General distribution: Circumpolar, Arctic-Alpine.

Voucher specimens: PA - 26201, 26253, 26282, 26514, 26669.

Alectoria ochroleuca (Hoffm.) Mass.

Substrate: soil.

Relative abundance: PA - common, MC - abundant, MRL - absent.

Cover: PA - present in 3 sites at 3%, and in 16 at +; MC - present in 1 site at 13%, in 1 at 7%, in 1 at 5%, in 1 at 3%, in 1 at 2%, in 4 at 1%, and in 5 at +.

Literature reports: Hansen 1962, Hansen 1971, Krog 1968, Scotter and Thomson 1966, Thomson et al. 1969, Thomson 1970, Weber and Viereck 1967.

General distribution: Circumpolar, Arctic-Alpine.

Voucher specimens: PA - 26100, 26149, 26202, 26254, 26283, 26320, 26333, 26355, 26393, 26426, 26476, 26515, 26540, 26560, 26581, 26662, 26670, 26700, 26732; MC - 26764, 26863, 26903, 26934, 26976, 27011, 27044, 27085, 27128, 27138, 27183, 27249, 27303.

Alectoria pubescens (L.) R.H. Howe

Substrate: quartzite.

Relative abundance: PA - rare, MC - occasional, MRL - absent.

Cover: PA - present in 1 site at +; MC - present in 3 sites at +.

Literature reports: Hansen 1962, Hansen 1971, Krog 1968, Scotter and Thomson 1966,

Thomson et al. 1969, Weber and Viereck 1967.

General distribution: Circumpolar, Arctic-Alpine.

Voucher specimens: PA - 26391; MC - 27116, 27119, 27169, 27231.

Alectoria subdivergens Dahl

Substrate: soil.

Relative abundance: PA - absent, MC - rare, MRL - absent.

Cover: MC - present in 1 site at +.

Literature reports: not reported in any of the sources consulted.

General distribution: American, Eastern Arctic-Alpine.

Voucher specimen: MC - 26765.

Anaptychia kaspica Gyeln.

Substrate: Picea glauca.

Relative abundance: PA - absent, MC - absent, MRL - rare.

Cover: MRL - present in 1 site at +.

Literature reports: Krog 1968.

General distribution: Incompletely Circumpolar, Boreal-Montane.

Voucher specimen: MRL - 27372.

Anaptychia speciosa (Wulf.) Mass.

Substrate: Populus balsamifera.

Relative abundance: PA - absent, MC - absent, MRL - rare.

Cover: MRL - present in 1 site at +.

Literature reports: Thomson et al. 1969.

General distribution: Circumpolar, Boreal-Montane.

Voucher specimen: MRL - 27468a.

Arthroraphis citrinella var. alpina (Schaer.) Poelt.

Synonymy: Bacidia alpina (Schaer.) Vain.

Substrate: soil.

Relative abundance: PA - rare, MC - absent, MRL - absent.

Cover: PA - present in 1 site at +.

Literature reports: Thomson et al. 1969, Thomson 1970, Weber and Viereck 1967.

General distribution: Circumpolar, Arctic-Alpine.

Voucher specimen: PA - 26394.

Asahinea chrysanthia (Tuck.) W. Culb. and C. Culb.

Synonymy: Cetraria chrysanthia Tuck.

Substrate: soil.

Relative abundance: PA - common, MC - common, MRL - absent.

Cover: PA - present in 9 sites at +; MC - present in 1 site at 1%, and in 3 at +.

Literature reports: Krog 1968, Scotter and Thomson 1966, Thomson 1970,

Weber and Viereck 1967.

General distribution: Amphi-Beringian, Western Arctic-Cordilleran.

Voucher specimens: PA - 26101, 26203, 26284, 26356, 26395, 26582, 26671, 26701,

26733; MC - 26766, 27086, 27184, 27250.

Buellia alboatra (Hoffm.) Th. Fr.

Substrate: quartzite.

Relative abundance: PA - absent, MC - occasional, MRL - absent.

Cover: MC - present in 2 sites at +.

Literature reports: Not reported in any of the selected sources.

General distribution: Circumpolar, Arctic-Boreal Alpine-Montane.

Voucher specimens: MC - 26860, 27125.

Buellia papillata (Somm.) Tuck.

Substrate: found twice on vegetabilia and once on soil.

Relative abundance: PA - occasional, MC - absent, MRL - rare.

Cover: PA - present in 2 sites at +; MRL - present in 1 site at +.

Literature reports: Thomson et al. 1969, Thomson 1970.

General distribution: Circumpolar, Arctic-Alpine.

Voucher specimens: PA - 26276, 26757; MRL - 27585.

Caloplaca cinnamomea (Th. Fr.) Oliv.

Substrate: vegetabilia.

Relative abundance: PA - rare, MC - absent, MRL - absent.

Cover: PA - present in 1 site at +.

Literature reports: Lynge 1940, Thomson et al. 1969.

General distribution: Circumpolar, Arctic-Alpine.

Voucher specimen: PA - 26645.

Caloplaca holocarpa (Hoffm.) Wade

Synonymy: Caloplaca pyracea (Ach.) Th. Fr.

Substrate: found four times on Populus balsamifera and once on Picea glauca.

Relative abundance: PA - absent, MC - absent, MRL - occasional.

Cover: MRL - present in 2 sites at +.

Literature reports: Lynge 1940, Thomson et al. 1969, Weber and Viereck 1967.

General distribution: Circumpolar, Arctic-Boreal Alpine-Montane.

Voucher specimens: MRL - 27380, 27468, 27473, 27480, 27481.

Caloplaca jungermanniae (Vahl) Th. Fr.

Substrate: vegetabilia.

Relative abundance: PA - common, MC - rare, MRL - absent.

Cover: PA - present in 6 sites at +; MC - present in 1 site at +.

Literature reports: Lynge 1940, Thomson et al. 1969, Thomson 1970, Weber and Viereck 1967.

General distribution: Circumpolar, Arctic-Alpine.

Voucher specimens: PA - 26247, 26308, 26600, 26646, 26694, 26758;

MC - 27271.

Caloplaca stillicidiorum (Vahl) Lynge

Substrate: vegetabilia.

Relative abundance: PA - occasional, MC - absent, MRL - absent.

Cover: PA - present in 2 sites at +.

Literature reports: Lynge 1940, Scotter and Thomson 1966, Thomson et al. 1969, Thomson 1970, Weber and Viereck 1967.

General distribution: Circumpolar, Arctic-Boreal Alpine-Montane.

Voucher specimens: PA - 26164, 26277.

Caloplaca tetraspora (Nyl.) Oliv.

Substrate: vegetabilia.

Relative abundance: PA - rare, MC - absent; MRL - absent.

Cover: PA - present in 1 site at +.

Literature reports: Thomson et al. 1969.

General distribution: Circumpolar, Arctic-Alpine.

Voucher specimen: PA - 26458.

Candelariella aurella (Hoffm.) Zahlbr.

Synonymy: C. epixantha (Ach.) Sandst.

Substrate: found once on vegetabilia and once on Picea glauca.

Relative abundance: PA - rare, MC - absent, MRL - rare.

Cover: PA - present in 1 site at +; MRL - present in 1 site at +.

Literature reports: Lyngé 1940, Thomson et al. 1969, Thomson 1970.

General distribution: Circumpolar, Arctic-Boreal Alpine-Montane.

Voucher specimens: PA - 26647; MRL - 27380.

Candelariella hudsonica Hak.

Synonymy: Candelariella canadensis Magn.

Substrate: soil.

Relative abundance: PA - absent, MC - rare, MRL - absent.

Cover: MC - present in 1 site at +.

Literature reports: Scotter and Thomson 1966, Thomson et al. 1969, Thomson 1970.

General distribution: American, Arctic-Alpine.

Voucher specimen: MC - 27185

Candelariella vitellina (Ehrh.) Müll. Arg.

Substrate: quartzite.

Relative abundance: PA - absent, MC - rare, MRL - absent.

Cover: MC - present in 1 site at +.

Literature reports: Lyngé 1940, Thomson et al. 1969, Thomson 1970, Weber and Viereck 1967.

General distribution: Circumpolar, Arctic-Boreal Alpine-Montane.

Voucher specimen: MC - 26796

Cetraria commixta (Nyl.) Th. Fr.

Substrate: quartzite.

Relative abundance: PA - rare, MC - absent, MRL - absent.

Cover: PA - present in 1 site at +.

Literature reports: Hansen 1962, Hansen 1971, Krog 1968, Thomson et al. 1969, Thomson 1970, Weber and Viereck 1967.

General distribution: Circumpolar, Arctic-Boreal Alpine-Montane.

Voucher specimen: PA - 26386.

Cetraria cucullata (Bell) Ach.

Substrate: soil.

Relative abundance: PA - common, MC - abundant, MRL - occasional.

Cover: PA - present in 1 site at 8%, in 1 at 5%, and in 18 at +; MC - present in 1 site at 15%, in 1 at 10%, in 1 at 8%, in 1 at 6%, in 2 at 5%, in 1 at 4%, in 3 at 3%, in 1 at 1%, and in 2 at +; MRL - present in 1 site at 1%, and in 1 at +.

Literature reports: Hansen 1962, Hansen 1971, Krog 1968, Scotter and Thomson 1966, Thomson et al. 1969, Thomson 1970, Weber and Viereck 1967.

General distribution: Circumpolar, Arctic-Boreal Alpine-Montane.

Voucher specimens: PA - 26102, 26181, 26204, 26255, 26285, 26334, 26357, 26396, 26439, 26477, 26498, 26516, 26541, 26561, 26583, 26608, 26633, 26672, 26703, 26734; MC - 26767, 26826, 26864, 26904, 26935, 26977, 27012, 27045, 27087, 27139, 27186, 27251, 27304; MRL - 27536, 27587.

Cetraria elenkinii Krog

Synonymy: Cetraria nigricascens (Nyl.) Elenk.

Substrate: soil.

Relative abundance: PA - occasional, MC - absent, MRL - absent.

Cover: PA - present in 2 sites at +.

Literature reports: Krog 1968, Scotter and Thomson 1966, Thomson et al. 1969.

General distribution: Circumpolar, Arctic-Alpine.

Voucher specimens: PA - 26611, 26738.

Cetraria halei W. Culb. & C. Culb.

Synonymy: previously included in Cetraria ciliaris Ach. sens. lat.

Substrate: found twice on Picea mariana and once each on Betula papyrifera, Larix laricina, and Salix sp.

Relative abundance: PA - absent, MC - absent, MRL - common.

Cover: MRL - present in 4 sites at +.

Literature reports: Krog 1968, Scotter and Thomson 1966, Thomson et al. 1969.

General distribution: Circumpolar, Boreal-Montane.

Voucher specimens: MRL - 27402, 27440, 27448, 27497, 27525.

Cetraria hepatizon (Ach.) Vain.

Substrate: quartzite.

Relative abundance: PA - absent, MC - common, MRL - absent.

Cover: MC - present in 1 site at 1%, and in 8 at +.

Literature reports: Hansen 1962, Hansen 1971, Krog 1968, Scotter and Thomson 1966,

Thomson et al. 1969, Thomson 1970, Weber and Viereck 1967.

General distribution: Circumpolar, Arctic-Boreal Alpine-Montane.

Voucher specimens: MC - 26839, 26856, 26890, 26962, 26999, 27069, 27117, 27170,
27291, 27338.

/

Cetraria islandica (L.) Ach.

Substrate: soil.

Relative abundance: PA - common, MC - absent, MRL - rare.

Cover: PA - present in 1 site at 1%, and in 15 at +; MRL - present in 1 site at +.

Literature reports: Hansen 1962, Hansen 1971, Krog 1968, Scotter and Thomson 1966,
Thomson et al. 1969, Thomson 1970, Weber and Viereck 1967.

General distribution: Circumpolar, Arctic-Temperate Alpine-Montane.

Voucher specimens: PA - 26103, 26182, 26205, 26256, 26286, 26397, 26427, 26440,
26478, 26517, 26562, 26584, 26609, 26673, 26704, 26735; MRL - 27560.

Cetraria laevigata Rass.

Substrate: soil.

Relative abundance: PA - abundant, MC - abundant; MRL - rare.

Cover: PA - present in 10 sites at +; MC - present in 2 sites at 3%, in 3 at 2%,
in 3 at 1%, and in 5 at +; MRL - present in 1 site at +.

Literature reports: Krog 1968, Thomson et al. 1969.

General distribution: Circumpolar, Arctic-Alpine.

Voucher specimens: PA - 26104, 26183, 26206, 26287, 26335, 26358, 26398, 26585, 26674, 26702; MC - 26768, 26827, 26865, 26905, 26936, 26978, 27013, 27046, 27088, 27140, 27187, 27252, 27305; MRL - 27588.

Cetraria nigricans (Retz.) Nyl.

Substrate: soil.

Relative abundance: PA - rare, MC - common, MRL - absent.

Cover: PA - present in 1 site at +; MC - present in 2 sites at 2%, and in 7 at +.

Literature reports: Hansen 1962, Hansen 1971, Krog 1968, Scotter and Thomson 1966, Thomson et al. 1969, Thomson 1970, Weber and Viereck 1967.

General distribution: Circumpolar, Arctic-Alpine.

Voucher specimens: PA - 26367a; MC - 26769, 26828, 26866, 26979, 27047, 27089, 27141, 27188, 27306.

Cetraria nivalis (L.) Ach.

Substrate: soil.

Relative abundance: PA - abundant, MC - abundant, MRL - common.

Cover: PA - present in 1 site at 3%, in 5 at 2%, in 2 at 1%, and in 14 at +; MC - present in 1 site at 6%, in 3 at 5%, in 1 at 4%, in 1 at 2%, in 3 at 1%, and in 3 at +; MRL - present in 1 site at 6%, in 1 at 4%, in 3 at 2%, in 1 at 1%, and in 1 at +.

Literature reports: Hansen 1962, Hansen 1971, Krog 1968, Scotter and Thomson 1966, Thomson et al. 1969, Thomson 1970, Weber and Viereck 1967.

General distribution: Circumpolar, Arctic-Boreal Alpine-Montane.

Voucher specimens: PA - 26105, 26150, 26184, 26207, 26257, 26288, 26321, 26336, 26359, 26399, 26428, 26441, 26479, 26519, 26542, 26563, 26586, 26610, 26634, 26675, 26705, 26736; MC - 26770, 26829, 26867, 26980, 27014, 27048, 27090, 27142, 27189, 27253, 27307; MRL - 27353, 27423, 27537, 27561, 27579, 27589.

Cetraria pinastri (Scop.) S. Gray

Substrate: present 4 times on Picea mariana, twice each on Picea glauca, Salix sp. and on rotten logs, and once each on Betula glandulosa and Larix laricina.

Relative abundance: PA - rare, MC - absent, MRL - common.

Cover: PA - present in 1 site at +; MRL - present in 6 sites at +.

Literature reports: Hansen 1971, Krog 1968, Scotter and Thomson 1966, Thomson et al. 1969, Weber and Viereck 1967.

General distribution: Circumpolar, Boreal-Montane.

Voucher specimens: PA - 26722; MRL - 27354, 27373, 27403, 27409, 27412, 27449, 27484, 27498, 27508, 27526, 27528.

Cetraria richardsonii Hook.

Substrate: soil.

Relative abundance: PA - occasional, MC - common, MRL - absent.

Cover: PA - present in 1 site at 2%, and in 1 at +; MC - present in 1 site at 3%, in 1 at 2%, in 1 at 1%, and in 3 at +.

Literature reports: Krog 1968, Scotter and Thomson 1966, Thomson et al. 1969, Thomson 1970, Weber and Viereck 1967.

General distribution: Amphi-Beringian, Western Arctic-Cordilleran.

Voucher specimens: PA - 26400, 26737; MC - 26771, 26830, 26868, 26908, 26937, 27308.

Cetraria sepincola (Ehrh.) Ach.

Substrate: found once each on Betula glandulosa and Picea mariana.

Relative abundance: PA - rare, MC - absent, MRL - rare.

Cover: PA - present in 1 site at +; MRL - present in 1 site at +.

Literature reports: Hansen 1971, Krog 1968, Scotter and Thomson 1966,

Thomson et al. 1969, Thomson 1970, Weber and Viereck 1967.

General distribution: Circumpolar, Arctic-Boreal Alpine-Montane.

Voucher specimens: PA - 26723; MRL - 27527.

Cetraria simmonsii Krog var. simmonsii

Substrate: soil.

Relative abundance: PA - absent, MC - rare, MRL - absent.

Cover: MC - present in 1 site at +.

Literature reports: Krog 1968.

General distribution: American, Arctic-Alpine.

Voucher specimen: 27309.

Cetraria tilesii Ach.

Substrate: soil.

Relative abundance: PA - abundant, MC - common, MRL - absent.

Cover: PA - present in 1 site at 4%, in 3 at 3%, in 2 at 2%, in 6 at 1%, and in 11 at +;

MC - present in 1 site at 1%, and in 5 at +.

Literature reports: Krog 1968, Thomson et al. 1969, Thomson 1970, Weber and

Viereck 1967.

General distribution: Circumpolar, Arctic-Alpine.

Voucher specimens: PA - 26106, 26151, 26185, 26208, 26258, 26289, 26322, 26337, 26360, 26401, 26429, 26442, 26463, 26480, 26499, 26520, 26543, 26564, 26587, 26612, 26635, 26663, 26676, 26706, 26739; MC - 26772, 26831, 27049, 27091, 27254, 27310.

Cladina aberrans (Abb.) Hale & W. Culb.

Synonymy: Cladonia alpestris var. aberrans (Des Abb.) Ahti, C. alpestris (L.) Harm., Chem. Str. II (psoromic acid strain, PD+ yellow). Though morphologically identical to Cladina alpestris the present species differs in containing psoromic acid and in having a rather well-defined distribution pattern.

Substrate: soil.

Relative abundance: PA - rare, MC - absent, MRL - occasional.

Cover: PA - present in 1 site at 1%; MRL - present in 1 site at 21%, possibly present in another site at 19% but voucher material from this site was not collected for chemical testing.

Literature reports: Krog 1968.

General distribution: Amphi-Beringian, Arctic-Alpine.

Voucher specimens: PA - 26361; MRL - 27424.

Cladina alpestris (L.) Harm.

Synonymy: Cladonia alpestris (L.) Rabenh., Chem. Str. I (PD-).

Substrate: soil.

Relative abundance: PA - rare, MC - common, MRL - common.

Cover: PA - present in 1 site at 5%; MC - present in 2 sites at 1%, and in 3 at +; MRL - present in 1 site at 21%, in 1 at 9%, in 1 at 8%, in 1 at 4%, in 1 at 2%, and possibly in another at 19% but voucher material from this site was not collected for chemical testing.

Literature reports: Hansen 1962, Hansen 1971, Krog 1968, Scotter and Thomson 1966,
Thomson et al. 1969, Thomson 1970, Weber and Viereck 1967.

General distribution: Circumpolar, Arctic-Boreal Alpine-Montane.

Voucher specimens: PA - 26402; MC - 26773, 27050, 27092, 27143, 27311;
 MRL - 27351, 27424a, 27538, 27562, 27580, 27590.

Cladina arbuscula (Wallr.) Hale & W.Culb. ssp. beringiana (Ahti) Bird, comb. nov.

Cladonia arbuscula (Wallr.) Rabenh. ssp. beringiana Ahti, Ann. Bot. Soc.

'Vanamo' 32: 109, Pl. 39. 1961. Type: Northwest Territories, Mackenzie Dist.,
 Great Bear Lake, Lindsey 417 (UPS).

Cover: PA - present in 1 site at 1%, and in 8 at +; MC - present in 1 site at 10%,
 in 2 at 2%, in 1 at 1%, and in 6 at +; MRL - present in 1 site at 29%, in 1 at 12%,
 in 1 at 11%, and in 1 at 5%.

Literature reports: Hansen 1971, Krog 1968, Thomson et al. 1969, Weber and
 Viereck 1967.

General distribution: Amphi-Beringian, Arctic-Alpine.

Voucher specimens: PA - 26107, 26186, 26209, 26290, 26362, 26403, 26677, 26707,
 26740; MC - 26774, 26832, 26868, 26906, 26938, 26981, 27093, 27144, 27190,
 27255; MRL - 27355, 27425, 27539, 27563, 27591.

Cladina mitis (Sandst.) Hale & W. Culb.

Synonymy: Cladonia mitis Sandst.

Substrate: soil.

Relative abundance: PA - absent, MC - rare, MRL - common.

Cover: MC - present in 1 site at 1%; MRL - present in 1 site at 7%, in 1 at 4%,
 in 1 at 2%, and in 1 at +.

Literature reports: Hansen 1962, Hansen 1971, Krog 1968, Scotter and Thomson 1966,

Thomson et al. 1969, Thomson 1970, Weber and Viereck 1967.

General distribution: Circumpolar, Arctic-Boreal Alpine-Montane.

Voucher specimens: MC - 27312; MRL - 27386, 27426, 27510, 27564.

Cladina rangiferina (L.) Harm.

Synonymy: Cladonia rangiferina (L.) Wigg.

Substrate: soil.

Relative abundance: PA - occasional, MC - common, MRL - common.

Cover: PA - present in 1 site at 1%, and in 2 sites at +; MC - present in 1 site at 3%, in 2 at 2%, in 2 at 1%, and in 4 at +; MRL - present in 2 sites at 5%, in 1 at 4%, and in 2 at 2%.

Literature reports: Hansen 1962, Hansen 1971, Krog 1968, Scotter and Thomson 1966,

Thomson et al. 1969, Thomson 1970, Weber and Viereck 1967.

General distribution: Circumpolar, Arctic-Temperate Alpine-Montane.

Voucher specimens: PA - 26210, 26363, 26404; MC - 26775, 26833, 26870, 26907, 26939, 27094, 27145, 27191, 27313; MRL - 27427, 27540, 27565, 27581, 27592.

Cladonia amaurocraea (Flörke) Schaer.

Substrate: soil.

Relative abundance: PA - common, MC - abundant, MRL - common.

Cover: PA - present in 7 sites at +; MC - present in 2 sites at 1%, and in 11 at +; MRL - present in 1 site at 7%, in 1 at 4%, in 3 at 2%, in 1 at 1%, and in 1 at +.

Literature reports: Hansen 1962, Hansen 1971, Krog 1968, Scotter and Thomson 1966,

Thomson et al. 1969, Thomson 1970, Weber and Viereck 1967.

General distribution: Circumpolar, Arctic-Boreal Alpine-Montane.

Voucher specimens: PA - 26108, 26211, 26364, 26405, 26678, 26708, 26741;
MC - 26776, 26834, 26871, 26909, 26940, 26982, 27015, 27051, 27095,
27146, 27192, 27256, 27314; MRL - 27356, 27428, 27458, 27511, 27541,
27566, 27582, 27593.

Cladonia bacillaris (Ach.) Nyl.

Substrate: rotten logs.

Relative abundance: PA - absent, MC - absent, MRL - occasional.

Cover: MRL - present in 2 sites at +.

Literature reports: Krog 1968, Scotter and Thomson 1966, Thomson et al 1969,
Weber and Viereck 1967.

General distribution: Circumpolar, Boreal-Montane.

Voucher specimens: MRL - 27357, 27413.

Cladonia botrytes (Hag.) Willd.

Substrate: rotten logs.

Relative abundance: PA - absent, MC - absent, MRL - occasional.

Cover: MRL - present in 2 sites at +.

Literature reports: Krog 1968, Thomson et al. 1969.

General distribution: Circumpolar, Boreal-Montane.

Voucher specimens: MRL - 27358, 27414.

Cladonia cariosa (Ach.) Spreng.

Substrate: soil.

Relative abundance: PA - absent, MC - occasional, MRL - absent.

Cover: MC - present in 2 sites at +.

Literature reports: Hansen 1962, Krog 1968, Thomson et al. 1969, Weber and Viereck 1967.

General distribution: Circumpolar, Arctic-Boreal Alpine-Montane.

Voucher specimens: MC - 26835, 26941.

Cladonia cenotea (Ach.) Schaer.

Substrate: found 6 times on soil and twice on rotten logs.

Relative abundance: PA - absent, MC - occasional, MRL - common.

Cover: MC - present in 2 sites at +; MRL - present in 1 site at 1%, and in 4 sites at +.

Literature reports: Hansen 1962, Krog 1968, Scotter and Thomson 1966, Thomson et al. 1969, Weber and Viereck 1967.

General distribution: Circumpolar, Arctic-Boreal Alpine-Montane.

Voucher specimens: MC - 26910, 27016; MRL - 27359, 27387, 27415, 27542, 27567, 27594.

Cladonia chlorophaea (Flörke ex Somm.) Spreng.

Synonymy: C. pyxidata ssp. chlorophaea (Flörke) Spreng. The species is regarded here in the narrow sense. All of the specimens were PD+ red and none of them yielded crystals in GE or GAW.

Substrate: found 4 times on soil and once at the base of a Picea glauca tree.

Relative abundance: PA - absent, MC - common, MRL - rare.

Cover: MC - present in 4 sites at +; MRL - present in 1 site at +.

Literature reports: Hansen 1962, Hansen 1971, Krog 1968, Scotter and Thomson 1966,
Thomson et al. 1969, Weber and Viereck 1967.

General distribution: Circumpolar, Arctic-Temperate Alpine-Montane.

Voucher specimens: MC - 26777, 26836, 27096, 27257; MRL - 27485.

Cladonia coccifera (L.) Willd.

Substrate: soil.

Relative abundance: PA - occasional, MC - abundant, MRL - common.

Cover: PA - present in 2 sites at +; MC - present in 10 sites at +; MRL - present in
1 site at 3%, in 1 at 1%, and in 2 at +.

Literature reports: Hansen 1962, Hansen 1971, Krog 1968, Scotter and Thomson 1966,
Thomson et al. 1969, Thomson 1970, Weber and Viereck 1967.

General distribution: Circumpolar, Arctic-Boreal Alpine-Montane.

Voucher specimens: PA - 26365, 26406; MC - 26837, 26872, 26881, 26911, 26942,
26983, 27052, 27097, 27193, 27258, 27315; MRL - 27360, 27388, 27429, 27568,
27595.

Cladonia coniocraea (Flörke) Spreng.

Substrate: rotten log.

Relative abundance: PA - absent, MC - absent, MRL - rare.

Cover: MRL - present in 1 site at +.

Literature reports: Krog 1968, Thomson et al. 1969, Weber and Viereck 1967.

General distribution: Circumpolar, Boreal-Montane.

Voucher specimen: MRL - 27361.

Cladonia cornuta (L.) Hoffm.

Substrate: found 8 times on soil and once on a rotten log.

Relative abundance: PA - absent, MC - occasional, MRL - common.

Cover: MC - present in 1 site at 1%, and in 1 site at +; MRL - present in 2 sites at 1%, and in 5 at +.

Literature reports: Hansen 1962, Hansen 1971, Krog 1968, Scotter and Thomson 1966, Thomson et al. 1969, Thomson 1970.

General distribution: Circumpolar, Arctic-Boreal Alpine-Montane.

Voucher specimens: MC - 27017; MRL - 27362, 27390, 27430, 27459, 27512, 27543, 27569, 27596.

Cladonia crispata (Ach.) Flot.

Substrate: soil.

Relative abundance: PA - absent, MC - absent, MRL - rare.

Cover: MRL - present in 1 site at 2%.

Literature reports: Hansen 1962, Hansen 1971, Krog 1968, Scotter and Thomson 1966, Thomson et al. 1969, Weber and Viereck 1967.

General distribution: Circumpolar, Arctic-Boreal Alpine-Montane.

Voucher specimen: MRL - 27513.

Cladonia decorticata (Flörke) Spreng.

Substrate: soil.

Relative abundance: PA - absent, MC - occasional, MRL - absent.

Cover: MC - present in 3 sites at +.

Literature reports: Hansen 1971, Krog 1968 ?

General distribution: Circumpolar, Arctic-Boreal Alpine-Montane.

Voucher specimens: MC - 26838, 26873, 27098.

Cladonia deformis (Flörke) Schaer

Synonymy: C. deformis (L.) Hoffm. sens. lat., C. deformis var. deformis.

Substrate: found 7 times on soil and twice on rotten logs.

Relative abundance: PA - rare, MC - common, MRL - common.

Cover: PA - present in 1 site at +; MC - present in 4 sites at +; MRL - present in 1 site at 1%, and in 2 at +.

Literature reports: Hansen 1962, Hansen 1971, Krog 1968, Scotter and Thomson 1966, Thomson et al. 1969, Thomson 1970, Weber and Viereck 1967?

General distribution: Circumpolar, Arctic-Boreal Alpine-Montane.

Voucher specimens: PA - 26212; MC - 26912, 27018, 27148, 27194; MRL - 27363, 27391, 27416, 27597.

Cladonia fimbriata (L.) Fr.

Substrate: soil.

Relative abundance: PA - rare, MC - rare, MRL - absent

Cover: PA - present in 1 site at +; MC - present in 1 site at +.

Literature reports: Hansen 1962, Hansen 1971, Krog 1968, Scotter and Thomson 1966, Thomson et al. 1969, Weber and Viereck 1967.

General distribution: Circumpolar, Arctic-Boreal Alpine-Montane.

Voucher specimens: PA - 26213; MC - 27053.

Cladonia glauca Florke

Substrate: on soil in a cave.

Relative abundance: PA - absent, MC - rare, MRL - absent.

Cover: MC - present in 1 site at +.

Literature reports: not reported by any of the selected sources.

General distribution: Circumpolar, Arctic-Boreal Alpine-Montane.

Voucher specimen: MC - 27129.

Cladonia gonecha (Ach.) Asah.

Synonymy: C. deformis var. gonecha (Ach.) Arn., C. deformis (L.) Hoffm. sens. lat.

Substrate: found 4 times on soil and twice on rotten logs.

Relative abundance: PA - absent, MC - common, MRL - common.

Cover: MC - present in 4 sites at +; MRL - present in 1 site at 1%, and in 2 at +.

Literature reports: Krog 1968, Thomson et al. 1969, Weber and Viereck 1967?

General distribution: Circumpolar, Arctic-Boreal Alpine-Montane.

Voucher specimens: MC - 26913, 27019, 27195, 27316; MRL - 27364, 27392,

27417, 27598.

Cladonia gracilis var. dilatata (Hoffm.) Schaer.

Substrate: found 6 times on soil, twice on rotten logs, and once at the base of a

Populus balsamifera tree.

Relative abundance: PA - rare, MC - rare, MRL - common.

Cover: PA - present in 1 site at +; MC - present in 1 site at +; MRL - present in 6 sites at +.

Literature reports: Krog 1968, Scotter and Thomson 1966, Thomson et al. 1969, Weber and Viereck 1967.

General distribution: Circumpolar, Arctic-Boreal Alpine-Montane.

Voucher specimens: PA - 26214; MC - 27196; MRL - 27365, 27418, 27469, 27514, 27544, 27583, 27599.

Cladonia macrophyllodes Nyl.

Substrate: soil.

Relative abundance: PA - absent, MC - rare, MRL - absent.

Cover: MC - present in 1 site at +.

Literature reports: Hansen 1962, Hansen 1971, Krog 1968, Thomson et al. 1969.

General distribution: Circumpolar, Arctic-Boreal Alpine-Montane.

Voucher specimen: MC - 26778.

Cladonia merochlorophaea Asah.

Synonymy: morphologically similar to C. chlorophaea and included in it by some authors but distinguished from that species here and by other authors (Thomson 1967, Bird and Marsh in press) by the presence of merochlorophaeic acid. The specimen yielded merochlorophaeic acid crystals in GE and was PD-.

Substrate: soil.

Relative abundance: PA - absent, MC - rare, MRL - absent.

Cover: MC - present in one site at +.

Literature reports: Krog 1968, Thomson et al. 1969.

General distribution: Circumpolar, Boreal-Montane.

Voucher specimen: MC - 27147.

Cladonia metacorallifera Asah.

Substrate: soil.

Relative abundance: PA - absent, MC - common, MRL - absent.

Cover: MC - present in 5 sites at +.

Literature reports: Krog 1968, Thomson et al. 1969, Weber and Viereck 1967.

General distribution: Amphi-Beringian, Arctic-Alpine.

Voucher specimens: MC - 26779, 26839, 27149, 27197, 27317.

Cladonia multiformis Merr.

Substrate: soil.

Relative abundance: PA - absent, MC - absent, MRL - rare.

Cover: MRL - present in 1 site at +.

Literature reports: Krog 1968, Thomson et al. 1969.

General distribution: American, Boreal-Montane.

Voucher specimen: MRL - 27545.

Cladonia phyllophora Hoffm.

Synonymy: C. degenerans (Flörke) Spreng.

Substrate: soil.

Relative abundance: PA - absent, MC - absent, MRL - occasional.

Cover: MRL - present in 1 site at 1%, and in 1 at +.

Literature reports: Krog 1968, Scotter and Thomson 1966, Thomson et al. 1969,
Thomson 1970.

General distribution: Circumpolar, Arctic-Boreal Alpine-Montane.

Voucher specimens: MRL - 27570, 27600.

Cladonia pleurota (Flörke) Schaer.

Synonymy: C. coccifera var. pleurota (Flörke) Vain.

Substrate: soil.

Relative abundance: PA - absent, MC - common, MRL - absent.

Cover: MC - present in 4 sites at +.

Literature reports: Hansen 1962, Hansen 1971, Krog 1968, Scotter and Thomson 1966,
Thomson et al. 1969.

General distribution: Circumpolar, Arctic-Boreal Alpine-Montane.

Voucher specimens: MC - 26840, 27054, 27099, 27318.

Cladonia pocillum (Ach.) O. Rich.

Synonymy: C. pyxidata var. pocillum (Ach.) Flot.

Substrate: soil.

Relative abundance: PA - common, MC - occasional, MRL - occasional.

Cover: PA - present in 1 site at 1%, and in 6 at +; MC - present in 1 site at 3%,
and in 1 at +; MRL - present in 2 sites at +.

Literature reports: Hansen 1962, Hansen 1971, Krog 1968, Thomson et al. 1969,
Thomson 1970.

General distribution: Circumpolar, Arctic-Temperate Alpine-Montane.

Voucher specimens: PA - 26187, 26215, 26338, 26521, 26522, 26588, 26613, 26679,
26709; MC - 26780, 27259; MRL - 27546, 27601.

Cladonia pyxidata (L.) Hoffm.

Synonymy: C. pyxidata var. pyxidata.

Substrate: soil.

Relative abundance: PA - occasional, MC - occasional, MRL - absent.

Cover: PA - present in 5 sites at +; MC - present in 2 sites at +.

Literature reports: Hansen 1962, Hansen 1971, Krog 1968, Scotter and Thomson 1966,
Thomson et al. 1969, Thomson 1970, Weber and Viereck 1967.

General distribution: Circumpolar, Arctic-Boreal Alpine-Montane.

Voucher specimens: PA - 26339, 26407, 26742; MC - 27150, 27198.

Cladonia squamosa (Scop.) Hoffm.

Substrate: soil.

Relative abundance: PA - absent, MC - common, MRL - absent.

Cover: MC - present in 4 sites at +.

Literature reports: Hansen 1962, Hansen 1971, Krog 1968, Thomson et al. 1969,

Weber and Viereck 1967.

General distribution: Circumpolar, Arctic-Boreal Alpine-Montane.

Voucher specimens: MC - 27055, 27100, 27151, 27199.

Cladonia subfurcata (Nyl.) Arn.

Synonymy: C. delessertii (Nyl.) Vain.

Substrate: soil.

Relative abundance: PA - rare, MC - rare, MRL - rare.

Cover: PA - present in 1 site at +; MC - present in 1 site at +; MRL - present in 1 site at +.

Literature reports: Hansen 1962, Hansen 1971, Krog 1968, Thomson et al. 1969,

Weber and Viereck 1967.

General distribution: Circumpolar, Arctic-Temperate Alpine-Montane.

Voucher specimens: PA - 26216; MC - 27200; MRL - 27602.

Cladonia uncialis (L.) Wigg.

Substrate: soil.

Relative abundance: PA - occasional, MC - common, MRL - occasional.

Cover: PA - present in 3 sites at +; MC - present in 1 site at 4%, in 1 at 2%, and in 5 at +; MRL - present in 1 site at 3%, in 1 at 1%, and in 1 at +.

Literature reports: Hansen 1962, Hansen 1971, Krog 1968, Scotter and Thomson 1966,
Thomson et al. 1969.

General distribution: Circumpolar, Arctic-Boreal Alpine-Montane.

Voucher specimens: PA - 26366, 26408, 26743; MC - 26841, 26914, 26943, 27101,
27152, 27201, 27319; MRL - 27431, 27515, 27547.

Cladonia verticillata (Hoffm.) Schaer.

Substrate: soil.

Relative abundance: PA - absent, MC - occasional, MRL - rare.

Cover: MC - present in 2 sites at +; MRL - present in 1 site at +.

Literature reports: Krog 1968, Thomson et al. 1969, Weber and Viereck 1967.

General distribution: Circumpolar, Arctic-Boreal Alpine-Montane.

Voucher specimens: MC - 26842, 27202; MRL - 27571.

Collema auriculatum Hoffm.

Substrate: dolomite rocks, usually those used as resting places by birds.

Relative abundance: PA - occasional, MC - absent, MRL - absent.

Cover: PA - present in 3 sites at +.

Literature reports: not reported in any of the selected sources.

General distribution: Circumpolar, Boreal-Montane.

Voucher specimens: PA - 26167, 26270, 26652.

Collema polycarpon Hoffm.

Substrate: limestone bird rock.

Relative abundance: PA - rare, MC - absent, MRL - absent.

Cover: PA - present in 1 site at +.

Literature reports: Thomson et al. (1969) report C. polycarpon var. corycurense f. isidiata Degel.

General distribution: Circumpolar, Arctic-Boreal Alpine-Montane.

Voucher specimen: PA - 26653.

Coriscium viride (Ach.) Vain.

Substrate: on mosses.

Relative abundance: PA - absent, MC - occasional, MRL - absent.

Cover: MC - present in 1 site at 1%, and in 2 at +.

Literature reports: Scotter and Thomson 1966.

General distribution: Circumpolar, Arctic-Alpine.

Voucher specimens: MC - 26931, 26958, 27043.

Cornicularia aculeata (Schreb.) Ach. sens. lat.

Synonymy: included is C. muricata (Ach.) Ach. as it is so similar that many collections cannot be separated with certainty into either it or C. aculeata.

Substrate: soil.

Relative abundance: PA - common, MC - absent, MRL - absent.

Cover: PA - present in 7 sites at +.

Literature reports: Hansen 1962, Hansen 1971, Krog 1968, Thomson et al. 1969.

General distribution: Circumpolar, Arctic-Temperate Alpine-Montane.

Voucher specimens: PA - 26109, 26259, 26291, 26367, 26544, 26589, 26680.

Cornicularia divergens Ach.

Substrate: soil.

Relative abundance: PA - occasional, MC - abundant, MRL - absent.

Cover: PA - present in 2 sites at +; MC - present in 1 site at 3%, in 2 at 1%,
and in 9 at +.

Literature reports: Hansen 1962, Hansen 1971, Krog 1968, Scotter and Thomson 1966,

Thomson et al. 1969, Thomson 1971, Weber and Viereck 1967.

General distribution: Circumpolar, Arctic-Alpine.

Voucher specimens: PA - 26110, 26744; MC - 26781, 26874, 26944, 26984, 27020,
27056, 27102, 27130, 27153, 27203, 27260, 27320.

Dactylinia arctica (Hook.) Nyl., PD+ strain

Substrate: soil.

Relative abundance: PA - common, MC - occasional, MRL - absent.

Cover: PA - present in 1 site at 4%, in 2 at 1%, and in 11 at +; MC - present in
2 sites at +.

Literature reports: Krog (1968) reports the PD+ strain while Hansen (1962),
Scotter and Thomson (1966), Thomson et al. (1969), Thomson (1970), and
Weber and Viereck (1967) report the species but do not indicate the strain,
or strains, involved.

General distribution: Amphi-Beringian, Arctic-Alpine. Krog (1968) states "Specimens
of the PD+ strain have been seen from Siberia, British Columbia, the Great
Bear Lake region and Baffin Land. Since no such specimens were seen in the
Greenland and Spitsbergen material, it is possible that the PD+ strain has a
wide amphi-Beringian distribution".

Voucher specimens: PA - 26113, 26152, 26188, 26340, 26368, 26409, 26430, 26443,
26464, 26481, 26523, 26545, 26614, 26745; MC - 27261, 27321.

Dactylina arctica (Hook.) Nyl., PD- strain

Substrate: soil.

Relative abundance: PA - occasional, MC - abundant, MRL - absent.

Cover: PA - present in 1 site at 3%, and in 3 at +; MC - present in 1 site at 3%,
in 5 at 1%, and in 6 at +.

Literature reports: Krog (1968) reports the PD- strain while Hansen (1962),
Scotter and Thomson (1966), Thomson et al. (1969), Thomson (1970), and
Weber and Viereck (1967) report the species but do not indicate the strain,
or strains, involved.

General distribution: Circumpolar, Arctic-Alpine. Krog (1968) states that "The PD-
strain has a more or less circumpolar distribution".

Voucher specimens: PA - 26217, 26292, 26590, 26681; MC - 26782, 26843, 26875,
26915, 26945, 26985, 27021, 27057, 27103, 27154, 27204, 27322.

Dactylina ramulosa (Hook.) Tuck., PD+ strain

Substrate: soil.

Relative abundance: PA - abundant, MC - absent, MRL - absent.

Cover: PA - present in 22 sites at +.

Literature reports: Krog (1968) reports the PD+ strain while Hansen (1962),
Thomson (1970) and Weber and Viereck (1967) report the species but do not
indicate the strain, or strains, involved.

General distribution: Circumpolar, Arctic-Alpine.

Voucher specimens: PA - 26111, 26153, 26189, 26218, 26260, 26293, 26323, 26341,
26369, 26410, 26431, 26444, 26465, 26482, 26524, 26546, 26591, 26615, 26636,
26682, 26710, 26746.

Dimelaena oreina (Ach.) Norm.

Synonymy: Rinodina oreina (Ach.) Mass.

Substrate: on quartzite of a bird rock.

Relative abundance: PA - rare, MC - absent, MRL - absent.

Cover: PA - present in 1 site at +.

Literature reports: Thomson et al. 1969, Thomson 1970.

General distribution: Circumpolar, Arctic-Boreal Alpine-Montane.

Voucher specimen: PA - 26168.

Evernia mesomorpha Nyl.

Substrate: found 3 times on Picea glauca trees, twice on Picea mariana, and once each on Larix laricina, Salix sp. and on rotten logs.

Relative abundance: PA - absent, MC - absent, MRL - common.

Cover: MRL - present in 7 sites at +.

Literature reports: Krog 1968, Thomson et al. 1969.

General distribution: Circumpolar, Boreal-Montane.

Voucher specimens: MRL - 27355, 27374, 27404, 27450, 27487, 27499, 27529, 27625.

Evernia perfragilis Llano

Substrate: soil.

Relative abundance: PA - common, MC - absent, MRL - absent.

Cover: PA - present in 7 sites at +.

Literature reports: Krog 1968, Thomson 1970.

General distribution: Amphi-Beringian, Arctic-Alpine.

Voucher specimens: PA - 26112, 26261, 26294, 26547, 26592, 26664, 26683.

Haematomma lapponicum Räs.

Synonymy: H. ventosum ssp. lapponicum (Räs.) Laund.

Substrate: quartzite.

Relative abundance: PA - absent, MC - common, MRL - absent.

Cover: MC - present in 2 sites at 1%, and in 7 at +.

Literature reports: Lynge 1940, Scotter and Thomson 1966, Thomson et al. 1969,
Thomson 1970, Weber and Viereck 1967.

General distribution: Circumpolar, Arctic-Alpine.

Voucher specimens: MC - 26797, 26891, 26963, 27000, 27070, 27118, 27171, 27232,
27339.

Hypogymnia austerodes (Nyl.) Räs.

Synonymy: Parmelia austerodes Nyl.

Substrate: found twice on rock and once each on Betula papyrifera, Picea glauca,
Salix sp., and on a rotten log.

Relative abundance: PA - absent, MC - occasional, MRL - common.

Cover: MC - present in 2 sites at +; MRL - present in 4 sites at +.

Literature reports: Hansen 1962, Hansen 1971, Krog 1968, Thomson et al. 1969,
Weber and Viereck 1967.

General distribution: Circumpolar, Arctic-Boreal Alpine-Montane.

Voucher specimens: MC - 27233, 27292; MRL - 27375, 27419, 27441, 27500.

Hypogymnia intestiniformis (Vill.) Räs.

Synonymy: Parmelia intestiniformis (Vill.) Ach.

Substrate: quartzite.

Relative abundance: PA - absent, MC - common, MRL - absent.

Cover: MC - present in 6 sites at +.

Literature reports: Hansen 1962, Hansen 1971, Krog 1968.

General distribution: Circumpolar, Arctic-Alpine.

Voucher specimens: MC - 26964, 27071, 27072, 27119, 27234, 27293, 27340.

Hypogymnia physodes (L.) W. Wats.

Synonymy: Parmelia physodes (L.) Ach.

Substrate: found 3 times each on Picea glauca and P. mariana trees, twice each on soil and on rotten logs, and once each on Betula glandulosa, B. papyrifera, Larix laricina, and Salix sp.

Relative abundance: PA - occasional, MC - rare, MRL - common.

Cover: PA - present in 2 sites at +; MC - present in 1 site at +; MRL - present in 1 site at 1%, and in 6 at +.

Literature reports: Hansen 1971, Krog 1968, Scotter and Thomson 1966, Thomson et al. 1969

Thomson 1970, Weber and Viereck 1967.

General distribution: Circumpolar, Arctic-Boreal Alpine-Montane.

Voucher specimens: PA - 26295, 26724; MC - 27262; MRL - 27367, 27376, 27405, 27410, 27420, 27442, 27451, 27488, 27501, 27527, 27530, 27626.

Icmadophila ericetorum (L.) Zahlbr.

Substrate: dead Sphagnum.

Relative abundance: PA - absent, MC - occasional, MRL - rare.

Cover: MC - present in 2 sites at +; MRL - present in 1 site at +.

Literature reports: Scotter and Thomson 1966, Thomson et al. 1969,
Thomson 1970, Weber and Viereck 1967.

General distribution: Circumpolar, Arctic-Boreal Alpine-Montane.

Voucher specimens: MC - 26959, 27337; MRL - 27433.

Lecanora alpina Somm.

Synonymy: Aspicilia alpina (Somm.) Arn.

Substrate: quartzite.

Relative abundance: PA - absent, MC - common, MRL - absent.

Cover: MC - present in 1 site at 5%, and in 3 at +.

Literature reports: Weber and Viereck 1967.

General distribution: Circumpolar, Arctic-Boreal Alpine-Montane.

Voucher specimens: MC - 26798, 26892, 27073, 27235.

Lecanora badia (Hoffm.) Ach.

Substrate: quartzite.

Relative abundance: PA - absent, MC - occasional, MRL - absent.

Cover: MC - present in 3 sites at +.

Literature reports: Lynge 1940, Thomson et al. 1969, Thomson 1970,
Weber and Viereck 1967.

General distribution: Circumpolar, Arctic-Boreal Alpine-Montane.

Voucher specimens: MC - 26857, 26965, 27344.

Lecanora caesiocinerea Nyl.

Substrate: chert.

Relative abundance: PA - occasional, MC - absent, MRL - absnt.

Cover: PA - present in 3 sites at +.

Literature reports: Thomson et al. 1969.

General distribution: Circumpolar, Arctic-Boreal Alpine-Montane.

Voucher specimens: PA - 26314, 26387, 26388, 26421.

Lecanora cinerea (L.) Somm.

Synonymy: Aspicilia cinerea (L.) Körb.

Substrate: chert.

Relative abundance: PA - rare, MC - absent, MRL - absent

Cover: PA - present in 1 site at +.

Literature reports: Thomson et al. 1969, Weber and Viereck 1967.

General distribution: Circumpolar, Arctic-Boreal Alpine-Montane.

Voucher specimen: PA - 26128.

Lecanora coilocarpa (Ach.) Nyl.

Substrate: found 3 times each on Picea glauca and Salix sp., twice each on Picea mariana and on rotten logs, and once on Larix laricina.

Relative abundance: PA - absent, MC - absent, MRL - common.

Cover: MRL - present in 6 sites at +.

Literature reports: Lyngé 1940, Scotter and Thomson 1966, Thomson et al. 1969.

General distribution: Circumpolar, Arctic-Boreal Alpine-Montane.

Voucher specimens: MRL - 27368, 27370, 27406, 27411, 27489, 27502, 27503, 27505, 27531, 27627, 27628.

Lecanora epibryon Ach.

Substrate: vegetabilia on calcareous soil, rarely bone.

Relative abundance: PA - abundant, MC - rare, MRL - absent.

Cover: PA - present in 2 sites at 1%, and in 20 at +; MC - present in 1 site at +.

Literature reports: Lynge 1940, Scotter and Thomson 1966, Thomson et al. 1969, Thomson 1970, Weber and Viereck 1967.

General distribution: Circumpolar, Arctic-Alpine

Voucher specimens: PA - 26122, 26161, 26248, 26269, 26278, 26278a, 26309, 26332, 26352, 26381, 26418, 26471, 26491, 26507, 26535, 26535a, 26555, 26576, 26601, 26630, 26648, 26667, 26695, 26719, 26759; MC - 27272.

Lecanora impudens Degel.

Synonymy: L. variolascens Nyl., L. subfuscata var. variolosa Körb.

Substrate: Populus balsamifera.

Relative abundance: PA - absent, MC - absent, MRL - rare.

Cover: MRL - present in 1 site at +.

Literature reports: Thomson et al. (1969) appear to have reported this species as L. expallens Ach.

General distribution: probably Circumpolar, Boreal-Montane.

Voucher specimens: MRL - 27471, 27477.

Lecanora pergibbosa Magn.

Substrate: dolomite bird rock.

Relative abundance: PA - rare, MC - absent, MRL - absent.

Cover: PA - present in 1 site at +.

Literature reports: Lynge 1940, Thomson et al. 1969.

General distribution: Circumpolar, Arctic-Alpine.

Voucher specimen: PA - 26169.

Lecanora polytropa (Ehrh.) Rabenh.

Substrate: quartzite and chert.

Relative abundance: PA - rare, MC - occasional, MRL - absent.

Cover: PA - present in 1 site at +; MC - present in 3 sites at +.

Literature reports: Lynge 1940, Scotter and Thomson 1966, Thomson et al. 1969,
Thomson 1970, Weber and Viereck 1967.

General distribution: Circumpolar, Arctic-Boreal Alpine-Montane.

Voucher specimens: PA - 26388; MC - 26799, 26966, 26969, 27236.

Lecanora subrugosa Nyl.

Substrate: Picea glauca.

Relative abundance: PA - absent, MC - absent, MRL - rare.

Cover: MRL - present in 1 site at +.

Literature reports: not reported by any of the 7 selected sources.

General distribution: Circumpolar, Boreal-Montane.

Voucher specimen: MRL - 27490.

Lecanora thomsonii Magn.

Substrate: quartzite.

Relative abundance: PA - absent, MC - common, MRL - absent.

Cover: MC - present in 1 site at 1%, and in 3 at +.

Literature reports: not reported by any of the selected sources.

General distribution: American, Arctic-Alpine.

Voucher specimens: MC - 26800, 27001, 27120, 27237.

Lecanora varia (Ehrh.) Ach.

Substrate: Betula glandulosa.

Relative abundance: PA - rare, MC - absent, MRL - absent.

Cover: PA - present in 1 site at +.

Literature reports: Weber and Viereck 1967.

General distribution: Circumpolar, Arctic-Boreal Alpine-Montane.

Voucher specimen: PA - 26725.

Lecanora verrucosa Ach.

Substrate: vegetabilia.

Relative abundance: PA - common, MC - absent, MRL - absent.

Cover: PA - present in 7 sites at +.

Literature reports: Lyngé 1940, Thomson et al. 1969, Thomson 1970.

General distribution: Circumpolar, Arctic-Alpine.

Voucher specimens: PA - 26123, 26279, 26353, 26458, 26507b, 26602, 26651.

Lecidea armeniaca (DC.) Fr.

Substrate: quartzite and chert.

Relative abundance: PA - occasional, MC - abundant, MRL - absent.

Cover: PA - present in 5 sites at +; MC - present in 1 site at 15%, in 1 at 8%,
in 1 at 7%, in 2 at 3%, in 1 at 2%, in 1 at 1%, and in 2 at +.

Literature reports: Thomson et al. 1969, Weber and Viereck 1967.

General distribution: Circumpolar, Arctic-Alpine.

Voucher specimens: PA - 26170, 26304, 26315, 26389, 26726; MC - 26801, 26802,
26803, 26893, 26898, 26967, 27002, 27074, 27121, 27123, 27172, 27238,
27294, 27341.

Lecidea assimilata Nyl.

Substrate: found twice on soil and once on vegetabilia.

Relative abundance: PA - occasional, MC - absent, MRL - absent.

Cover: PA - present in 3 sites at +.

Literature reports: Lynge 1940, Thomson et al. 1969, Thomson 1970.

General distribution: Circumpolar, Arctic-Alpine.

Voucher specimens: PA - 26163, 26466, 26483.

Lecidea atrobrunnea (Ram.) Schaer.

Substrate: diorite, quartzite, schist, and gneiss.

Relative abundance: PA - absent, MC - occasional, MRL - absent.

Cover: MC - present in 3 sites at +.

Literature reports: Lynge 1940, Scotter and Thomson 1966, Thomson et al. 1969,

Thomson 1970.

General distribution: Circumpolar, Arctic-Boreal Alpine-Montane.

Voucher specimens: MC - 26803, 27240, 27295, 27298.

Lecidea auriculata Th. Fr.

Substrate: quartzite.

Relative abundance: PA - absent, MC - rare, MRL - absent.

Cover: MC - present in 1 site at +.

Literature reports: Lyngé 1940, Thomson et al. 1969.

General distribution: Circumpolar, Arctic-Boreal Alpine-Montane.

Voucher specimen: MC - 26894.

Lecidea berengeriana (Mass.) Th. Fr.

Substrate: vegetabilia.

Relative abundance: PA - rare, MC - absent, MRL - absent.

Cover: PA - present in 1 site at +.

Literature reports: Lyngé 1940, Thomson et al. 1969, Thomson 1970.

General distribution: Circumpolar, Arctic-Boreal Alpine-Montane.

Voucher specimen: PA - 26200

Lecidea demissa (Rustr.) Ach.

Substrate: soil.

Relative abundance: PA - absent, MC - occasional, MRL - absent.

Cover: MC - present in 2 sites at +.

Literature reports: Lyngé 1940, Thomson et al. 1969, Weber and Viereck 1967.

General distribution: Circumpolar, Arctic-Alpine.

Voucher specimens: MC - 26986, 27155.

Lecidea flavocaerulescens Hornem.

Substrate: quartzite.

Relative abundance: PA - absent, MC - occasional, MRL - absent.

Cover: MC - present in 1 site at 1%, and in 2 at +.

Literature reports: Thomson et al. 1969, Thomson 1970, Weber and Viereck 1967.

General distribution: Circumpolar, Arctic-Alpine.

Voucher specimens: MC - 27003, 27075, 27122.

Lecidea glomerulosa (DC.) Steud.

Substrate: found 10 times on vegetabilia, 7 on Picea glauca, 3 on Populus balsamifera, and once on Picea mariana.

Relative abundance: PA - common, MC - rare, MRL - common.

Cover: PA - present in 9 sites at +; MC - present in 1 site at +; MRL - present in 4 sites at +.

Literature reports: Lynge 1940, Thomson et al. 1969, Thomson 1970, Weber and Viereck 1967.

General distribution: Circumpolar, Arctic-Boreal Alpine-Montane.

Voucher specimens: PA - 26310, 26354, 26458, 26492, 26555a, 26603, 26696, 26719, 26759; MC - 27273; MRL - 27380, 27381, 27455, 27472, 27473, 27481, 27493, 27627, 27628, 27629, 27639.

Lecidea granulosa (Ehrh.) Ach.

Substrate: soil.

Relative abundance: PA - absent, MC - rare, MRL - rare.

Cover: MC - present in 1 site at +; MRL - present in 1 site at 1%.

Literature reports: Scotter and Thomson 1966, Thomson et al. 1969,

Weber and Viereck 1967.

General distribution: Circumpolar, Arctic-Boreal Alpine-Montane.

Voucher specimens: MC - 27323; MRL - 27434.

Lecidea latypiza Nyl.

Substrate: granite.

Relative abundance: PA - absent, MC - rare, MRL - absent.

Cover: MC - present in 1 site at +.

Literature reports: Thomson et al. 1969, Thomson 1970.

General distribution: Circumpolar, Arctic-Alpine.

Voucher specimen: MC - 26804.

Lecidea lithophila (Ach.) Ach.

Substrate: quartzite.

Relative abundance: PA - absent, MC - rare, MRL - absent

Cover: MC - present in 1 site at +.

Literature reports: not reported in any of the 7 selected sources.

General distribution: Circumpolar, Arctic-Alpine.

Voucher specimen: MC - 26805.

Lecidea lulensis Hellb.

Substrate: quartzite

Relative abundance: PA - absent, MC - rare, MRL - absent.

Cover: MC - present in 1 site at +.

Literature reports: Lynge 1940, Thomson et al. 1969, Thomson 1970.

General distribution: Circumpolar, Arctic-Alpine.

Voucher specimen: MC - 27004

Lecidea macrocarpa (DC.) Steud.

Substrate: quartzite, dolomite, limestone, and schist.

Relative abundance: PA - occasional, MC - common, MRL - absent.

Cover: PA - present in 2 sites at +; MC - present in 5 sites at +.

Literature reports: Scotter and Thomson 1966, Thomson et al. 1969,

Weber and Viereck 1967.

General distribution: Circumpolar, Arctic-Boreal Alpine-Montane.

Voucher specimens: PA - 26493, 26556; MC - 26806, 26968, 26969, 27005, 27174,

27239.

Lecidea marginata Schaer.

Synonymy: L. elata Schaer.

Substrate: quartzite.

Relative abundance: PA - rare, MC - absent, MRL - absent.

Cover: PA - present in 1 site at +.

Literature reports: Lynge 1940.

General distribution: Circumpolar, Arctic-Alpine.

Voucher specimen: PA - 26472.

Lecidea pallida Th. Fr.

Substrate: vegetabilia.

Relative abundance: PA - common, MC - absent, MRL - absent.

Cover: PA - present in 7 sites at +.

Literature reports: Lynge 1940.

General distribution: Circumpolar, Arctic-Alpine.

Voucher specimens: PA - 26124, 26311, 26508, 26536, 26577, 26604, 26697.

Lecidea rubiformis (Wahlenb. ex Ach.) Wahlenb.

Substrate: chert

Relative abundance: PA - rare, MC - absent, MRL - absent.

Cover: PA - present in 1 site at +.

Literature reports: Lynge 1940, Thomson et al. 1969, Weber and Viereck 1967.

General distribution: Circumpolar, Arctic-Alpine.

Voucher specimen: PA - 26129.

Lecidea stigmata Ach.

Substrate: limestone and dolomite.

Relative abundance: PA - common, MC - absent, MRL - absent.

Cover: PA - present in 6 sites at +.

Literature reports: Thomson et al. 1969, Thomson 1970.

General distribution: Circumpolar, Arctic-Boreal Alpine-Montane.

Voucher specimens: PA - 26130, 26131, 26176, 26271, 26275, 26511, 26578, 26605.

Lecidea tessellata (Ach.) Flörke

Substrate: quartzite.

Relative abundance: PA - rare, MC - absent, MRL - absent.

Cover: PA - present in 1 site at +.

Literature reports: Lynge 1940, Thomson et al. 1969, Thomson 1970.

General distribution: Circumpolar, Arctic-Boreal Alpine-Montane.

Voucher specimen: PA - 26294.

Lecidea vernalis (L.) Ach.

Substrate: vegetabilia.

Relative abundance: PA - rare, MC - absent, MRL - absent.

Cover; PA - present in 1 site at +.

Literature reports: Lynge 1940, Thomson et al. 1969, Thomson 1970.

General distribution: Circumpolar, Arctic-Boreal Alpine-Montane.

Voucher specimen: PA - 26760.

Lecidea vorticosa (Flörke) Körb.

Substrate: granite.

Relative abundance: PA - absent, MC - rare, MRL - absent.

Cover: MC - present in 1 site at +.

Literature reports: Lynge 1940, Thomson et al. 1969.

General distribution: Circumpolar, Arctic-Alpine.

Voucher specimen: MC - 26807.

Leptogium saturninum (Dicks.) Nyl.

Substrate: base of Populus balsamifera trees.

Relative abundance: PA - absent, MC - absent, MRL - rare.

Cover: MRL - present in 1 site at +.

Literature reports: Hansen 1962, Hansen 1971, Krog 1968, Thomson 1970,

Weber and Viereck 1967.

General distribution: Circumpolar, Arctic-Boreal Alpine-Montane.

Voucher specimen: MRL - 27474.

Micarea melaena (Nyl.) Hedl.

Synonymy: Bacidia melaena (Nyl.) Zahlbr.

Substrate: soil.

Relative abundance: PA - rare, MC - absent, MRL - absent.

Cover: PA - present in 1 site at +.

Literature reports: Thomson 1970.

General distribution: Circumpolar, Arctic-Temperate Alpine-Montane.

Voucher specimen: PA - 26345.

Nephroma arcticum (L.) Torss.

Substrate: soil.

Relative abundance: PA - absent, MC - absent, MRL - rare.

Cover: found near Site 48 in trace amounts.

Literature reports: Hansen 1962, Hansen 1971, Krog 1968, Scotter and Thomson 1966,

Thomson et al. 1969, Thomson 1970, Weber and Viereck 1967.

General distribution: Circumpolar, Arctic-Boreal Alpine-Montane.

Voucher specimen: MRL - 27523.

Nephroma expallidum (Nyl.) Nyl.

Substrate: soil.

Relative abundance: PA - absent, MC - absent, MRL - rare.

Cover: MRL - present in 1 site at +.

Literature reports: Hansen 1962, Hansen 1971, Krog 1968, Scotter and Thomson 1966, Thomson et al. 1969, Thomson 1970, Weber and Viereck 1967.

General distribution: Circumpolar, Arctic-Alpine.

Voucher specimen: MRL - 27550.

Nephroma parile (Ach.) Ach.

Substrate: found once each of Picea glauca and Populus balsamifera trees.

Relative abundance: PA - absent, MC - absent, MRL - rare.

Cover: MRL - present in 1 site at +.

Literature reports: Hansen 1962, Hansen 1971, Krog 1968, Thomson et al. 1969, Weber and Viereck 1967.

General distribution: Circumpolar, Arctic-Boreal Alpine-Montane.

Voucher specimens: MRL - 27475, 27491.

Ochrolechia frigida (Sw.) Lyngé

Substrate: vegetabilia.

Relative abundance: PA - occasional, MC - occasional, MRL - absent.

Cover: PA - present in 5 sites at +; MC - present in 2 sites at +.

Literature reports: Lyngé 1940, Scotter and Thomson 1966, Thomson et al. 1969, Thomson 1970, Weber and Viereck 1967.

General distribution: Circumpolar, Arctic-Alpine.

Voucher specimens: PA - 26125, 26249, 26381a, 26509, 26698; MC - 27113, 27225.

Ochrolechia geminipara (Th. Fr.) Vain.

Substrate: vegetabilia.

Relative abundance: PA - absent, MC - rare, MRL - absent.

Cover: MC - present in 1 site at +.

Literature reports: Thomson et al. 1969.

General distribution: Circumpolar, Arctic-Alpine.

Voucher specimen: MC - 27067.

Ochrolechia inaequatula (Nyl.) Zahlbr.

Substrate: vegetabilia.

Relative abundance: PA - absent, MC - rare, MRL - absent.

Cover: MC - present in 1 site at +.

Literature reports: Lynge 1940, Scotter and Thomson 1966, Thomson et al. 1969.

General distribution: Circumpolar, Arctic-Alpine.

Voucher specimen: MC - 27226.

Ochrolechia upsaliensis (L.) Mass.

Substrate: vegetabilia.

Relative abundance: PA - occasional, MC - occasional, MRL - absent.

Cover: PA - present in 5 sites at +; MC - present in 1 site at 1%, and in 1 at +.

Literature reports: Lynge 1940, Scotter and Thomson 1966, Thomson et al. 1969,

Thomson 1970.

General distribution: Circumpolar, Arctic-Boreal Alpine-Montane.

Voucher specimens: PA - 26126, 26250, 26280, 26312, 26720; MC - 27227, 27274.

Parmelia alpicola Th. Fr.

Substrate: quartzite and chert.

Relative abundance: PA - rare, MC - common, MRL - absent.

Cover: PA - present in 1 site at +; MC - present in 1 site at 2%, and in 6 at +.

Literature reports: Hansen 1962, Hansen 1971, Krog 1968, Thomson et al. 1969,
Weber and Viereck 1967.

General distribution: Circumpolar, Arctic-Alpine.

Voucher specimens: PA - 26422; MC - 26808, 26809, 26810, 26895, 27076, 27123,
27175, 27240, 27342.

Parmelia centrifuga (L.) Ach.

Substrate: quartzite, occasionally soil.

Relative abundance: PA - absent, MC - common, MRL - absent.

Cover: MC - present in 2 sites at 1%, and in 4 at +.

Literature reports: Hansen 1962, Hansen 1971, Krog 1968, Scotter and Thomson 1966,
Thomson et al. 1969, Thomson 1970, Weber and Viereck 1967.

General distribution: Circumpolar, Arctic-Alpine.

Voucher specimens: MC - 26811, 26858, 26876, 26896, 27124, 27176, 27241.

Parmelia exasperatula Nyl.

Substrate: found twice on Picea glauca and once on Populus balsamifera trees.

Relative abundance: PA - absent, MC - absent, MRL - occasional.

Cover: MRL - present in 3 sites at +.

Literature reports: Krog 1968, Thomson et al. 1969.

General distribution: Circumpolar, Boreal-Montane.

Voucher specimens: MRL - 27377, 27477, 27632.

Parmelia olivacea (L.) Ach.

Substrate: Betula papyrifera.

Relative abundance: PA - absent, MC - absent, MRL - rare.

Cover: MRL - present in 1 site at +.

Literature reports: Hansen 1962, Krog 1968, Thomson et al. 1969, Thomson 1970.

General distribution: Incompletely Circumpolar, Boreal-Montane.

Voucher specimen: MRL - 27443.

Parmelia omphalodes (L.) Ach.

Substrate: soil.

Relative abundance: PA - absent, MC - common, MRL - absent.

Cover: MC - present in 1 site at 1%, and in 6 at +.

Literature reports: Hansen 1962, Hansen 1971, Krog 1968, Scotter and Thomson 1966,

Thomson et al. 1969, Weber and Viereck 1967.

General distribution: Circumpolar, Arctic-Boreal Alpine-Montane.

Voucher specimens: MC - 26783, 27058, 27104, 27131, 27156, 27205, 27263.

Parmelia saxatilis (L.) Ach.

Substrate: soil, occasionally quartzite.

Relative abundance: PA - absent, MC - common, MRL - absent.

Cover: MC - present in 1 site at 2%, and in 4 at +.

Literature reports: Hansen 1962, Hansen 1971, Krog 1968, Scotter and Thomson 1966,

Thomson et al. 1969, Thomson 1970, Weber and Viereck 1967.

General distribution: Circumpolar, Arctic-Boreal Alpine-Montane.

Voucher specimens: MC - 27077, 27105, 27157, 27264, 27324.

Parmelia separata Th. Fr.

Substrate: soil, but also on quartzite and chert.

Relative abundance: PA - occasional, MC - common, MRL - absent.

Cover: PA - present in 3 sites at +; MC - present in 7 sites at +.

Literature reports: Krog 1968, Scotter and Thomson 1966, Thomson et al. 1969,

Thomson 1970, Weber and Viereck 1967.

General distribution: Amphi-Beringian, Arctic-Alpine.

Voucher specimens: PA 26114, 26132, 26296, 26565; MC - 26784, 26812, 26897,
26987, 27059, 27078, 27106, 27158, 27206

Parmelia septentrionalis (Lynge) Ahti

Substrate: Picea glauca.

Relative abundance: PA - absent, MC - absent, MRL - rare.

Cover: MRL - present in 1 site at +.

Literature reports: Hansen 1971, Krog 1968, Thomson et al. 1969.

General distribution: Circumpolar, Boreal-Montane.

Voucher specimen: MRL - 27633.

Parmelia sulcata Tayl.

Substrate: found 3 times on Picea glauca, twice on Picea mariana, and once each
on Betula papyrifera, Larix laricina, Populus balsamifera, Salix sp., and
on rotten logs.

Relative abundance: PA - absent, MC - absent, MRL - common.

Cover: MRL - present in 7 sites at +.

Literature reports: Hansen 1962, Hansen 1971, Krog 1968, Scotter and Thomson 1966,

Thomson et al. 1969, Thomson 1970, Weber and Viereck 1967.

General distribution: Circumpolar, Arctic-Boreal Alpine-Montane.

Voucher specimens: MRL - 27369, 27378, 27407, 27444, 27452, 27478, 27494, 27504, 27532, 27634.

Parmeliopsis aleurites (Ach.) Nyl.

Substrate: rotten logs.

Relative abundance: PA - absent, MC - absent, MRL - rare.

Cover: MRL - present in 1 site at +.

Literature reports: Krog 1968, Thomson et al. 1969.

General distribution: Circumpolar, Boreal-Montane.

Voucher specimen: MRL - 27421.

Parmeliopsis ambigua (Wulf.) Nyl.

Substrate: found 3 times each on rotten logs, Picea mariana, and Salix sp.; twice on Betula glandulosa; and once on Picea glauca.

Relative abundance: PA - rare, MC - absent, MRL - common.

Cover: PA - present in 1 site at +; MRL - present in 5 sites at +.

Literature reports: Hansen 1971, Krog 1968, Scotter and Thomson 1966, Thomson et al. 1969, Weber and Viereck 1967.

General distribution: Circumpolar, Arctic-Boreal Alpine-Montane.

Voucher specimens: PA - 26724, 26725; MRL - 27370, 27371, 27379, 27409, 27422, 27453, 27497, 27505, 27506, 27533.

Parmeliopsis hyperopta (Wulf.) Nyl.

Substrate: found twice each of Salix sp. and on rotten logs.

Relative abundance: PA - absent, MC - absent, MRL - occasional.

Cover: MRL - present in 2 sites at +.

Literature reports: Hansen 1971, Krog 1968, Thomson et al. 1969,

Weber and Viereck 1967.

General distribution: Circumpolar, Arctic-Boreal Alpine-Montane.

Voucher specimens: MRL - 27370, 27371, 27506, 27508.

Peltigera aphthosa (L.) Willd.

Substrate: soil.

Relative abundance: PA - occasional, MC - rare, MRL - common.

Cover: PA - present in 2 sites at +; MC - present in 1 site at +; MRL - present in 1 site at 1%, and in 5 at +.

Literature reports: Hansen 1962, Hansen 1971, Krog 1968, Scotter and Thomson 1966, Thomson et al. 1969, Weber and Viereck 1967.

General distribution: Circumpolar, Arctic-Boreal Alpine-Montane.

Voucher specimens: PA - 26219, 26262; MC - 27022; MRL - 27435, 27464, 27507, 27551, 27574, 27607, 27622.

Peltigera leucophlebia (Nyl.) Gyeln.

Synonymy: P. aphthosa var. leucophlebia Nyl.

Substrate: soil.

Relative abundance: PA - occasional, MC - absent, MRL - rare.

Cover: PA - present in 2 sites at +; MRL - present in 1 site at +.

Literature reports: Hansen 1962, Krog 1968, Scotter and Thomson 1966, Thomson et al. 1969, Thomson 1970.

General distribution: Circumpolar, Arctic-Boreal Alpine-Montane.

Voucher specimens: PA - 26411, 26747; MRL - 27517.

Peltigera malacea (Ach.) Funck.

Substrate: soil.

Relative abundance: PA - absent, MC - rare, MRL - common.

Cover: MC - present in 1 site at +; MRL - present in 4 sites at +.

Literature reports: Hansen 1962, Hansen 1971, Krog 1968, Scotter and Thomson 1966,

Thomson et al. 1969, Thomson 1970, Weber and Viereck 1967.

General distribution: Circumpolar, Arctic-Boreal Alpine-Montane.

Voucher specimens: MC - 26844; MRL - 27436, 27518, 27575, 27608.

Peltigera polydactyla (Neck.) Hoffm.

Substrate: found twice on soil and once at the base of a Populus balsamifera tree.

Relative abundance: PA - absent, MC - occasional, MRL - rare.

Cover: MC - present in 2 sites at +; MRL - present in 1 site at +.

Literature reports: Hansen 1962, Hansen 1971, Krog 1968, Scotter and Thomson 1966,

Thomson et al. 1969, Weber and Viereck 1967.

General distribution: Circumpolar, Arctic-Temperate Alpine-Montane.

Voucher specimens: MC - 26916, 27023; MRL - 27479.

Peltigera praetextata (Flörke ex Somm.) Vain.

Substrate: soil.

Relative abundance: PA - absent, MC - rare, MRL - absent.

Cover: MC - present in 1 site at +.

Literature reports: Krog 1968.

General distribution: Circumpolar, Arctic-Temperate Alpine-Montane.

Voucher specimen: MC - 27265.

Peltigera rufescens (Weis.) Humb.

Synonymy: P. canina (L.) Willd. sens. lat., P. canina var. rufescens (Weis.) Humb.

Substrate: soil.

Relative abundance: PA - occasional, MC - absent, MRL - occasional.

Cover: PA - present in 2 sites at +; MRL - present in 3 sites at +.

Literature reports: Hansen 1962, Krog 1968, Scotter and Thomson 1966,

Thomson et al. 1969, Thomson 1970, Weber and Viereck 1967.

General distribution: Circumpolar, Arctic-Temperate Alpine-Montane.

Voucher specimens: PA - 26324, 26342; MRL - 27552, 27609, 27623.

Peltigera scabrosa Th. Fr.

Synonymy: P. pulverulenta (Tayl.) Nyl.

Substrate: soil.

Relative abundance: PA - absent, MC - rare, MRL - absent.

Cover: MC - present in 1 site at +.

Literature reports: Hansen 1962, Hansen 1971, Krog 1968, Scotter and Thomson 1966,

Weber and Viereck 1967.

General distribution: Circumpolar, Arctic-Boreal Alpine-Montane.

Voucher specimen: MC - 27024.

Peltigera spuria (Ach.) DC.

Synonymy: P. canina var. spuria (Ach.) Schaeer.

Substrate: soil.

Relative abundance: PA - absent, MC - rare, MRL - absent.

Cover: MC - present in 1 site at +.

Literature reports: Hansen 1962, Hansen 1971, Krog 1968, Thomson et al. 1969,
Thomson 1970.

General distribution: Circumpolar, Arctic-Temperate Alpine-Montane.

Voucher specimen: MC - 26789.

Pertusaria bryontha (Ach.) Nyl.

Substrate: vegetabilia.

Relative abundance: PA - absent, MC - occasional, MRL - absent.

Cover: MC - present in 3 sites at +.

Literature reports: Lyngé 1940, Scotter and Thomson 1966, Thomson et al. 1969,
Thomson 1970.

General distribution: Circumpolar, Arctic-Alpine.

Voucher specimens: MC-26887, 26930, 26996.

Pertusaria dactylina (Ach.) Nyl.

Substrate: vegetabilia

Relative abundance: PA - occasional, MC - occasional, MRL - absent.

Cover: PA - present in 3 sites at +; MC - present in 2 sites at +.

Literature reports: Lyngé 1940, Scotter and Thomson 1966, Thomson et al. 1969,
Thomson 1970, Weber and Viereck 1967.

General distribution: Circumpolar, Arctic-Alpine.

Voucher specimens: PA - 26382, 26419, 26761; MC - 26997, 27225.

Pertusaria panyrga (Ach.) Mass.

Substrate: vegetabilia.

Relative abundance: PA - absent, MC - rare, MRL - absent

Cover: MC - present in 1 site at +.

Literature reports: Scotter and Thomson 1966, Thomson et al. 1969,

Thomson 1970.

General distribution: Circumpolar, Arctic-Alpine.

Voucher specimen: MC - 27275.

Pertusaria trochisea Norm.

Substrate: vegetabilia.

Relative abundance: PA - absent, MC - rare, MRL - absent.

Cover: MC - present in 1 site at +.

Literature reports: Thomson et al. 1969.

General distribution: Circumpolar, Arctic-Alpine.

Voucher specimen: MC - 27276.

Physcia adscendens (Th. Fr.) Oliv.

Substrate: Picea glauca.

Relative abundance: PA - absent, MC - absent, MRL - occasional.

Cover: MRL - present in 2 sites at +.

Literature reports: Krog 1968.

General distribution: Circumpolar, Boreal-Temperate Montane.

Voucher specimens: MRL - 27380, 27637.

Physcia aipolia (Ehrh.) Hampe

Substrate: found once each on Picea glauca, Populus balsamifera and Salix sp.

Relative abundance: PA - absent, MC - absent, MRL - occasional.

Cover: MRL - present in 3 sites at +.

Literature reports: Krog 1968, Thomson et al. 1969, Thomson 1970,

Weber and Viereck 1967.

General distribution: Circumpolar, Boreal-Temperate Montane.

Voucher specimens: MRL - 27480, 27508, 27635.

Physcia caesia (Hoffm.) Hampe

Substrate: dolomite and chert of bird rocks.

Relative abundance: PA - occasional, MC - absent, MRL - absent.

Cover: PA - present in 2 sites at +.

Literature reports: Hansen 1962, Hansen 1971, Krog 1968, Scotter and Thomson 1966,
Thomson et al. 1969, Thomson 1970, Weber and Viereck 1967.

General distribution: Circumpolar, Arctic-Boreal Alpine-Montane.

Voucher specimens: PA - 26171, 26655.

Physcia constipata (Nyl.) Norrl. & Nyl.

Substrate: vegetabilia

Relative abundance: PA - rare, MC - absent, MRL - absent.

Cover: PA - present in 1 site at +.

Literature reports: Hansen 1962, Krog 1968, Thomson et al. 1969,
Weber and Viereck 1967.

General distribution: Circumpolar, Arctic-Boreal Alpine-Montane.

Voucher specimen: PA - 26749.

Physcia endococcinea (Körb.) Th. Fr.

Substrate: quartzite.

Relative abundance: PA - absent, MC - rare, MRL - absent.

Cover: MC - present in 1 site at +.

Literature reports: Krog 1968, Thomson et al. 1969, Thomson 1970.

General distribution: Circumpolar, Arctic-Alpine.

Voucher specimen: MC - 26813.

Physcia orbicularis (Neck.) Poetsch.

Substrate: Picea glauca.

Relative abundance: PA - absent, MC - absent, MRL - rare.

Cover: MRL - present in 1 site at +.

Literature reports: Krog 1968, Weber and Viereck 1967.

General distribution: Circumpolar, Boreal-Temperate Montane.

Voucher specimen: MRL - 27636.

Physcia phaea (Tuck.) Thoms.

Substrate: dolomite, chert and quartzite of bird rock.

Relative abundance: PA - rare, MC - absent, MRL - absent.

Cover: PA - present in a bird rock site at 4%.

Literature reports: Hansen 1971, Krog 1968, Thomson et al. 1969.

General distribution: Circumpolar, Arctic-Temperate Alpine-Montane.

Voucher specimens: PA - 26172, 26173.

Physcia sciastra (Ach.) Du Rietz

Substrate: dolomite and quartzite of bird rocks.

Relative abundance: PA - occasional, MC - absent, MRL - absent.

Cover: PA - present in 2 sites at +.

Literature reports: Hansen 1962, Hansen 1971, Krog 1968, Thomson et al. 1969,
Thomson 1970.

General distribution: Circumpolar, Arctic-Boreal Alpine-Montane.

Voucher specimens: PA - 26173, 26656.

Physconia detersa (Nyl.) Poelt

Synonymy: Physcia grisea (Lam.) Zahlbr. sens. lat.

Substrate: found once each on Picea glauca and Populus balsamifera trees.

Relative abundance: PA - absent, MC - absent, MRL - occasional.

Cover: MRL - present in 2 sites at +.

Literature reports: Krog 1968, possibly Thomson et al. 1969 as Physcia grisea.

General distribution: Circumpolar, Boreal-Temperate Montane.

Voucher specimens: MRL - 27481, 27637.

Physconia muscigena (Ach.) Poelt.

Synonymy: Physcia muscigena (Ach.) Nyl.

Substrate: vegetabilia.

Relative abundance: PA - common, MC - rare, MRL - absent.

Cover: PA - present in 6 sites at +, MC - present in 1 site at +.

Literature reports: Hansen 1962, Hansen 1971, Krog 1968, Thomson et al. 1969,
Thomson 1970, Weber and Viereck 1967.

General distribution: Circumpolar, Arctic-Boreal Alpine-Montane.

Voucher specimens: PA - 26162, 26163, 26251, 26281, 26699, 26721, 26749; MC - 27277

Polyblastia intercedens (Nyl.) Löngr.

Synonymy: P. hyperborea Th. Fr.

Substrate: dolomite and limestone.

Relative abundance: PA - common, MC - absent, MRL - absent.

Cover: PA - present in 1 site at 1%, and in 11 at +.

Literature reports: Thomson et al. 1969, Thomson 1970.

General distribution: Circumpolar, Arctic-Temperate Alpine-Montane.

Voucher specimens: PA - 26273, 26274, 26275, 26316, 26437, 26460, 26473, 26495,
26512, 26537, 26557, 26606, 26631, 26668.

Protoplastenia rupestris (Scop.) J. Stein

Substrate: dolomite and limestone.

Relative abundance: PA - common, MC - absent, MRL - absent.

Cover: PA - present in 13 sites at +.

Literature reports: Lynge 1940, Weber and Viereck 1967.

General distribution: Circumpolar, Arctic-Alpine.

Voucher specimens: PA - 26133, 26272, 26273, 26305, 26317, 26351, 26474, 26496,
26513, 26538, 26558, 26579, 26607, 26632.

Ramalina fastigiata (Pers.) Ach.

Substrate: found twice on Picea glauca and once on P. mariana.

Relative abundance: PA - absent, MC - absent, MRL - occasional.

Cover: MRL - present in 3 sites at +.

Literature reports: not reported in any of the selected sources.

General distribution: Circumpolar, Boreal-Temperate Montane.

Voucher specimens: MRL - 27381, 27454, 27639.

Ramalina pollinaria (Westr.) Ach.

Substrate: found twice on Picea glauca and once on Populus balsamifera trees.

Relative abundance: PA - absent, MC - absent, MRL - occasional.

Cover: MRL - present in 3 sites at +.

Literature reports: Krog 1968, Thomson et al. 1969.

General distribution: Circumpolar, Boreal-Temperate Montane.

Voucher specimens: MRL - 27382, 27482, 27640.

Rhizocarpon badioatrum (Flörke ex Spreng.) Th. Fr.

Substrate: quartzite.

Relative abundance: PA - absent, MC - occasional, MRL - absent.

Cover: MC - present in 2 sites at +.

Literature reports: Thomson et al. 1969.

General distribution: Circumpolar, Arctic-Temperate Alpine-Montane.

Voucher specimens: MC - 26814, 26817, 27344.

Rhizocarpon chioneum (Norm.) Th. Fr.

Substrate: dolomite and limestone.

Relative abundance: PA - common, MC - absent, MRL - absent.

Cover: PA - present in 1 site at 5%, in 1 at 4%, and in 11 at +.

Literature reports: Thomson et al. 1969, Weber and Viereck 1967.

General distribution: Circumpolar, Arctic-Alpine.

Voucher specimens: PA - 26134, 26174, 26306, 26318, 26438, 26461, 26475, 26539,

26559, 26580, 26657, 26728.

Rhizocarpon crystalligenum Lyngé

Substrate: quartzite

Relative abundance: PA - absent, MC - occasional, MRL - absent.

Cover: MC - present in 2 sites at 6%, and in 1 at 2%.

Literature reports: Lyngé 1940.

General distribution: American, Arctic-Alpine. Thomson (1967a) states that this species grows on acid rocks and "is known from East Greenland and from Coronation Bay in the Arctic Islands. It is undoubtedly of wider range in the arctic".

Voucher specimens: MC - 27115, 27177, 27242.

Rhizocarpon eupetraeoides (Nyl.) Blomb. & Forss.

Substrate: chert and quartzite.

Relative abundance: PA - occasional, MC - rare, MRL - absent.

Cover: PA - present in 1 site at 1%, and in 1 at +; MC - present in 1 site at +.

Literature reports: Thomson 1970.

General distribution: Circumpolar, Arctic-Alpine.

Voucher specimens: PA - 26135, 26319, 26423; MC - 27342, 27343, 27344, 27345.

Rhizocarpon geographicum (L.) DC.

Substrate: quartzite, chert, diorite, schist, and gneiss.

Relative abundance: PA - occasional, MC - common, MRL - absent.

Cover: PA - present in 2 sites at 3%, and in 2 at +; MC - present in 1 site at 8%, in 1 at 6%, in 1 at 5%, in 1 at 4%, in 1 at 3%, in 1 at 2%, in 1 at 1%, and in 1 at +.

Literature reports: Lynge 1940, Scotter and Thomson 1966, Thomson et al. 1969, Thomson 1970, Weber and Viereck 1967.

General distribution: Circumpolar, Arctic-Temperate Alpine-Montane.

Voucher specimens: PA - 26136, 26385, 26390, 26391, 26424, 26497; MC - 26802, 26803, 26810, 26814, 26815, 26859, 26860, 26861, 26896, 27178, 27179, 27290, 27295, 27297, 27298, 27342, 27345, 27346.

Rhizocarpon macrosporum Räs.

Substrate: quartzite.

Relative abundance: PA - absent, MC - rare, MRL - absent.

Cover: MC - present in 1 site at +.

Literature reports: not reported in any of the 7 selected sources.

General distribution: Circumpolar, Arctic-Alpine.

Voucher specimen: MC - 26816.

Rhizocarpon polycarpum (Hepp) Th. Fr.

Substrate: chert.

Relative abundance: PA - rare, MC - absent, MRL - absent.

Cover: PA - present in 1 site at +.

Literature reports: not reported in any of the 7 selected sources.

General distribution: Circumpolar, Arctic-Alpine.

Voucher specimen: PA - 26729.

Rhizocarpon superficiale (Schaer.) Vain.

Substrate: quartzite.

Relative abundance: PA - absent, MC - common, MRL - absent.

Cover: MC - present in 1 site at 20%, in 1 at 4%, in 1 at 2%, and in 1 at 1%.

Literature reports: Thomson et al. 1969.

General distribution: Circumpolar, Arctic-Alpine.

Voucher specimens: MC - 26970, 27079, 27179, 27346.

Rinodina archaea (Ach.) Arn.

Substrate: Salix sp.

Relative abundance: PA - absent, MC - absent, MRL - rare.

Cover: MRL - present in 1 site at +.

Literature reports: Scotter and Thomson 1966, Thomson et al. 1969,

Thomson 1970, Weber and Viereck 1967.

General distribution: Circumpolar, Arctic-Boreal Alpine-Montane.

Voucher specimens: MRL - 27497, 27503.

Rinodina roscida (Somm.) Arn.

Substrate: vegetabilia.

Relative abundance: PA - common, MC - rare, MRL - absent.

Cover: PA - present in 9 sites at +; MC - present in 1 site at +.

Literature reports: Lynge 1940, Thomson 1970.

General distribution: Circumpolar, Arctic-Alpine.

Voucher specimens: PA - 26122a, 26278a, 26471a, 26491a, 26507a, 26535a, 26576,

26649; MC - 26855.

Rinodina turfacea (Wahlenb.) Körb.

Substrate: found 5 times on vegetabilia; 4 times each on Picea glauca and Populus balsamifera and once on Picea mariana.

Relative abundance: PA - occasional, MC - occasional, MRL - common.

Cover: PA - present in 2 sites at +; MC - present in 3 sites at +; MRL - present in 4 sites at +.

Literature reports: Lynge 1940, Thomson et al. 1969, Thomson 1970, Weber and Viereck 1967.

General distribution: Circumpolar, Arctic-Alpine.

Voucher specimens: PA - 26252, 26650; MC - 26785, 27228, 27278; MRL - 27381, 27455, 27478, 27480, 27481, 27483, 27493, 27628, 27629.

Solorina bispora Nyl.

Substrate: soil.

Relative abundance: PA - occasional, MC - absent, MRL - absent.

Cover: PA - present in 5 sites at +.

Literature reports: Hansen 1962, Hansen 1971, Krog 1968, Thomson et al. 1969, Thomson 1970, Weber and Viereck 1967.

General distribution: Circumpolar, Arctic-Boreal Alpine-Montane.

Voucher specimens: PA - 26343, 26432, 26500, 26548, 26684.

Solorina saccata (L.) Ach.

Substrate: soil.

Relative abundance: PA - rare, MC - absent, MRL - absent.

Cover: PA - present in 1 site at +.

Literature reports: Hansen 1962, Hansen 1971, Krog 1968, Thomson et al. 1969,

Thomson 1970, Weber and Viereck 1967.

General distribution: Circumpolar, Arctic-Boreal Alpine-Montane.

Voucher specimen: PA - 26325.

Sporastatia testudinea (Ach.) Mass.

Substrate: chert, quartzite, gneiss, and dolomite.

Relative abundance: PA - occasional, MC - common, MRL - absent.

Cover: PA - present in 4 sites at +; MC - present in 9 sites at +.

Literature reports: Lyngé 1940, Thomson 1970, Weber and Viereck 1967.

General distribution: Circumpolar, Arctic-Alpine.

Voucher specimens: PA - 26137, 26384, 26462, 26730; MC - 26817, 26898, 26971,
27006, 27076, 27179, 27243, 27296, 27298, 27344.

Staurothele sp.

Substrate: dolomite, limestone and chert of bird rocks.

Relative abundance: PA - occasional, MC - absent, MRL - absent.

Cover: PA - present in 2 sites at +.

Voucher specimens: PA - 26175, 26658.

Stereocaulon alpinum Laur.

Substrate: soil.

Relative abundance: PA - absent, MC - absent, MRL - rare.

Cover: MRL - present in 1 site at 1%.

Literature reports: Hansen 1962, Hansen 1971, Krog 1968, Thomson et al. 1969, Thomson 1970, Weber and Viereck 1967.

General distribution: Circumpolar, Arctic-Alpine.

Voucher specimen: MRL - 27611.

Stereocaulon saxatile Magn.

Synonymy: S. Evolutoides (Magn.) Frey.

Substrate: quartzite.

Relative abundance: PA - absent, MC - occasional, MRL - absent.

Cover: MC - present in 1 site at 1%, and in 1 at +.

Literature reports: Thomson et al. 1969.

General distribution: Circumpolar, Boreal-Montane.

Voucher specimens: MC - 27244, 27347.

Stereocaulon tomentosum Fr.

Substrate: soil.

Relative abundance: PA - absent, MC - absent, MRL - rare.

Cover: MRL - present in 1 site at 1%.

Literature reports: Krog 1968, Thomson et al. 1969, Weber and Viereck 1967.

General distribution: Circumpolar, Arctic-Boreal Alpine-Montane.

Voucher specimen: MRL - 27519.

Thamnolia subuliformis (Ehrh.) W. Culb.

Synonymy: T. vermicularis (Sw.) Ach. ex Schaer., baeomycic acid strain;

T. subvermicularis Asah.

Substrate: soil.

Relative abundance: PA - abundant, MC - abundant, MRL - absent.

Cover: PA - present in 2 sites at 2%, in 3 at 1%, and in 19 at +; MC - present in 1 site at 1%, and in 9 at +.

Literature reports: Hansen 1962, Hansen 1971, Krog 1968, Scotter and Thomson 1966, Thomson et al. 1969, Thomson 1970.

General distribution: Circumpolar, Arctic-Alpine.

Voucher specimens: PA - 26116, 26154, 26220, 26263, 26297, 26326, 26344, 26370, 26412, 26433, 26445, 26467, 26484, 26501, 26518, 26549, 26566, 26593, 26617, 26661, 26665, 26685, 26711, 26748; MC - 26786, 26845, 26877, 26917, 26988, 27107, 27159, 27207, 27266, 27325.

Thelidium cfr. pyrenophorum (Ach.) Mudd

Substrate: dolomite and limestone, occasionally on bird rocks.

Relative abundance: PA - occasional, MC - absent, MRL - absent.

Cover: PA - present in 4 sites at +.

Literature reports: not reported in any of the selected sources.

General distribution: Circumpolar, Arctic-Alpine.

Voucher specimens: PA - 26131, 26138, 26176, 26307, 26631.

Toninia tristis (Th. Fr.) Th. Fr.

Substrate: dolomite and quartzite rocks, usually those used by birds as resting sites.

Relative abundance: PA - occasional, MC - rare, MRL - absent.

Cover: PA - present in 2 sites at +; MC - present in 1 site at +.

Literature reports: Lynge 1940.

General distribution: Circumpolar, Arctic-Alpine.

Voucher specimens: PA - 26177, 26179, 26659; MC - 26818.

Umbilicaria cylindrica (L.) Del.

Substrate: quartzite.

Relative abundance: PA - absent, MC - common, MRL - absent

Cover: MC - present in 2 sites at 1%, and in 4 at +.

Literature reports: Hansen 1962, Hansen 1971, Krog 1968, Scotter and Thomson 1966,

Thomson 1970, Weber and Viereck 1967.

General distribution: Circumpolar, Arctic-Boreal Alpine-Montane.

Voucher specimens: MC - 26819, 26861, 26899, 26972, 27007, 27348.

Umbilicaria deusta (L.) Baumg.

Substrate: quartzite

Relative abundance: PA - absent, MC - rare, MRL - absent.

Cover: MC - present in 1 site at +.

Literature reports: Hansen 1962, Hansen 1971, Krog 1968, Thomson et al. 1969,

Thomson 1970, Weber and Viereck 1967.

General distribution: Circumpolar, Arctic-Boreal Alpine-Montane.

Voucher specimen: MC - 26900.

Umbilicaria hyperborea (Ach.) Ach.

Substrate: quartzite.

Relative abundance: PA - absent, MC - abundant, MRL - absent.

Cover: MC - present in 6 sites at 1%, and in 4 at +.

Literature reports: Hansen 1962, Hansen 1971, Krog 1968, Scotter and Thomson 1966, Thomson et al. 1969, Thomson 1970, Weber and Viereck 1967.

General distribution: Circumpolar, Arctic-Boreal Alpine-Montane.

Voucher specimens: MC - 26820, 26901, 26973, 27008, 27080, 27126, 27180, 27245, 27299, 27349.

Umbilicaria polyphylla (L.) Baumg.

Substrate: quartzite.

Relative abundance: PA - absent, MC - rare, MRL - absent.

Cover: MC - present in 1 site at +.

Literature reports: Hansen 1971, Krog 1968, Scotter and Thomson 1966.

General distribution: Circumpolar, Arctic-Alpine.

Voucher specimen: MC - 27300.

Umbilicaria proboscidea (L.) Schrad.

Substrate: quartzite.

Relative abundance: PA - occasional, MC - abundant, MRL - absent.

Cover: PA - present in 2 sites at +; MC - present in 2 sites at 3%, in 5 at 2%, in 1 at 1%, and in 2 at +.

Literature reports: Hansen 1962, Hansen 1971, Krog 1968, Scotter and Thomson 1966, Thomson et al. 1969, Thomson 1970, Weber and Viereck 1967.

General distribution: Circumpolar, Arctic-Alpine.

Voucher specimens: PA - 26392, 26425; MC - 26821, 26902, 26974, 27009, 27031, 27127, 27181, 27246, 27301, 27350.

Usnea cavernosa Tuck.

Substrate: Picea glauca.

Relative abundance: PA - absent, MC - absent, MRL - rare.

Cover: MRL - present in 1 site at +.

Literature reports: Krog 1968.

General distribution: Circumpolar, Boreal-Montane.

Voucher specimen: MRL - 27383.

Usnea glabrescens ssp. glabrella Mot.

Substrate: found twice on Picea glauca trees; and once each on Betula papyrifera,
Larix laricina, Picea mariana, and Salix sp.

Relative abundance: PA - absent, MC - absent, MRL - common

Cover: MRL - present in 5 sites at +.

Literature reports: Krog 1968, Thomson et al. 1969.

General distribution: Circumpolar, Boreal-Montane.

Voucher specimens: MRL - 27385, 27408, 27446, 27457, 27509, 27642.

Usnea subfloridana Stirt.

Synonymy: U. comosa (Ach.) Ach.

Substrate: found twice each on Picea glauca and P. mariana; and once on Betula papyrifera

Relative abundance: PA - absent, MC - absent, MRL - common.

Cover: MRL - present in 4 sites at +.

Literature reports: Krog 1968, Thomson et al. 1969.

General distribution: Circumpolar, Boreal-Montane.

Voucher specimens: MRL - 27384, 27445, 27456, 27534, 27641.

Xanthoria elegans (Link) Th. Fr.

Synonymy: Caloplaca elegans (Link) Th. Fr.

Substrate: dolomite of bird rocks.

Relative abundance: PA - occasional, MC - absent, MRL - absent.

Cover: PA - present in 1 site at 5%, and in 1 at +.

Literature reports: Krog 1968, Scotter and Thomson 1966, Thomson et al. 1969,

Thomson 1970, Weber and Viereck 1967.

General distribution: Circumpolar, Arctic-Temperate Alpine-Montane.

Voucher specimens: PA - 26178, 26179, 26660.

Liverworts

Eleven species of liverworts were encountered during the study; 7 at PA, 6 at MC, and 4 at MRL. Except for Ptilidium ciliare, none of the species ever exceeded a cover of 1% in any of the sites.

The distribution of each species in nearby areas is indicated by the citation, under "Literature Reports", of the following sources: Northwest Territories - Gordon Lake Region (Scotter 1962), Mackenzie Delta Region (Steere 1958b), Thelon River and Kaminuriak Lake Region (Scotter 1966); Alaska - Interior Region (Persson and Gjaerevoll 1957); Northwestern Manitoba - Cochrane River Region (Scotter 1965); and Eastern North America (Schuster 1966, 1969).

Nomenclature is based on Schuster (1966, 1969).

The "General distribution" of each taxon was determined from the above sources, from Herbarium specimens, and from Arnell (1956) and Schuster (1953, 1966, 1969).

Anastrophyllum minutum (Schreb. ex Crantz) Schust.

Synonymy: Sphenolobus minutus (Crantz) Steph.

Substrate: soil.

Relative abundance: PA - occasional, MC - common, MRL - rare.

Cover: PA - present in 5 sites at +; MC - present in 1 site at 1%, and in 4 at +;
MRL - present in 1 site at +.

Literature reports: Persson and Gjaerevoll 1957, Schuster 1969, Scotter 1966,
Steere 1958b.

General distribution: Circumpolar, Arctic-Boreal Alpine-Montane.

Voucher specimens: PA - 26190, 26221, 26371, 26372, 26413, 26749; MC - 26788,
26921, 26949, 26991, 27031, 27034; MRL - 27548.

Blepharostoma trichophyllum (L.) Dumort.

Substrate: soil.

Relative abundance: PA - occasional, MC - rare, MRL - rare.

Cover: PA - present in 2 sites at +; MC - present in 1 site at +; MRL - present in
1 site at +.

Literature reports: Persson and Gjaerevoll 1957, Schuster 1966, Scotter 1965.

General distribution: Circumpolar, Arctic-Boreal Alpine-Montane.

Voucher specimens: PA - 26223, 26749; MC - 27035; MRL - 27548.

Chandonanthus setiformis (Ehrh.) Lindb.

Synonymy: Temnoma setiforme (Ehrh.) M.A. Howe

Substrate: soil.

Relative abundance: PA - absent, MC - common, MRL - absent.

Cover: MC - present in 1 site at 1%, and in 7 at +.

Literature reports: Persson and Gjaerevoll 1957, Schuster 1969, Scotter 1962,
Scotter 1966.

General distribution: Circumpolar, Arctic-Alpine.

Voucher specimens: MC - 26787, 26879, 26989, 27060, 27108, 27111, 27133,
27160, 27334.

Gymnomitrion coralloides Nees

Substrate: soil.

Relative abundance: PA - absent, MC - occasional, MRL - absent.

Cover: MC - present in 2 sites at +.

Literature reports: not reported in any of the selected sources.

General distribution: Circumpolar, Arctic-Alpine.

Voucher specimens: MC - 26880, 26881, 27210.

Lophozia barbata (Schmid.) Dumort.

Synonymy: Barbilophozia barbata (Schmid.) Loeske

Substrate: soil.

Relative abundance: PA - rare, MC - absent, MRL - absent.

Cover: PA - present in 1 site at +.

Literature reports: Persson and Gjaerevoll 1957, Schuster 1969.

General distribution: Circumpolar, Arctic-Boreal Alpine-Montane.

Voucher specimen: PA - 26752.

Lophozia hatcheri (Evans) Schust.

Synonymy: Barbilophozia hatcheri (Evans) Loeske

Substrate: soil.

Relative abundance: PA - rare, MC - absent, MRL - absent.

Cover: PA - present in 1 site at +.

Literature reports: Persson and Gjaerevoll 1957, Schuster 1969, Steere 1958b.

General distribution: Circumpolar, Arctic-Boreal Alpine-Montane.

Voucher specimen: PA - 26235.

Marchantia polymorpha L.

Substrate: soil.

Relative abundance: PA - absent, MC - absent, MRL - rare.

Cover: MRL - present in 1 site at +.

Literature reports: Persson and Gjaerevoll 1957, Scotter 1962, Scotter 1965,

Steere 1958b.

General distribution: Circumpolar, Boreal-Tropic Montane.

Voucher specimen: MRL - observed but not collected in Site 42.

Ptilidium ciliare (L.) Hampe

Substrate: soil.

Relative abundance: PA - occasional, MC - common, MRL - common.

Cover: PA - present in 1 site at 3%, and in 3 at +; MC - present in 6 sites at +;

MRL - present in 1 site at 6%, in 1 at 2%, and in 3 at +.

Literature reports: Persson and Gjaerevoll 1957, Schuster 1966, Scotter 1962,

Scotter 1965.

General distribution: Circumpolar, Arctic-Boreal Alpine-Montane.

Voucher specimens: PA - 26241, 26376, 26416, 26753; MC - 26854, 26955, 27110,
27111, 27165, 27213, 27333; MRL - 27465, 27553, 27576.

Scapania irrigua (Nees) Dumort.

Substrate: soil.

Relative abundance: PA - absent, MC - rare; MRL - absent.

Cover: MC - present in 1 site at +.

Literature reports: Scotter 1965.

General distribution: Circumpolar, Arctic-Boreal Alpine-Montane.

Voucher specimens: MC - 27028, 27030, 27038.

Scapania paludicola Loeske & K. Muell.

Substrate: soil.

Relative abundance: PA - rare, MC - absent, MRL - absent.

Cover: PA - present in 1 site at +.

Literature reports: Scotter 1965.

General distribution: Circumpolar, Arctic-Boreal Alpine-Montane.

Voucher specimen: PA - 26244.

Solenostoma sphaerocarpum (Hook.) Steph.

Synonymy: Jungermannia sphaerocarpa Hook.

Substrate: soil.

Relative abundance: PA - rare, MC - absent, MRL - absent.

Cover: PA - present in 1 site at +.

Literature reports: Schuster 1969, Steere 1958b.

General distribution: Circumpolar, Arctic-Boreal Alpine-Montane.

Voucher specimen: PA - 26330.

Peat Mosses

Six species of Sphagnum were encountered during the study: 0 at PA, 2 at MC, and 4 at MRL.

The distribution of each species in nearby areas is indicated by the citation, under "Literature Reports", of the following sources: Northwest Territories - Gordon Lake Region (Scotter 1962), Mackenzie Delta Region (Steere 1958b), Thelon River and Kaminuriak Lake Region (Holmen and Scotter 1967); Alaska - Interior Region (Persson and Gjaerevoll 1957); and Northwestern Manitoba - Cochrane River Region (Scotter 1965).

The "General distribution" of each taxon was determined from the above sources and from Isoviiita (1966).

Nomenclature is that of Isoviiita (1966).

Sphagnum fallax (Klinggr.) Klinggr. emend. Isov.

Synonymy: S. recurvum P. Beauv. sensu Amer. auct.

Substrate: wet ground.

Relative abundance: PA - absent, MC - absent, MRL - occasional.

Cover: MRL - present in 1 site at 20%, and in 1 at 3%.

Literature reports: Scotter 1962, Scotter 1965, Steere 1958b.

General distribution: Circumpolar, Boreal-Montane.

Voucher specimens: MRL - 27395, 27495.

Sphagnum fuscum (Schimp.) Klinggr.

Substrate: wet ground.

Relative abundance: PA - absent, MC - absent, MRL - rare.

Cover: MRL - present in 1 site at 3%.

Literature reports: Holmen and Scotter 1967, Persson and Gjaerevoll 1957,

Scotter 1962, Scotter 1965.

General distribution: Circumpolar, Arctic-Boreal Alpine-Montane.

Voucher specimen: MRL - observed in Site 49 but voucher material not collected.

Sphagnum girgensohnii Russ.

Substrate: wet ground.

Relative abundance: PA - absent, MC - occasional, MRL - absent.

Cover: MC - present in 1 site at 10%, and in 1 at 8%.

Literature reports: Holmen and Scotter 1967, Scotter 1965, Steere 1958b.

General distribution: Circumpolar, Arctic-Boreal Alpine-Montane.

Voucher specimens: MC - 26928, 27039.

Sphagnum magellanicum Brid.

Substrate: wet ground.

Relative abundance: PA - absent, MC - absent, MRL - rare.

Cover: MRL - present in 1 site at 10%.

Literature reports: Persson and Gjaerevoll 1957, Scotter 1965.

General distribution: Circumpolar, Boreal-Temperate Montane.

Voucher specimen: MRL - 27394.

Sphagnum rubellum Wils.

Synonymy: S. capillaceum var. tenellum (Schimp.) Andr.

Substrate: wet ground.

Relative abundance: PA - absent, MC - absent, MRL - occasional.

Cover: MRL - present in 1 site at 30%, and in 1 at +.

Literature reports: Holmen and Scotter 1967, Persson and Gjaerevoll 1957,

Scotter 1962, Scotter 1965, Steere 1958b.

General distribution: Circumpolar, Arctic-Boreal Alpine-Montane.

Voucher specimens: MRL - 27494, 27554.

Sphagnum warnstorffii Russ.

Synonymy: S. warnstorfianum Du Rietz

Substrate: wet ground.

Relative abundance: PA - absent, MC - common, MRL - absent.

Cover: MC - present in 1 site at 10%, in 2 at 3%, and in 1 at 2%.

Literature reports: Holmen and Scotter 1967, Scotter 1962, Scotter 1965.

General distribution: Circumpolar, Arctic-Boreal Alpine-Montane.

Voucher specimens: MC - 26929, 26957, 27040, 27335.

Mosses

Seventy four species of true mosses were encountered during the study: 46 at PA, 34 at MC, and 27 at MRL.

The distribution of each species in nearby areas is indicated by the citation, under "Literature Reports", of the following sources: Northwest Territories - Gordon Lake Region (Scotter 1962), Mackenzie Delta Region (Steere 1958b), Northern Ellesmere Island (Brassard 1971c), Thelon River and Kaminuriak Lake Region (Scotter 1966); Alaska - Interior Region (Persson and Gjaerevoll 1957); Northwestern Manitoba - Cochrane River Region (Scotter 1965); and Greenland - Peary Land Region (Holmen 1960).

The "General distribution" of each taxon was determined from the above sources, from Herbarium specimens, and from Lawton (1971) and Nyholm (1954-1969).

Nomenclature is that of Crum, Steere, and Anderson (1965).

Abietinella abietina (Hedw.) Fleisch.

Substrate: calcareous soil.

Relative abundance: PA - occasional, MC - absent, MRL - absent.

Cover: PA - present in 4 sites at +.

Literature reports: Brassard 1971, Persson and Gjaerevoll 1957, Scotter 1962, Scotter 1965.

General distribution: Circumpolar, Arctic-Temperate Alpine-Montane.

Voucher specimens: PA - 26264, 26637, 26686, 26712.

Aulacomnium palustre (Hedw.) Schwaegr.

Substrate: soil.

Relative abundance: PA - absent, MC - absent, MRL - common.

Cover: MRL - present in 1 site at 8%, in 1 at 5%, in 1 at 4%, in 1 at 3%, and in 1 at +.

Literature reports: Brassard 1971, Holmen 1960, Persson and Gjaerevoll 1957,
Scotter 1962, Scotter 1965, Scotter 1966, Steere 1958b.

General distribution: Circumpolar, Arctic-Temperate Alpine-Montane.

Voucher specimens: MRL - observed, but not collected, in Sites 42, 47, 49, 50,
51 and 52.

Aulacomnium turgidum (Wahlenb.) Schwaegr.

Substrate: soil.

Relative abundance: PA - occasional, MC - common, MRL - occasional.

Cover: PA - present in 1 site at 39%, and in 1 at 4%; MC - present in 1 site at 8%,
in 1 at 4%, in 1 at 3%, and in 3 at +; MRL - present in 1 site at 4%,
in 1 at 2%, and in 1 at +.

Literature reports: Brassard 1971, Holmen 1960, Persson and Gjaerevoll 1957,
Scotter 1962, Scotter 1965, Scotter 1966, Steere 1958b.

General distribution: Circumpolar, Arctic-Boreal Alpine-Montane.

Voucher specimens: PA - 26222; MC - 26846, 26878, 26918, 26946, 27025, 27028,
27326; MRL - 27535, 27556, 27559.

Brachythecium salebrosum (Web. & Mohr) B.S.G.

Substrate: soil.

Relative abundance: PA - rare, MC - absent, MRL - rare.

Cover: PA - present in 1 site at +; MRL - present in 1 site at +.

Literature reports: Persson and Gjaerevoll 1957.

General distribution: Circumpolar, Arctic-Temperate Alpine-Montane.

Voucher specimens: PA - 26713; MRL - 27470.

Brachythecium turgidum (Hartm.) Kindb.

Substrate: calcareous soil.

Relative abundance: PA - rare, MC - rare, MRL - absent.

Cover: PA - present in 1 site at +; MC - present in 1 site at +.

Literature reports: Brassard 1971, Holmen 1960, Persson and Gjaerevoll 1957.

General distribution: Circumpolar, Arctic-Boreal Alpine-Montane.

Voucher specimens: PA - 26485, 27026.

Bryoerythrophyllum recurvirostre (Hedw.) Chen

Synonymy: Barbula recurvirostris (Hedw.) Dix.

Substrate: calcareous soil.

Relative abundance: PA - occasional, MC - absent, MRL - absent.

Cover: PA - present in 2 sites at +.

Literature reports: Brassard 1971, Holmen 1960, Persson and Gjaerevoll 1957.

General distribution: Circumpolar, Arctic-Temperate Alpine-Montane.

Voucher specimens: PA - 26329, 26638.

Bryum angustirete Kindb. ex Mac.

Synonymy: B. pendulum (Hornschr.) Br. Eur.

Substrate: calcareous soil.

Relative abundance: PA - rare, MC - absent, MRL - absent.

Cover: PA - present in 1 site at +.

Literature reports: Brassard 1971, Holmen 1960.

General distribution: Circumpolar, Arctic-Temperate Alpine-Montane.

Voucher specimen: PA - 26525.

Bryum calophyllum R. Br.

Substrate: soil.

Relative abundance: PA - absent, MC - rare, MRL - absent.

Cover: MC - present in 1 site at +.

Literature reports: Brassard 1971, Holmen 1960.

General distribution: Circumpolar, Arctic-Alpine.

Voucher specimen: MC - 27027.

Bryum pseudotriquetrum (Hedw.) Gaertn., Meyer & Scherb.

Substrate: wet soil.

Relative abundance: PA - rare, MC - rare, MRL - occasional.

Cover: PA - present in 1 site at +; MC - present in 1 site at +; MRL - present in 1 site at 3%, and in 1 at 2%.

Literature reports: Holmen 1960, Persson and Gjaerevoll 1957, Scotter 1962, Scotter 1965.

General distribution: Circumpolar, Arctic-Temperate Alpine-Montane.

Voucher specimens: PA - 26446; MC - 27028.

Bryum wrightii Sull. & Lesq.

Substrate: calcareous soil.

Relative abundance: PA - occasional, MC - absent, MRL - absent.

Cover: PA - present in 3 sites at +.

Literature reports: not reported in any of the selected sources.

General distribution: Circumpolar, Arctic-Alpine.

Voucher specimens: PA - 26117, 26526, 26666.

Calliergon cordifolium (Hedw.) Lindb.

Substrate: soil.

Relative abundance: PA - absent, MC - rare, MRL - absent.

Cover: MC - present in 1 site at 2%.

Literature reports: Persson and Gjaerevoll 1957, Scotter 1962.

General distribution: Circumpolar, Arctic-Boreal Alpine-Montane.

Voucher specimens: MC - 27026, 27028, 27029, 27030.

Calliergon richardsonii (Mitt.) Kindb. & Warnst.

Substrate: on wet, ± calcareous soil.

Relative abundance: PA - rare, MC - absent, MRL - absent.

Cover: PA - present in 1 site at +.

Literature reports: Persson and Gjaerevoll 1957.

General distribution: Circumpolar, Arctic-Boreal Alpine-Montane.

Voucher specimens: PA - 26224, 26234.

Calliergon sarmentosum (Wahlenb.) Kindb.

Substrate: soil.

Relative abundance: PA - absent, MC - rare, MRL - absent.

Cover: MC - present in 1 site at 1%.

Literature reports: Brassard 1971, Holmen 1960, Persson and Gjaerevoll 1957, Scotter 1962, Scotter 1965, Scotter 1966.

General distribution: Circumpolar, Arctic-Boreal Alpine-Montane.

Voucher specimen: MC - 26919.

Calliergon stramineum (Brid.) Kindb.

Substrate: soil.

Relative abundance: PA - absent, MC - rare, MRL - absent.

Cover: MC - present in 1 site at +.

Literature reports: Brassard 1971, Persson and Gjaerevoll 1957, Scotter 1962, Scotter 1965, Steere 1958b.

General distribution: Circumpolar, Arctic-Boreal Alpine-Montane.

Voucher specimen: MC - 26947.

Calliergon trifarium (Web. & Mohr) Kindb.

Substrate: on wet, calcareous soil.

Relative abundance: PA - occasional, MC - absent, MRL - absent.

Cover: PA - present in 2 sites at +.

Literature reports: Holmen 1960, Persson and Gjaerevoll 1957.

General distribution: Circumpolar, Arctic-Boreal Alpine-Montane.

Voucher specimens: PA - 26225, 26527.

Campylium chrysophyllum (Brid.) J. Lange

Substrate: soil.

Relative abundance: PA - absent, MC - absent, MRL - rare.

Cover: MRL - present in 1 site at +.

Literature reports: Steere 1958b.

General distribution: Circumpolar, Boreal-Temperate Montane.

Voucher specimen: MRL - 27618.

Campylium stellatum (Hedw.) C. Jens.

Substrate: on wet, ± calcareous soil.

Relative abundance: PA - occasional, MC - absent, MRL - absent.

Cover: PA - present in 3 sites at +.

Literature reports: Holmen 1960, Persson and Gjaerevoll 1957, Scotter 1962,

Scotter 1965, Steere 1958b.

General distribution: Circumpolar, Arctic-Boreal Alpine-Montane.

Voucher specimens: PA - 26226, 26594, 26619.

Catoscopium nigritum (Hedw.) Brid.

Substrate: damp calcareous soil.

Relative abundance: PA - occasional, MC - absent, MRL - occasional.

Cover: PA - present in 1 site at 5%, in 1 at 2%, and in 1 at +; MRL - present in 1 site at 1%, and in 1 at +.

Literature reports: Brassard 1971, Holmen 1960, Persson and Gjaerevoll 1957.

General distribution: Circumpolar, Arctic-Boreal Alpine-Montane.

Voucher specimens: PA - 26191, 26227, 26502; MRL - 27557, 27578.

Ceratodon purpureus Brid.

Substrate: soil.

Relative abundance: PA - rare, MC - occasional, MRL - rare.

Cover: PA - present in 1 site at +; MC - present in 2 sites at +; MRL - present in 1 site at +.

Literature reports: Brassard 1971, Holmen 1960, Persson and Gjaerevoll 1957, Scotter 1962, Scotter 1965, Scotter 1966, Steere 1958b.

General distribution: Circumpolar, Arctic-Temperate Alpine-Montane.

Voucher specimens: PA - 26528; MC - 26920, 27132; MRL - 27586.

Dicranum elongatum Schleich.

Substrate: soil.

Relative abundance: PA - rare, MC - absent, MRL - rare.

Cover: PA - present in 1 site at +; MRL - present in 1 site at 1%.

Literature reports: Brassard 1971, Holmen 1960, Persson and Gjaerevoll 1957, Scotter 1961, Scotter 1965, Scotter 1966, Steere 1958b.

General distribution: Circumpolar, Arctic-Boreal Alpine-Montane.

Voucher specimens: PA - 26595; MRL - 27548.

Dicranum fuscescens Turn.

Substrate: soil.

Relative abundance: PA - common, MC - abundant, MRL - common.

Cover: PA - present in 1 site at 4%, in 1 at 3%, in 2 at 2%, and in 4 at +; MC - present in 4 sites at 2%, in 2 at 1%, and in 7 at +; MRL - present in 2 sites at 3%, in 1 at 1%, and in 1 at +.

Literature reports: Brassard 1971, Holmen 1960, Persson and Gjaerevoll 1957, Scotter 1962, Scotter 1965, Scotter 1966, Steere 1958b.

General distribution: Circumpolar, Arctic-Temperate Alpine-Montane.

Voucher specimens: PA - 26192, 26228, 26229, 26346, 26372, 26414, 26447, 26714, 26750; MC - 26788, 26847, 26848, 26882, 26921, 26922, 26948, 26949, 26990, 26991, 27031, 27061, 27111, 27161, 27162, 27208, 27267, 27327, 27328; MRL - 27366, 27572, 27603.

Dicranum scoparium Hedw.

Substrate: soil.

Relative abundance: PA - absent, MC - common, MRL - rare.

Cover: MC - present in 1 site at 3%, and in 3 at +; MRL - present in 1 site at +.

Literature reports: Brassard 1971, Persson and Gjaerevoll 1957, Scotter 1965.

General distribution: Circumpolar, Arctic-Temperate Alpine-Montane.

Voucher specimens: MC - 26849, 26923, 27134, 27135, 27328; MRL - 27619.

Dicranum undulatum Brid.

Synonymy: D. bergeri Bland.

Substrate: damp soil.

Relative abundance: PA - absent, MC - absent, MRL - occasional.

Cover: MRL - present in 1 site at 1%, and in 2 at +.

Literature reports: Scotter 1962, Scotter 1965.

General distribution: Circumpolar, Boreal-Montane.

Voucher specimens: MRL - 27393, 27432, 27460.

Distichium capillaceum (Hedw.) B.S.G.

Substrate: calcareous soil.

Relative abundance: PA - occasional, MC - absent, MRL - absent.

Cover: PA - present in 2 sites at +.

Literature reports: Brassard 1971, Holmen 1960, Persson and Gjaerevoll 1957,
Scotter 1962, Steere 1958b.

General distribution: Circumpolar, Arctic-Temperate Alpine-Montane.

Voucher specimens: PA - 26298, 26299, 26687.

Ditrichum flexicaule (Schwaegr.) Hampe

Substrate: soil.

Relative abundance: PA - common, MC - occasional, MRL - absent.

Cover: PA - present in 13 sites at +; MC - present in 3 sites at +.

Literature reports: Brassard 1971, Holmen 1960, Persson and Gjaerevoll 1957,
Scotter 1962, Scotter 1965, Scotter 1966, Steere 1958b.

General distribution: Circumpolar, Arctic-Boreal Alpine-Montane.

Voucher specimens: PA - 26118, 26155, 26434, 26448, 26468, 26486, 26503,
26529, 26567, 26596, 26620, 26640, 26715; MC - 26822, 27062, 27063, 27132.

Drepanocladus exannulatus (B.S.G.) Warnst.

Substrate: wet soil.

Relative abundance: PA - absent, MC - absent, MRL - rare.

Cover: MRL - present near Site 48 in trace amounts.

Literature reports: Brassard 1971, Persson and Gjaerevoll 1957, Scotter 1965.

General distribution: Circumpolar, Arctic-Boreal Alpine-Montane.

Voucher specimen: MRL - 27520.

Drepanocladus revolvens (Sw.) Warnst.

Substrate: soil.

Relative abundance: PA - rare, MC - occasional, MRL - occasional.

Cover: PA - present in 1 site at +; MC - present in 1 site at 1%, and in 1 at +;
MRL - present in 2 sites at +.

Literature reports: Brassard 1971, Holmen 1960, Persson and Gjaerevoll 1957,
Scotter 1962.

General distribution: Circumpolar, Arctic-Boreal Alpine-Montane.

Voucher specimens: PA - 26469; MC - 26950, 27030; MRL - 27461, 27521, 27584.

Drepanocladus uncinatus (Hedw.) Warnst.

Substrate: soil, occasionally on the bases of Picea glauca and Populus balsamifera trees.

Relative abundance: PA - absent, MC - absent, MRL - common.

Cover: MRL - present in 1 site at 2%, and in 4 at +.

Literature reports: Brassard 1971, Holmen 1960, Persson and Gjaerevoll 1957,
Scotter 1962, Scotter 1965, Scotter 1966, Steere 1958b.

General distribution: Circumpolar, Arctic-Boreal Alpine-Montane.

Voucher specimens: MRL - 27462, 27470, 27486, 27604, 27620.

Drepanocladus vernicosus (Lindb. ex C. Hartm.) Warnst.

Substrate: soil.

Relative abundance: PA - rare, MC - absent, MRL - absent.

Cover: PA - present in 1 site at 1%.

Literature reports: Brassard 1971, Persson and Gjaerevoll 1957, Scotter 1965,
Scotter 1966.

General distribution: Circumpolar, Arctic-Boreal Alpine-Montane.

Voucher specimen: PA - 26320.

Encalypta procera Bruch

Substrate: soil.

Relative abundance: PA - rare, MC - absent, MRL - absent.

Cover: PA - present in 1 site at +.

Literature reports: Brassard 1971, Holmen 1960.

General distribution: Circumpolar, Arctic-Boreal Alpine-Montane.

Voucher specimens: PA - 26298, 26299.

Encalypta rhaftocarpa Schwaegr.

Synonymy: both collections were of material classified as var. subspathulata

(C. Müll. & Kindb. ex Mac. & Kindb.) Flow. by Crum, Steere and Anderson (1965), however, it is considered to be merely a form by Lawton (1971).

Substrate: soil.

Relative abundance: PA - absent, MC - occasional, MRL - absent.

Cover: MC - present in 2 sites at +.

Literature reports: Brassard 1971, Holmen 1960, Scotter 1962, Scotter 1965, Steere 1958b.

General distribution: Circumpolar, Arctic-Boreal Alpine-Montane.

Voucher specimens: MC - 26789, 27209.

Fissidens osmundioides Hedw.

Substrate: soil.

Relative abundance: PA - occasional, MC - absent, MRL - absent.

Cover: PA - present in 3 sites at +.

Literature reports: Holmen 1960, Persson and Gjaarevoll 1957.

General distribution: Circumpolar, Arctic-Temperate Alpine-Montane.

Voucher specimens: PA - 26231, 26373, 26490.

Grimmia apocarpa Hedw.

Synonymy: Schistidium apocarpum (Hedw.) Br. Eur.

Substrate: dolomite and quartzite.

Relative abundance: PA - occasional, MC - rare, MRL - absent.

Cover: PA - present in 3 sites at +; MC - present in 1 site at +.

Literature reports: Brassard 1971, Holmen 1960, Scotter 1962.

General distribution: Circumpolar, Arctic-Temperate Alpine-Montane.

Voucher specimens: PA - 26302, 26510, 26654; MC - 26822.

Gymnostomum aeruginosum Sm.

Substrate: calcareous soil in crevice of a bird rock.

Relative abundance: PA - rare, MC - absent, MRL - absent.

Cover: PA - present in a bird rock site at +.

Literature reports: Holmen 1960.

General distribution: Circumpolar, Arctic-Temperate Alpine-Montane.

Voucher specimen: PA - 26156.

Hylocomium splendens (Hedw.) B.S.G.

Substrate: soil.

Relative abundance: PA - common, MC - common, MRL - abundant.

Cover: PA - present in 1 site at 48%, in 2 at 5%, in 1 at 4%, in 1 at 3%, in 1 at 2%,
and in 1 at +; MC - present in 1 site at 25%, in 1 at 7%, in 2 at 4%, and in 1 at +;
MRL - present in 1 site at 34%, in 2 at 8%, in 2 at 1%, and in 1 at +.

Literature reports: Brassard 1971, Persson and Gjaerevoll 1957, Scotter 1962,
Scotter 1965, Scotter 1966, Steere 1958b.

General distribution: Circumpolar, Arctic-Temperate Alpine-Montane.

Voucher specimens: PA - 26193, 26232, 26327, 26347, 26415, 26751; MC - 26850, 26924, 26951, 27032, 27329; MRL - 27463, 27516, 27549, 27573, 27605, 27621.
Hypnum bambergeri Schimp.

Substrate: calcareous soil.

Relative abundance: PA - common, MC - absent, MRL - absent.

Cover: PA - present in 1 site at 10%, in 1 at 5%, in 1 at 3%, in 2 at 2%, and in 4 at +.

Literature reports: Brassard 1971, Holmen 1960, Persson and Gjaerevoll 1957.

General distribution: Circumpolar, Arctic-Alpine.

Voucher specimens: PA - 26194, 26233, 26234, 26300, 26348, 26374, 26435, 26449, 26487, 26530.

Hypnum bridelianum Crum, Steere & Anderson

Synonymy: H. ravaudii ssp. fastigiatum (Brid) Wijk & Marg., H. fastigiatum (Brid.) Hartm.

Substrate: calcareous rock.

Relative abundance: PA - rare, MC - absent, MRL - absent.

Cover: PA - present in 1 site at +.

Literature reports: Scotter 1965.

General distribution: Circumpolar, Arctic-Alpine.

Voucher specimens: PA - 26550.

Hypnum callichroum Funck ex Brid.

Substrate: soil .

Relative abundance: PA - absent, MC - rare, MRL - absent.

Cover: MC - present in 1 site at 1%.

Literature reports: Brassard 1971, Holmen 1960, Steere 1958b.

General distribution: Circumpolar, Arctic-Alpine.

Voucher specimen: MC - 26952.

Hypnum cupressiforme Hedw.

Substrate: soil.

Relative abundance: PA - absent, MC - absent, MRL - rare.

Cover: MRL - present in 1 site at +.

Literature reports: Brassard 1971, Persson and Gjaerevoll 1957, Scotter 1965.

General distribution: Circumpolar, Arctic-Temperate Alpine-Montane.

Voucher specimen: MRL - 27606.

Hypnum procerrimum Mol.

Synonymy: Pseudostereodon procerrimum (Mol.) Fleisch.

Substrate: calcareous soil.

Relative abundance: PA - occasional, MC - absent, MRL - absent.

Cover: PA - present in 4 sites at +.

Literature reports: Brassard 1971, Persson and Gjaerevoll 1957.

General distribution: Circumpolar, Arctic-Boreal Alpine-Montane.

Voucher specimens: PA - 26328, 26488, 26597, 26622.

Hypnum revolutum (Mitt.) Lindb.

Substrate: calcareous soil, occasionally on rock.

Relative abundance: PA - occasional, MC - absent, MRL - absent.

Cover: PA - present in 1 site at 2%, and in 3 at +.

Literature reports: Brassard 1971, Holmen 1960, Persson and Gjaerevoll 1957.

Circumpolar

General distribution: Circumpolar Arctic-Boreal Alpine-Montane.

Voucher specimens: PA - 26119, 26303, 26450, 26504.

Hypnum vaucheri Lesq.

Substrate: calcareous soil, often in the vicinity of bird rocks.

Relative abundance: PA - occasional, MC - absent, MRL - absent.

Cover: PA - present in 3 sites at +.

Literature reports: Brassard 1971, Holmen 1960, Persson and Gjaerevoll 1957.

General distribution: Circumpolar, Arctic-Temperate Alpine-Montane.

Voucher specimens: PA - 26157, 26265, 26641.

Kiaeria blyttii (B.S.G.) Broth.

Substrate: soil.

Relative abundance: PA - absent, MC - rare, MRL - absent.

Cover: MC - present in 1 site at +.

Literature reports: not reported in any of the selected sources.

General distribution: Circumpolar, Boreal-Montane.

Voucher specimen: MC - 27330.

Meesea uliginosa Hedw.

Substrate: damp, ± calcareous soil.

Relative abundance: PA - rare, MC - absent, MRL - absent.

Cover: PA - present in 1 site at 3%.

Literature reports: Brassard 1971, Holmen 1960, Persson and Gjaerevoll 1957,

Scotter 1966.

General distribution: Circumpolar, Arctic-Boreal Alpine-Montane.

Voucher specimen: PA - 26236.

Mnium blyttii B.S.G.

Substrate: calcareous soil.

Relative abundance: PA - rare, MC - absent, MRL - absent.

Cover: PA - present in 1 site at +.

Literature reports: Brassard 1971, Persson and Gjaerevoll 1957.

General distribution: Circumpolar, Arctic-Boreal Alpine-Montane.

Voucher specimens: PA - 26234, 26238.

Myurella julacea (Schwaegr.) B.S.G.

Substrate: calcareous soil in the vicinity of a bird rock.

Relative abundance: PA - rare, MC - absent, MRL - absent.

Cover: PA - present in 1 site at +.

Literature reports: Brassard 1971, Holmen 1960, Persson and Gjaerevoll 1957,
Scotter 1962, Scotter 1965.

General distribution: Circumpolar, Arctic-Boreal Alpine-Montane.

Voucher specimens: PA - 26640, 26642, 26644.

Oncophorus virens (Hedw.) Brid.

Substrate: soil.

Relative abundance: PA - occasional, MC - absent, MRL - absent.

Cover: PA - present in 2 sites at +.

Literature reports: Holmen 1960, Persson and Gjaerevoll 1957.

General distribution: Circumpolar, Arctic-Boreal Alpine-Montane.

Voucher specimens: PA - 26349, 26531.

Orthotrichum alpestre Hornsch. ex B.S.G.

Substrate: dolomite bird rock.

Relative abundance: PA - rare, MC - absent, MRL - absent.

Cover: PA - present in 1 site at 1%.

Literature reports: not reported in any of the selected sources.

General distribution: Circumpolar, Arctic-Boreal Alpine-Montane.

Voucher specimen: PA - 26180.

Orthotrichum rupestre Schleich.

Substrate: quartzite.

Relative abundance: PA - absent, MC - rare, MRL - absent.

Cover: MC - present in 1 site at +.

Literature reports: not reported in any of the selected sources.

General distribution: Circumpolar, Western Arctic-Temperate Cordilleran.

Voucher specimen: MC - 27082.

Orthotrichum speciosum var. elegans (Schwaegr. ex Hook. & Grev.) Warnst.

Synonymy: O. elegans Hook. & Grev.

Substrate: Picea glauca and Populus balsamifera trees.

Relative abundance: PA - absent, MC - absent, MRL - occasional.

Cover: MRL - present in 2 sites at +.

Literature reports: Scotter 1965.

General distribution: Circumpolar, Eastern Boreal.

Voucher specimens: MRL - 27476, 27630.

Paludella squarrosa (Hedw.) Brid.

Substrate: wet soil.

Relative abundance: PA - absent, MC - rare, MRL - absent.

Cover: MC - present in 1 site at +.

Literature reports: Persson and Gjaerevoll 1957.

General distribution: Circumpolar, Arctic-Boreal Alpine-Montane.

Voucher specimen: MC - 27036.

Plagiomnium medium (B.S.G.) Koponen

Synonymy: Mnium medium Br. Eur.

Substrate: soil.

Relative abundance: PA - absent, MC - rare, MRL - absent.

Cover: MC - present in 1 site at +.

Literature reports: Brassard 1971, Holmen 1960.

General distribution: Circumpolar, Arctic-Boreal Alpine-Montane.

Voucher specimen: MC - 26953.

Platydictya jungermannioides (Brid.) Crum

Synonymy: Amblystegiella jungermannioides (Brid.) Giac.

Substrate: calcareous soil.

Relative abundance: PA - rare, MC - absent, MRL - absent.

Cover: PA - present in 1 site at +.

Literature reports: Brassard 1971.

General distribution: Circumpolar, Arctic-Boreal Alpine-Montane.

Voucher specimen: PA - 26329.

Pleurozium schreberi (Brid.) Mitt.

Substrate: soil.

Relative abundance: PA - absent, MC - occasional, MRL - absent.

Cover: MC - present in 2 sites at +.

Literature reports: Persson and Gjaerevoll 1957, Scotter 1962, Scotter 1965.

General distribution: Circumpolar, Boreal-Temperate Montane.

Voucher specimens: MC - 26851, 26925.

Pogonatum alpinum (Hedw.) Röhl.

Synonymy: Polytrichum alpinum Hedw.

Substrate: soil.

Relative abundance: PA - absent, MC - rare, MRL - absent.

Cover: MC - present in 1 site at +.

Literature reports: Brassard 1971, Holmen 1960, Persson and Gjaerevoll 1957.

General distribution: Circumpolar, Arctic-Boreal Alpine-Montane.

Voucher specimen: MC - 26992.

Pohlia nutans (Hedw.) Lindb.

Substrate: soil.

Relative abundance: PA - rare, MC - common, MRL - rare.

Cover: PA - present in 1 site at +; MC - present in 4 sites at +; MRL - present in 1 site at +.

Literature reports: Brassard 1971, Holmen 1960, Persson and Gjaerevoll 1957,

Scotter 1962, Scotter 1965, Scotter 1966, Steere 1958b.

General distribution: Circumpolar, Arctic-Temperate Alpine-Montane.

Voucher specimens: PA - 26239; MC - 26790, 26991, 27062, 27063, 27136; MRL - 27437.

Polytrichum commune Hedw.

Substrate: soil.

Relative abundance: PA - absent, MC - rare, MRL - absent.

Cover: MC - present in 1 site at +.

Literature reports: Scotter 1962, Scotter 1965, Steere 1958b.

General distribution: Circumpolar, Arctic-Temperate Alpine-Montane.

Voucher specimen: MC - 27064.

Polytrichum juniperinum Hedw.

Substrate: soil.

Relative abundance: PA - occasional, MC - common, MRL - absent.

Cover: PA - present in 2 sites at +; MC - present in 1 site at 4%, in 1 at 2%,
in 2 at 1%, and in 3 at +.

Literature reports: Brassard 1971, Persson and Gjaerevoll 1957, Scotter 1962,
Scotter 1965, Scotter 1966, Steere 1958b.

General distribution: Circumpolar, Arctic-Temperate Alpine-Montane.

Voucher specimens: PA - 26375, 26716; MC - 26791, 26852, 26883, 26922, 27109,
27211, 27331.

Polytrichum juniperinum var. gracilius Wahlenb.

Synonymy: P. juniperinum var. alpestre (Hoppe) B.S.G., P. strictum Sm.,
P. strictum Banks.

Substrate: soil.

Relative abundance: PA - rare, MC - common, MRL - rare.

Cover: PA - present in 1 site at +; MC - present in 1 site at 6%, in 1 at 4%,
in 1 at 3%, in 2 at 2%, and in 1 at 1%; MRL - present in 1 site at 2%.

Literature reports: Holmen 1960, Persson and Gjaerevoll 1957, Scotter 1962,
Scotter 1965, Scotter 1966, Steere 1958b.

General distribution: Circumpolar, Arctic-Boreal Alpine-Montane.

Voucher specimens: PA - 26240; MC - 26926, 26954, 26993, 27037, 27163, 27332;
MRL - 27438.

Polytrichum piliferum Hedw.

Substrate: soil.

Relative abundance: PA - absent, MC - abundant, MRL - absent.

Cover: MC - present in 1 site at 1%, and in 8 at +.

Literature reports: Brassard 1971, Holmen 1960, Persson and Gjaerevoll 1957,
Scotter 1962, Scotter 1965, Scotter 1966, Steere 1958b.

General distribution: Circumpolar, Arctic-Temperate Alpine-Montane.

Voucher specimens: MC - 26792, 26853, 26884, 26994, 27164, 27212, 27268.

Polytrichum piliferum var. hyperboreum (R. Br.) C. Müll.

Synonymy: P. hyperboreum R. Br.

Substrate: soil.

Relative abundance: PA - absent, MC - rare, MRL - absent.

Cover: MC - present in 1 site at +.

Literature reports: Brassard 1971, Holmen 1960, Persson and Gjaerevoll 1957.

General distribution: Circumpolar, Arctic-Alpine.

Voucher specimen: MC - 26885.

Ptilium crista-castrensis (Hedw.) De Not.

Substrate: soil.

Relative abundance: PA - absent, MC - absent, MRL - rare.

Cover: MRL - present in 1 site at +.

Literature reports: Scotter 1962, Scotter 1965.

General distribution: Boreal-Temperate Montane.

Voucher specimen: MRL - 27466.

Pylaisiella polyantha (Hedw.) Grout

Synonymy: Pylaisia polyantha (Hedw.) Br. Eur.

Substrate: base of Picea glauca tree.

Relative abundance: PA - absent, MC - absent, MRL - rare.

Cover: MRL - present in 1 site at +.

Literature reports: Persson and Gjaerevoll 1957, Scotter 1962.

General distribution: Circumpolar, Boreal-Temperate Montane.

Voucher specimen: MRL - 27638.

Rhacomitrium heterostichum var. microcarpon (Hedw.) Boul.

Substrate: soil.

Relative abundance: PA - absent, MC - rare, MRL - absent.

Cover: MC - present in 1 site at +.

Literature reports: not reported in any of the selected sources.

General distribution: Circumpolar, Arctic-Alpine.

Voucher specimen: MC - 26956.

Racomitrium lanuginosum (Hedw.) Brid.

Substrate: soil.

Relative abundance: PA - occasional, MC - abundant, MRL - absent.

Cover: PA - present in 2 sites at 2%; MC - present in 4 sites at 2%, in 3 at 1%,

and in 3 at +.

Literature reports: Brassard 1971, Holmen 1960, Persson and Gjaerevoll 1957,

Scotter 1962, Scotter 1966.

General distribution: Circumpolar, Arctic-Boreal Alpine-Montane.

Voucher specimens: PA - 26377, 26417; MC - 26793, 26886, 26995, 27065, 27112,

27166, 27214, 27334.

Rhizomnium andrewsianum (Steere) Kop.

Synonymy: Mnium andrewsianum Steere

Substrate: soil.

Relative abundance: PA - rare, MC - rare, MRL - absent.

Cover: PA - present in 1 site at +; MC - present in 1 site at +.

Literature reports: Steere 1958b.

General distribution: Circumpolar, Arctic-Boreal Alpine-Montane.

Voucher specimens: PA - 26237; MC - 26927.

Rhytidadelphus triquetrus (Hedw.) Warnst.

Substrate: soil.

Relative abundance: PA - absent, MC - absent, MRL - rare.

Cover: MRL - present in 1 site at +.

Literature reports: Persson and Gjacrevoll 1957.

General distribution: Boreal-Temperate Montane.

Voucher specimen: MRL - recorded, but not collected, in Site 42.

Rhytidium rugosum (Hedw.) Kindb.

Substrate: soil.

Relative abundance: PA - common, MC - occasional, MRL - rare.

Cover: PA - present in 1 site at 37%, in 1 at 2%, and in 6 at +; MC - present in 2 sites at +; MRL - present in 1 site at 2%.

Literature reports: Persson and Gjaerevoll 1957, Scotter 1962, Scotter 1965.

General distribution: Circumpolar, Arctic-Temperate Alpine-Montane.

Voucher specimens: PA - 26120, 26243, 26266, 26598, 26643, 26688, 26717, 26754; MC - 27215, 27269; MRL - 27610.

Tetraplodon mnioides (Hedw.) B.S.G.

Synonymy: including T. urceolatus (Brid.) B.S.G. which is regarded as a reduced form unworthy of taxonomic recognition (Brassard 1971, Crum 1969, Steere 1959a).

Substrate: old dung.

Relative abundance: PA - rare, MC - rare, MRL - occasional.

Cover: PA - present in 1 site at +; MC - present in 1 site at +; MRL - present in 1 site at +.

Literature reports: Brassard 1971, Holmen 1960, Persson and Gjaerevoll 1957, Scotter 1965, Scotter 1966.

General distribution: Circumpolar, Arctic-Boreal Alpine-Montane.

Voucher specimens: PA - 26505; MC - 27066; MRL - 27555, 27612.

Tomentypnum nitens (Hedw.) Loeske

Substrate: wet, ± calcareous soil.

Relative abundance: PA - common, MC - absent, MRL - common.

Cover: PA - present in 1 site at 10%, in 1 at 5%, in 1 at 1%, and in 6 at +; MRL - present in 2 sites at 8%, in 1 at 5%, in 1 at 2%, and in 1 at +.

Literature reports: Brassard 1971, Holmen 1960, Persson and Gjaerevoll 1957, Scotter 1962, Scotter 1965, Scotter 1966, Steere 1958b.

General distribution: Circumpolar, Arctic-Boreal Alpine-Montane.

Voucher specimens: PA - 26246, 26331, 26350, 26436, 26451, 26470, 26489, 26718, 26756; MRL - 27496, 27558, 27577, 27624.

Tortella fragilis (Hook. ex Drumm.) Limpr.

Substrate: ± calcareous soil.

Relative abundance: PA - common, MC - rare, MRL - rare.

Cover: PA - present in 8 sites at +; MC - present in 1 site at +; MRL - present in 1 site at +.

Literature reports: Brassard 1971, Holmen 1960, Persson and Gjaerevoll 1957, Scotter 1965, Steere 1958b.

General distribution: Circumpolar, Arctic-Boreal Alpine-Montane.

Voucher specimens: PA - 26158, 26267, 26434, 26490, 26532, 26551, 26568, 26599; MC - 27270; MRL - 27613.

Tortella tortuosa (Hedw.) Limpr.

Substrate: calcareous soil.

Relative abundance: PA - common, MC - absent, MRL - absent.

Cover: PA - present in 6 sites at +.

Literature reports: Holmen 1960, Persson and Gjaerevoll 1957.

General distribution: Circumpolar, Arctic-Temperate Alpine-Montane.

Voucher specimens: PA - 26121, 26159, 26301, 26503, 26552, 26640, 26644.

Tortula mucronifolia Schwaegr.

Substrate: calcareous soil.

Relative abundance: PA - absent, MC - absent, MRL - rare.

Cover: MRL - present in 1 site at +.

Literature reports: Brassard 1971, Holmen 1960, Steere 1958b.

General distribution: Circumpolar, Arctic-Temperate Alpine-Montane.

Voucher specimen: MRL - 27614.

Tortula ruralis (Hedw.) Gaertn., Meyer & Scherb.

Substrate: soil, often in the vicinity of bird rocks.

Relative abundance: PA - occasional, MC - absent, MRL - absent.

Cover: PA - present in 4 sites at +.

Literature reports: Brassard 1971, Holmen 1960, Persson and Gjaerevoll 1957,
Scotter 1962, Scotter 1965.

General distribution: Circumpolar, Arctic-Temperate Alpine-Montane.

Voucher specimens: PA 26160, 26268, 26506, 26642.

Herbaceous Plants

Forty-two taxa of herbaceous plants were encountered during the study:
18 at PA, 15 at MC, and 16 at MRL. It should be emphasized that due to the earliness
of the season some species will have been missed. This is especially true of sedges
and grasses as, while their cover could be estimated in total, it was impossible in
most cases to identify species because the fruiting material was lacking.

The "Literature Reports" section indicates the occurrence of the taxa in each of the following areas: vicinity of Norman Wells (Cody 1960); along the Canol Road on the East Slope of the Mackenzie Mountains (Porsild 1945); Alaska and neighbouring Territories (Hultén 1968); and the Churchill Area, Manitoba (Ritchie 1956).

The "General distribution" of each species was determined from all of the above sources but especially from Hultén (1968).

Nomenclature is that of Hultén (1968).

Achillea lanulosa Nutt.

Relative abundance: PA - absent, MC - absent, MRL - rare.

Cover: MRL - present in 1 site at +.

Literature reports: Cody 1960, Hultén 1968.

General distribution: American, Boreal-Montane.

Voucher specimens: MRL - observed, but not collected, in Site 42.

Androsace chamaejasme ssp. lehmanniana (Spreng.) Hult.

Synonymy: A. chamaejasme var. arctica R. Knuth

Relative abundance: PA - rare, MC - rare, MRL - absent.

Cover: PA - present in 1 site at +; MC - present in 1 site at +.

Literature reports: Cody 1960, Hultén 1968, Porsild 1945.

General distribution: Amphi-Beringian, Western Arctic-Cordilleran.

Voucher specimens: PA - 26195; MC - 27279.

Androsace septentrionalis L.

Relative abundance: PA - absent, MC - absent, MRL - rare.

Cover: MRL - present in 1 site at +.

Literature reports: Hultén 1968, Ritchie 1956.

General distribution: Circumpolar, Arctic-Boreal Alpine-Montane.

Voucher specimen: MRL - 27615.

Anemone drummondii S. Wats.

Relative abundance: PA - absent, MC - occasional, MRL - absent.

Cover: MC - present in 1 site at 3%, and in 1 at +.

Literature reports: Hultén 1968.

General distribution: Amphi-Beringian, Western Arctic-Cordilleran.

Voucher specimens: MC - 27216, 27280.

Anemone parviflora Michx.

Relative abundance: PA - occasional, MC - absent, MRL - occasional.

Cover: PA - present in 3 sites at +; MRL - present in 2 sites at +.

Literature reports: Cody 1960, Hultén 1968, Porsild 1945, Ritchie 1956.

General distribution: Amphi-Beringian, Arctic-Boreal Alpine-Montane.

Voucher specimens: PA - 26143, 26146, 26689; MRL - observed, but not collected.

Antennaria friesiana ssp. *compacta* (Malte) Hult.

Synonymy: *A. compacta* Malte

Relative abundance: PA - absent, MC - rare, MRL - absent.

Cover: MC - present in 1 site at 1%.

Literature reports: Hultén 1968.

General distribution: American, Arctic-Alpine.

Voucher specimen: MC - 27217.

Carex capillaris L.

Relative abundance: PA - rare, MC - absent, MRL - absent.

Cover: PA - present in 1 site in which the Cyperaceae/Gramineae cover was 4%.

Literature reports: Cody 1960, Hultén 1968, Porsild 1945, Ritchie 1956.

General distribution: Circumpolar, Arctic-Boreal Alpine-Montane.

Voucher specimen: PA - 26452.

Carex membranacea Hook.

Relative abundance: PA - occasional, MC - absent, MRL - absent.

Cover: PA - present in 3 sites in which the Cyperaceae/Gramineae cover was 43%, 4%, and 2%.

Literature reports: Cody 1960, Hultén 1968, Porsild 1945, Ritchie 1956.

General distribution: Amphi-Beringian, Arctic-Alpine.

Voucher specimens: PA - 26196, 26453, 26624.

Cornus canadensis L.

Relative abundance: PA - absent, MC - absent, MRL - rare.

Cover: MRL - present in 1 site at +.

Literature reports: Cody 1960, Hultén 1968, Porsild 1945.

General distribution: Amphi-Beringian, Boreal-Montane.

Voucher specimens: MRL - observed, but not collected, in Site 45.

Draba fladnizensis Wulf.

Relative abundance: PA - absent, MC - occasional, MRL - absent.

Cover: MC - present in 2 sites at +.

Literature reports: Hultén 1968.

General distribution: Incompletely circumpolar; Arctic-Alpine.

Voucher specimens: MC - 27219, 27281.

Draba macrocarpa Adams

Synonymy: D. bellii Holm.

Relative abundance: PA - occasional, MC - absent, MRL - absent.

Cover: PA - present in 2 sites at +.

Literature reports: Hultén 1968, Porsild 1945.

General distribution: Circumpolar, Arctic-Alpine.

Voucher specimens: PA - 26533, 26625.

Draba nivalis Liljebl.

Relative abundance: PA - absent, MC - rare, MRL - absent.

Cover: MC - present in 1 site at +.

Literature reports: Hultén 1968, Ritchie 1956.

General distribution: Circumpolar, Arctic-Alpine.

Voucher specimen: MC - 27282.

Epilobium angustifolium L. ssp. angustifolium

Synonymy: Chamaenerion angustifolium (L.) Scop.

Relative abundance: PA - absent, MC - absent, MRL - rare.

Cover: MRL - present in 1 site at +.

Literature reports: Cody 1960, Hultén 1968, Porsild 1945, Ritchie 1956.

General distribution: Circumpolar, Boreal-Montane.

Voucher specimens: MRL - observed, but not collected, in Site 42.

Equisetum arvense L.

Relative abundance: PA - absent, MC - absent, MRL - occasional.

Cover: MRL - present in 1 site at 4%.

Literature reports: Cody 1960, Hultén 1968, Porsild 1945, Ritchie 1956.

General distribution: Circumpolar, Arctic-Temperate Alpine-Montane.

Voucher specimens: MRL - observed, but not collected, in Sites 42 and 46.

Equisetum hiemale L.

Relative abundance: PA - absent, MC - absent, MRL - rare.

Cover: MRL - present in 1 site at +.

Literature reports: Cody 1960, Hultén 1968.

General distribution: Circumpolar, Boreal-Temperate Montane.

Voucher specimens: MRL - observed, but not collected, in Site 42.

Equisetum scirpoides Michx.

Relative abundance: PA - rare, MC - absent, MRL - occasional.

Cover: PA - present in 1 site at +; MRL - present in 1 site at 2%, and in 1 at +.

Literature reports: Cody 1960, Hultén 1968, Porsild 1945, Ritchie 1956.

General distribution: Circumpolar, Arctic-Boreal Alpine-Montane.

Voucher specimen: PA - 26197; MRL - observed, but not collected.

Eriophorum angustifolium ssp. triste (T. Fries) Hult.

Relative abundance: PA - occasional, MC - absent, MRL - absent.

Cover: PA - present in 1 site at 2%, and in 1 at +.

Literature reports: Cody 1960, Hultén 1968, Porsild 1945.

General distribution: Circumpolar, Arctic-Alpine.

Voucher specimens: PA - 26144, 26454, 26626.

Eriophorum callitrix Cham.

Relative abundance: PA - absent, MC - rare, MRL - absent.

Cover: MC - present in 1 site at 25%.

Literature reports: Hultén 1968, Ritchie 1956.

General distribution: Incompletely circumpolar, Arctic-Alpine.

Voucher specimen: MC - 27041.

Geocaulon lividum (Richards.) Fern.

Relative abundance: PA - absent, MC - absent, MRL - common.

Cover: MRL - present in 1 site at 1%, and in 2 at +.

Literature reports: Cody 1960, Hultén 1968, Ritchie 1956.

General distribution: American, Boreal-Montane.

Voucher specimen: MRL - 27616.

Juncus biglumis L.

Relative abundance: PA - occasional, MC - absent, MRL - absent.

Cover: PA - present in 2 sites at +.

Literature reports: Hultén 1968, Porsild 1945.

General distribution: Circumpolar, Arctic-Alpine.

Voucher specimens: PA - 26455, 26627.

Juncus triglumis L. ssp. triglumis

Relative abundance: PA - occasional, MC - absent, MRL - absent.

Cover: PA - present in 2 sites at +.

Literature reports: Cody 1960, Hultén 1968, Porsild 1945.

General distribution: Circumpolar, Arctic-Alpine.

Voucher specimens: PA - 26198, 26628.

Linnaea borealis ssp. americana (Forbes) Hult.

Synonymy: L. borealis var. americana (Forbes) Rehd.

Relative abundance: PA - absent, MC - absent, MRL - rare.

Cover: MRL - present in 1 site at +.

Literature reports: Cody 1960, Hultén 1968, Ritchie 1956.

General distribution: American, Boreal-Montane.

Voucher specimens: MRL - observed, but not collected, in Site 53.

Lupinus arcticus Wats.

Relative abundance: PA - absent, MC - rare, MRL - absent.

Cover: MC - present in 1 site at 1%.

Literature reports: Hultén 1968, Porsild 1945.

General distribution: American, Western Arctic-Cordilleran

Voucher specimen: MC - 27284.

Luzula confusa Lindebl.

Relative abundance: PA - absent, MC - rare, MRL - absent.

Cover: MC - present in 1 site at +.

Literature reports: Hultén 1968, Porsild 1945, Ritchie 1956.

General distribution: Circumpolar, Arctic-Alpine.

Voucher specimen: MC - 27221.

Lycopodium annotinum L.

Relative abundance: PA - absent, MC - absent, MRL - rare.

Cover: MRL - present in 1 site at +.

Literature reports: Hultén 1968, Porsild 1945.

General distribution: Circumpolar, Boreal-Montane.

Voucher specimens: MRL - observed, but not collected, in Site 48.

Lycopodium selago L. ssp. selago

Relative abundance: PA - occasional, MC - occasional, MRL - absent.

Cover: PA - present in 1 site at 1%, and in 2 at +; MC - present in 2 sites at +.

Literature reports: Hultén 1968, Porsild 1945.

General distribution: Circumpolar, Arctic-Boreal Alpine-Montane.

Voucher specimens: PA - 26140, 26378; MC - 27010, 27336.

Menyanthes trifoliata L.

Relative abundance: PA - absent, MC - absent, MRL - rare.

Cover: MRL - present in 1 site at 1%.

Literature reports: Cody 1960, Hultén 1968, Ritchie 1956.

General distribution: Circumpolar, Boreal-Montane.

Voucher specimen: MRL - 27400.

Minuartia rossii (R. Br.) Graebn.

Synonymy: Arenaria rossii R. Br.

Relative abundance: PA - occasional, MC - absent, MRL - absent.

Cover: PA - present in 2 sites at +.

Literature reports: Cody 1960, Hultén 1968, Porsild 1945.

General distribution: Amphi-Beringian, Arctic-Alpine.

Voucher specimens: PA - 26569, 26623.

Oxyria digyna (L.) Hill

Relative abundance: PA - absent, MC - rare, MRL - absent.

Cover: MC - present in 1 site at +.

Literature reports: Hultén 1968, Porsild 1945.

General distribution: Circumpolar, Arctic-Alpine.

Voucher specimen: MC - 27285.

Parrya nudicaulis ssp. interior Hult.

Relative abundance: PA - occasional, MC - absent, MRL - absent.

Cover: PA - present in 3 sites at +.

Literature reports: Hultén 1968, Porsild 1945 (ssp. not mentioned).

General distribution: American, Western Arctic-Cordilleran.

Voucher specimens: PA - 26145, 26147, 26571, 26691.

Parrya nudicaulis ssp. septentrionalis Hult.

Relative abundance: PA - occasional, MC - absent, MRL - absent.

Cover: PA - present in + amounts near Site 1.

Literature reports: Hultén 1968, Porsild 1945 (ssp. not mentioned).

General distribution: Amphi-Beringian, Arctic-Alpine.

Voucher specimens: PA - 26145, 26147.

Pedicularis kanei Durand ssp. kanei

Synonymy: P. lanata Cham. & Schlecht.

Relative abundance: PA - common, MC - occasional, MRL - absent.

Cover: PA - present in 12 sites at +; MC - present in 2 sites at +.

Literature reports: Cody 1960, Hultén 1968, Porsild 1945.

General distribution: Amphi-Beringian Arctic-Alpine.

Voucher specimens: PA - 26141, 26148, 26379, 26456, 26572, 26691; MC - 26824.

Potentilla uniflora Ledeb.

Relative abundance: PA - occasional, MC - common, MRL - absent.

Cover: PA - present in 1 site at 1%, and in 3 at +; MC - present in 3 sites at 1%,

and in 4 at +.

Literature reports: Hultén 1968, Porsild 1945.

General distribution: Amphi-Beringian, Western Arctic-Cordilleran.

Voucher specimens: PA - observed, but not collected; MC - 26825, 27222.

Primula stricta Hornem.

Relative abundance: PA - absent, MC - absent, MRL - rare.

Cover: MRL - present in + amounts along the shore of Rorey Lake near Site 53.

Literature reports: Cody 1960, Hultén 1968, Ritchie 1956.

General distribution: Incompletely circumpolar, Arctic-Boreal Alpine-Montane.

Voucher specimen: MRL - 27617.

Pyrola grandiflora Rad.

Relative abundance: PA - absent, MC - absent, MRL - occasional.

Cover: MRL - present in 1 site at +.

Literature reports: Cody 1960, Hultén 1968, Porsild 1945, Ritchie 1956.

General distribution: Circumpolar, Arctic-Boreal Alpine-Montane.

Voucher specimen: MRL - 27467.

Rubus chamaemorus L.

Relative abundance: PA - absent, MC - absent, MRL - occasional.

Cover: MRL - present in 1 site at 1%.

Literature reports: Cody 1960, Hultén 1968, Ritchie 1956.

General distribution: Circumpolar, Arctic-Boreal Alpine-Montane.

Voucher specimens: MRL - observed, but not collected in Sites 42 and 43.

Saxifraga oppositifolia L.

Relative abundance: PA - common, MC - absent, MRL - absent.

Cover: PA - present in 2 sites at 1%, and in 13 at +.

Literature reports: Hultén 1968, Porsild 1945, Ritchie 1956.

General distribution: Circumpolar, Arctic-Alpine.

Voucher specimens: PA - 26142, 26575.

Saxifraga tricuspidata Rottb.

Relative abundance: PA - absent, MC - rare, MRL - absent.

Cover: MC - present in 1 site at +.

Literature reports: Hultén 1968, Porsild 1945, Ritchie 1956.

General distribution: American, Arctic-Boreal Alpine-Montane.

Voucher specimen: MC - 27287.

Sibbaldia procumbens L.

Relative abundance: PA - absent, MC - rare, MRL - absent.

Cover: MC - present in 1 site at +.

Literature reports: Hultén 1968, Porsild 1945.

General distribution: Incompletely circumpolar, Arctic-Alpine.

Voucher specimens: MC - observed, but not collected, in Site 39.

Silene acaulis L. ssp. acaulis

Synonymy: S. acaulis var. exscapa (All.) DC.

Relative abundance: PA - common, MC - rare, MRL - absent.

Cover: PA - present in 2 sites at 2%, in 2 at 1%, and in 4 at +; MC - present in

1 site at +.

Literature reports: Hultén 1968, Porsild 1945.

General distribution: Incompletely circumpolar, Arctic-Alpine.

Voucher specimens: PA and MC - observed repeatedly, but not collected.

Smelowskia borealis (Greene) Drury & Rollins

Synonymy: Melanidion boreale Greene

Relative abundance: PA - occasional, MC - absent, MRL - absent.

Cover: PA - present in 2 sites at +.

Literature reports: Hultén 1968, Porsild 1945.

General distribution: American, Western Arctic-Cordilleran.

Voucher specimens: PA - 26553, 26570.

Stellaria longipes Goldie

Relative abundance: PA - rare, MC - absent, MRL - absent.

Cover: PA - present in 1 site at +.

Literature reports: Cody 1960, Hultén 1968, Porsild 1945, Ritchie 1956.

General distribution: Amphi-Beringian, Arctic-Boreal Alpine-Montane.

Voucher specimens: PA - observed, but not collected, in Site 6.

Zygadenus elegans Pursh

Relative abundance: PA - absent, MC - absent, MRL - rare.

Cover: MRL - present in 1 site at +.

Literature reports: Cody 1960, Hultén 1968, Porsild 1945.

General distribution: American, Boreal-Temperate Montane.

Voucher specimens: MRL - observed, but not collected, in Site 53.

Shrubs and Trees

Thirty three taxa of shrubs and trees were encountered during the study: 11 at PA, 9 at MC, and 26 at MRL.

The "Literature Reports" section indicates the occurrence of the taxa in each of the following areas: vicinity of Norman Wells (Cody 1960); along the Canol Road on the East Slope of the Mackenzie Mountains (Porsild 1945); Alaska and neighbouring Territories (Hultén 1968), and the Churchill Area, Manitoba (Ritchie 1956).

The "General distribution" of each taxon was determined from all of the above sources but especially from Hultén (1968).

Nomenclature is that of Hultén (1968).

Alnus crispa (Ait.) Pursh ssp. *crispa*

Relative abundance: PA - absent, MC - absent, MRL - occasional.

Cover: MRL - present in 1 site at 3%, and in 1 at 2%.

Literature reports: Cody 1960, Hultén 1968.

General distribution: Amphi-Beringian, Boreal-Montane.

Voucher specimens: MRL - observed, but not collected, in Sites 42, 48, and 49.

Andromeda polifolia L.

Relative abundance: PA - absent, MC - absent, MRL - common.

Cover: MRL - present in 1 site at 35%, in 1 at 5%, and in 2 at +.

Literature reports: Cody 1960, Hultén 1968, Porsild 1945, Ritchie 1956.

General distribution: Circumpolar, Boreal-Montane.

Voucher specimen: MRL - 27397.

Arctostaphylos rubra (Rehd. & Wils.) Fern.

Synonymy: Arctous rubra (Rehd. & Wils.) Nakai

Relative abundance: PA - occasional, MC - abundant, MRL - common.

Cover: PA - present in 1 site at 1%, and in 1 at +; MC - present in 2 sites at 3%,
in 4 at 2%, in 3 at 1%, and in 2 at +; MRL - present in 1 site at 5%,
in 1 at 4%, and in 2 at 2%.

Literature reports: Cody 1960, Hultén 1968, Porsild 1945.

General distribution: Amphi-Beringian, Arctic-Alpine.

Voucher specimens: PA - 26690; MC - 27218, MRL - observed, but not collected.

Arctostaphylos uva-ursi (L.) Spreng.

Relative abundance: PA - absent, MC - absent, MRL - rare.

Cover: MRL - present in 1 site at 8%.

Literature reports: Cody 1960, Hultén 1968, Porsild 1945, Ritchie 1956.

General distribution: Circumpolar, Boreal-Montane.

Voucher specimens: MRL - observed, but not collected, in Site 53.

Betula glandulosa Michx.

Relative abundance: PA - absent, MC - absent, MRL - common.

Cover: MRL - present in 1 site at 25%, in 1 at 2%, and in 2 at 1%.

Literature reports: Cody 1960, Hultén 1968, Porsild 1945, Ritchie 1956

General distribution: American, Arctic-Boreal Alpine-Montane.

Voucher specimens: MRL - observed repeatedly, but not collected.

Betula nana ssp. exilis (Sukatsch.) Hult.

Relative abundance: PA - rare, MC - occasional, MRL - absent.

Cover: PA - present in 1 site at 40%; MC - present in 1 site at 1%, and in 1 at +.

Literature reports: Hultén 1968.

General distribution: Amphi-Beringian, Arctic-Alpine.

Voucher specimen: PA - observed, but not collected; MC - 26823.

Betula papyrifera ssp. humilis (Regel) Hult.

Relative abundance: PA - absent, MC - absent, MRL - common.

Cover: MRL - present in 1 site at 22%, in 1 at 8%, in 1 at 5%, in 1 at 1%,
and in 1 at +.

Literature reports: Cody 1960, Hultén 1968, Porsild 1945.

General distribution: American, Boreal-Montane.

Voucher specimens: MRL - observed, but not collected, in Sites 42, 44, 45, 46, 48 and 53.

^D
Cassiope tetragona (L.D.) Don, ssp. tetragona

Relative abundance: PA - common, MC - common, MRL - absent.

Cover: PA - present in 1 site at 30%, in 1 at 25%, in 1 at 14%, in 1 at 9%,
in 1 at 4%, in 3 at 2%, in 1 at 1%, and in 2 at +; MC - present in 1 site at 16%,
in 1 at 8%, in 1 at 2%, and in 3 at +.

Literature reports: Cody 1960, Hultén 1968, Porsild 1945.

General distribution: Amphi-Beringian, Arctic-Alpine.

Voucher specimens: PA and MC - repeatedly observed, but no specimens collected.

Chamaedaphne calyculata (L.) Moench

Relative abundance: PA - absent, MC - absent, MRL - occasional.

Cover: MRL - present in 1 site at 3%, and in 1 at 2%.

Literature reports: Cody 1960, Hultén 1968.

General distribution: Circumpolar, Boreal-Montane.

Voucher specimens: MRL - observed, but not collected, in Sites 44 and 47.

Dryas integrifolia M. Vahl

Relative abundance: PA - abundant, MC - common, MRL - common.

Cover: PA - present in 1 site at 25%, in 1 at 13%, in 1 at 12%, in 1 at 10%, in 1 at 9%, in 1 at 8%

in 1 at 7%, in 6 at 5%, in 1 at 4%, in 2 at 3%, in 3 at 2%, in 3 at 1%, and in 2 at +;

MC - present in 1 site at 40%, in 1 at 4%, in 1 at 1%, and in 2 at +;

MRL - present in 2 sites at 1%, and in 2 at +.

Literature reports: Cody 1960 as *D. crenulata* Juz., Hultén 1968, Porsild 1945, Ritchie 1956.

General distribution: American, Arctic-Alpine.

Voucher specimens: PA - 26139; MC - 27220, 27283; MRL - observed, but not collected.

Empetrum nigrum ssp. *hermaphroditum* (Lange) Böcher

Synonymy: *E. hermaphroditum* (Lange) Hagerup

Relative abundance: PA - absent, MC - common, MRL - common.

Cover: MC - present in 1 site at 6%, in 1 at 2%, in 1 at 1%, and in 2 at +;

MRL - present in 1 site at 5%, in 1 at 4%, in 1 at 3%, and in 2 at 2%.

Literature reports: Cody 1960, Hultén 1968, Porsild 1945, Ritchie 1956.

General distribution: Circumpolar, Arctic-Boreal Alpine-Montane.

Voucher specimens: MC and MRL - repeatedly observed, but not collected.

Juniperus communis ssp. *nana* (Willd.) Syme

Relative abundance: PA - absent, MC - absent, MRL - occasional.

Cover: MRL - present in 1 site at 1%.

Literature reports: Cody 1960, Hultén 1968, Porsild 1945, Ritchie 1956.

General distribution: Circumpolar, Boreal-Montane.

Voucher specimens: MRL - observed, but not collected, in Sites 42 and 53.

Kalmia polifolia ssp. *microphylla* (Hook.) Calder & Taylor

Relative abundance: PA - absent, MC - absent, MRL - rare.

Cover: MRL - present in 1 site at 1%.

Literature reports: Hultén 1968, Porsild 1945.

General distribution: American, Cordilleran.

Voucher specimen: MRL - 27398.

Larix laricina (Du Roi) K. Koch

Relative abundance: PA - absent, MC - absent, MRL - common.

Cover: MRL - present in 2 sites at 4%, in 1 at 2%, and in 1 at +.

Literature reports: Cody 1960, Hultén 1968, Porsild 1945, Ritchie 1956.

General distribution: American, Boreal-Montane.

Voucher specimens: MRL - observed repeatedly, but not collected.

Ledum palustre ssp. decumbens (Ait.) Hult.

Synonymy: L. decumbens (Ait.) Small, L. palustre var. decumbens Ait.

Relative abundance: PA - absent, MC - absent, MRL - occasional.

Cover: MRL - present in 2 sites at 5%, and in 1 at 3%.

Literature reports: Hultén 1968, Porsild 1945, Ritchie 1956.

General distribution: Amphi-Beringian, Arctic-Boreal Alpine-Montane.

Voucher specimen: MRL - 27399.

Ledum palustre ssp. groenlandicum (Oeder) Hult.

Synonymy: L. groenlandicum Oeder.

Relative abundance: PA - absent, MC - absent, MRL - common.

Cover: MRL - present in 1 site at 5%, in 2 at 4%, in 1 at 3%, in 2 at 2%, and in 1 at +.

Literature reports: Cody 1960, Hultén 1968, Porsild 1945, Ritchie 1956.

General distribution: American, Boreal-Montane.

Voucher specimens: MRL - observed repeatedly, but not collected.

Myrica gale L.

Relative abundance: PA - absent, MC - absent, MRL - occasional.

Cover: not present in any of the sites, but observed twice along lake margins near sites.

Literature reports: Cody 1960, Hultén 1968, Ritchie 1956.

General distribution: Incompletely circumpolar, Boreal-Montane..

Voucher specimen: MRL - 27522.

Oxycoccus microcarpus Turcz.

Synonymy: Vaccinium oxycoccus var. microcarpus (Turcz.) Fedtsch. & Flerov.

Relative abundance: PA - absent, MC - absent, MRL - occasional.

Cover: MRL - present in 1 site at 4%.

Literature reports: Cody 1960, Hultén 1968, Porsild 1945, Ritchie 1956.

General distribution: Circumpolar, Boreal-Montane.

Voucher specimens: MRL - observed, but not collected, in Sites 42 and 47.

Picea glauca (Moench) Voss

Relative abundance: PA - absent, MC - absent, MRL - common.

Cover: MRL - present in 1 site at 15%, in 2 at 10%, and in 1 at 9%.

Literature reports: Cody 1960, Hultén 1968, Porsild 1945, Ritchie 1956.

General distribution: American, Boreal-Montane.

Voucher specimens: MRL - observed repeatedly, but not collected.

Picea mariana (Mill.) BSP.

Relative abundance: PA - absent, MC - absent, MRL - abundant.

Cover: MRL - present in 1 site at 51%, in 1 at 13%, in 1 at 10%, in 3 at 5%,

in 1 at 3%, and in 1 at 1%.

Literature reports: Cody 1960, Hultén 1968, Porsild 1945, Ritchie 1956.

General distribution: American, Boreal-Montane.

Voucher specimens: MRL - observed repeatedly, but not collected.

Populus balsamifera L. ssp. balsamifera

Synonymy: P. tacamahacca Mill.

Relative abundance: PA - absent, MC - absent, MRL - occasional.

Cover: MRL - present in 1 site at 46%.

Literature reports: Cody 1960, Hultén 1968, Porsild 1945, Ritchie 1956.

General distribution: American, Boreal-Montane.

Voucher specimens: MRL - observed, but not collected, in Sites 42 and 46.

Potentilla fruticosa L.

Relative abundance: PA - occasional, MC - rare, MRL - occasional.

Cover: PA - present in 1 site at 4%, and in 2 at 1%; MC - present in 1 site at 1%;

MRL - present in 1 site at 1%, and in 2 at +.

Literature reports: Cody 1960, Hultén 1968, Porsild 1945.

General distribution: Incompletely circumpolar, Arctic-Boreal Alpine-Montane.

Voucher specimens: PA, MC and MRL - observed repeatedly, but not collected.

Rhododendron lapponicum (L.) Wahlenb.

Relative abundance: PA - common, MC - rare, MRL - common.

Cover: PA - present in 1 site at 2%, in 3 at 1%, and in 3 at +; MC - present in 1 site

at 1%; MRL - present in 1 site at 5%, in 1 at 4%, and in 2 at 3%.

Literature reports: Cody 1960, Hultén 1968, Porsild 1945, Ritchie 1956.

General distribution: Incompletely circumpolar, Arctic-Boreal Alpine-Montane.

Voucher specimens: PA - 26199, 26692, 27223; MC and MRL - observed, but not collected.

Rosa acicularis Lindl.

Synonymy: R. bourgeauiana Crépin

Relative abundance: PA - absent, MC - absent, MRL - occasional.

Cover: MRL - present in 1 site at 2%, and in 1 at +.

Literature reports: Cody 1960, Hultén 1968.

General distribution: Circumpolar, Boreal-Montane.

Voucher specimens: MRL - observed, but not collected, in Sites 42, 45, and 53.

Salix arctica Pall. ssp. arctica

Relative abundance: PA - rare, MC - absent, MRL - absent.

Cover: PA - present in 1 site at 1%.

Literature reports: Hultén 1968, Porsild 1945.

General distribution: Amphi-Beringian, Arctic-Alpine.

Voucher specimen: PA - 26629.

Salix phlebophylla Andersss.

Relative abundance: PA - common, MC - absent, MRL - absent.

Cover: PA - present in 2 sites at 1%, and in 4 at +.

Literature reports: Hultén 1968, Porsild 1945.

General distribution: Amphi-Beringian, Western Arctic-Cordilleran.

Voucher specimens: PA - 26380, 26457, 26573.

Salix polaris ssp. pseudopolaris (Flod.) Hult.

Synonymy: S. pseudopolaris Flod.

Relative abundance: PA - rare, MC - absent, MRL - absent.

Cover: PA - present in 1 site at 1%.

Literature reports: Hultén 1968, Porsild 1945.

General distribution: Amphi-Beringian, Western Arctic-Cordilleran.

Voucher specimen: PA - 26534.

Salix pulchra Cham.

Relative abundance: PA - absent, MC - occasional, MRL - absent.

Cover: MC - present in 1 site at 2%, and in 1 at 1%.

Literature reports: Hultén 1968, Porsild 1945.

General distribution: Amphi-Beringian, Western Arctic-Cordilleran.

Voucher specimens: MC - 27042, 27224.

Salix reticulata L. ssp. reticulata

Relative abundance: PA - occasional, MC - rare, MRL - absent.

Cover: PA - present in 4 sites at +; MC - present in 1 site at 2%.

Literature reports: Hultén 1968, Porsild 1945, Ritchie 1956.

General distribution: Circumpolar, Arctic-Alpine.

Voucher specimens: PA - 26554, 26574, 26693; MC - 27286.

Shepherdia canadensis (L.) Nutt.

Relative abundance: PA - absent, MC - absent, MRL - occasional.

Cover: MRL - present in 1 site at 3%.

Literature reports: Cody 1960, Hultén 1968, Ritchie 1956.

General distribution: American, Boreal-Montane.

Voucher specimens: MRL - observed, but not collected, in Sites 42 and 53.

Vaccinium uliginosum ssp. alpinum (Bigel.) Hult.

Synonymy: V. uliginosum var. alpinum Bigel.

Relative abundance: PA - occasional, MC - absent, MRL - common.

Cover: PA - present in 2 sites at +; MRL - present in 1 site at 7%, in 2 at 6%,
in 1 at 3%, in 1 at 2%, and in 1 at +.

Literature reports: Cody 1960, Hultén 1968, Porsild 1945, Ritchie 1956.

General distribution: Circumpolar, Boreal-Montane.

Voucher specimens: PA and MRL - observed repeatedly, but not collected.

Vaccinium vitis-idaea ssp. minus (Lodd.) Hult.

Synonymy: V. vitis-idaea var. minus Lodd.

Relative abundance: PA - absent, MC - absent, MRL - common.

Cover: MRL - present in 1 site at 25%, in 1 at 9%, in 1 at 5%, in 1 at 4%,
in 1 at 3%, and in 1 at 1%.

Literature reports: Cody 1960, Hultén 1968, Porsild 1945, Ritchie 1956.

General distribution: Circumpolar, Boreal-Montane.

Voucher specimens: MRL - observed repeatedly, but not collected.

Viburnum edule (Michx.) Raf.

Relative abundance: PA - absent, MC - absent, MRL - occasional.

Cover: MRL - present in 1 site at 10%.

Literature reports: Cody 1960, Hultén 1968.

General distribution: American, Boreal-Montane.

Voucher specimens: MRL - observed, but not collected, in Sites 42 and 46.

DISTRIBUTIONAL ELEMENTS

Table 2 shows that the 363 encountered taxa belong to three major Northern Hemisphere Elements: Circumpolar (85.4%), Amphi-Beringian (7.4%), and American (7.2%).

Table 2 shows that the four major Distributional Elements represented in the 363 taxa are Circumpolar, Arctic-Boreal Alpine-Montane (36.6%); Circumpolar, Arctic-Alpine (3.1%) ; Circumpolar, Arctic-Temperate Alpine-Montane (11.3%); and Circumpolar, Boreal-Montane (9.6%).

Table 2 shows that most of the American taxa occur in the wooded Mackenzie River Lowlands as opposed to the alpine Plains of Abraham and Mt. Clark.

Table 2 shows that most of the Amphi-Beringian taxa occur on alpine Mt. Clark and the Plains of Abraham as opposed to the wooded Mackenzie River Lowlands.

Table 2 shows, as would be expected, that the Plains of Abraham and Mt. Clark have a preponderance of taxa with Arctic-Alpine affinities while the wooded Mackenzie River Lowlands have a preponderance of taxa with Boreal affinities.

It was expected that the non-glaciated Plains of Abraham would have a higher number of endemic American or Amphi-Beringian taxa than glaciated

Mt. Clark. This was borne-out to a small extent only as the former had 17 endemics while the latter had 12 (Table 2).

Tables 3, 4, and 5 show that the 197 lichens were made up of 91.8% Circumpolar, 4.6% Amphi-Beringian, and 3.6% American taxa; all of the 91 encountered bryophyte taxa were Circumpolar, and the 76 Vascular Plants were comprised of 50% Circumpolar, 25% Amphi-Beringian, and 25% American taxa.

	T	PA	MC	MRL
AMERICAN				
ARCTIC-ALPINE	6	1	6	1
EASTERN ARCTIC-ALPINE	1	-	1	-
WESTERN ARCTIC-CORDILLERAN	3	2	1	-
ARCTIC-BOREAL ALPINE-MONTANE	2	-	1	1
BOREAL-MONTANE	13	-	-	13
CORDILLERAN	1	-	-	1
AMPHI-BERINGIAN				
ARCTIC-ALPINE	14	13	8	3
WESTERN ARCTIC-CORDILLERAN	8	6	6	-
ARCTIC-BOREAL ALPINE-MONTANE	3	2	-	2
BOREAL-MONTANE	2	-	-	2
CIRCUMPOLAR				
ARCTIC-ALPINE	84	49	57	5
ARCTIC-BOREAL ALPINE-MONTANE	133	74	71	58
ARCTIC-TEMPERATE ALPINE-MONTANE	41	29	20	18
WESTERN ARCTIC-TEMPERATE CORDILLERAN	1	-	1	-
EASTERN BOREAL	1	-	-	1
BOREAL-MONTANE	35	3	3	31
BOREAL-TEMPERATE MONTANE	14	-	1	13
BOREAL-TROPIC MONTANE	1	-	-	1
Totals	363	179	176	150

Table 2. Distribution Elements of all of the taxa.

	T	PA	MC	MRL
AMERICAN				
ARCTIC-ALPINE	4	-	4	-
EASTERN ARCTIC-ALPINE	1	-	1	-
BOREAL-MONTANE	2	-	-	2
AMPHI-BERINGIAN				
ARCTIC-ALPINE	7	5	4	2
WESTERN ARCTIC-CORDILLERAN	2	2	2	-
CIRCUMPOLAR				
ARCTIC-ALPINE	62	39	43	5
ARCTIC-BOREAL ALPINE-MONTANE	77	37	46	35
ARCTIC-TEMPERATE ALPINE-MONTANE	16	11	9	7
BOREAL-MONTANE	20	2	2	17
BOREAL-TEMPERATE MONTANE	6	-	-	6
Totals	196	96	111	74

Table 3. Distribution Elements of the Lichen taxa.

	T	PA	MC	MRL
CIRCUMPOLAR				
ARCTIC-ALPINE	9	3	6	-
ARCTIC-BOREAL ALPINE-MONTANE	46	32	21	15
ARCTIC-TEMPERATE ALPINE-MONTANE	24	18	11	10
WESTERN ARCTIC-TEMPERATE CORDILLERAN	1	-	1	-
EASTERN BOREAL	1	-	-	1
BOREAL-MONTANE	3	-	1	2
BOREAL-TEMPERATE MONTANE	6	-	1	5
BOREAL-TROPIC MONTANE	1	-	-	1
Totals	91	53	41	34

Table 4. Distribution Elements of the Bryophyte taxa.

	T	PA	MC	MRL
AMERICAN				
ARCTIC-ALPINE	2	1	2	1
WESTERN ARCTIC-CORDILLERAN	3	2	1	-
ARCTIC-BOREAL ALPINE-MONTANE	2	-	1	1
BOREAL-MONTANE	11	-	-	11
CORDILLERAN	1	-	-	1
AMPHI-BERINGIAN				
ARCTIC-ALPINE	8	8	4	1
WESTERN ARCTIC-CORDILLERAN	6	4	4	-
ARCTIC-BOREAL ALPINE-MONTANE	3	2	-	2
BOREAL-MONTANE	2	-	-	2
CIRCUMPOLAR				
ARCTIC-ALPINE	13	7	8	-
ARCTIC-BOREAL ALPINE-MONTANE	10	5	4	8
ARCTIC-TEMPERATE ALPINE-MONTANE	1	-	-	1
BOREAL-MONTANE	12	1	-	12
BOREAL-TEMPERATE MONTANE	2	-	-	2
Totals	76	30	24	42

Table 5. Distribution Elements of the Vascular Plant taxa.

SUBSTRATE RELATIONSHIPS

In the descriptions that follow the lists of "principal" species are arranged in decreasing order of abundance and those taxa with only one trace occurrence have been left out.

RockSedimentary Rocks

Dolomite and limestone predominated over quartzite on the Plains of Abraham but was absent on Mt. Clark. Seventeen lichens and two mosses were found on dolomite and limestone. The principal taxa were Rhizocarpon chioneum, Protoblastenia rupestris, Polyblastia intercedens, Lecidea stigmata, Thelidium cfr. pyrenophorum, Xanthoria elegans, Collema auriculatum, Grimmia apocarpa, Lecidea macrocarpa, Physcia caesia, P. sciastra, Staurothele sp., and Toninia tristis.

Twelve of the lichens and one moss were found on "bird rocks", i.e. large blocks with their surfaces enriched with bird manure. The principal taxa were Xanthoria elegans, Rhizocarpon chioneum, Collema auriculatum, Physcia caesia, P. sciastra, Staurothele sp., and Toninia tristis.

Metamorphic and Igneous Rocks

Quartzite predominated on Mt. Clark but glacial erratics of granite, diorite and gneiss also occurred. Chert and quartzite occurred on The Plains of Abraham. Fifty-two lichens and two mosses occurred on these metamorphic rocks. The large number of species on metamorphic and igneous rocks indicates that they are a more favorable substrate. This is probably true for two reasons: (1) the different mineral and hydrogen ion concentration, and (2) the more resistant texture thus allowing time

for lichen establishment and growth. The principle taxa were Lecidea armeniaca, Agyrophora rigida, Rhizocarpon geographicum, Umbilicaria proboscidea, Sporastatia testudinea, Umbilicaria hyperborea, Haematomma lapponicum, Parmelia alpicola, Cetraria hepatizon, Alectoria minuscula, Parmelia centrifuga, Umbilicaria cylindrica, Hypogymnia intestiniformis, Lecidea macrocarpa, Rhizocarpon superficiale, Lecanora alpina, Rhizocarpon eupetraeoides, Lecidea flavocaerulescens, Lecanora thomsonii, Alectoria pubescens, Lecanora polytropa, Parmelia separata, Rhizocarpon crystalligenum, Lecanora badia, L. caesiocinerea, Lecidea atrobrunnea, Hypogymnia austerodes, Rhizocarpon badioatrum, and Buellia alboatra.

The difference in the lichen flora between carbonate and silicate rocks was strikingly brought-out in this study as, of 63 taxa encountered, 46 were restricted to silicates, 11 were restricted to carbonates, and only 6 occurred on both. These latter taxa were Lecidea macrocarpa, Physcia caesia, P. phaea, P. sciastra, Sporastatia testudinea, and Staurothele sp. As most of these species are characteristic of bird rocks it is possible that the calcium in the manure may buffer the acidic nature of silicate rocks and thus allow carbonate taxa to occur on silicates.

Soil

The Plains of Abraham

The shallow soils of The Plains of Abraham are generally of a calcareous nature due to the mantle which is predominately dolomite and limestone, as opposed to acidic soils over quartzite on Mt. Clark, and the generally acidic soils of the Mackenzie River Lowlands. Each soil type has its own characteristic flora.

Forty-four lichen taxa were found on soil on The Plains of Abraham. The principal ones were Cetraria tilesii, C. nivalis, C. cucullata, Thamnolia subuliformis,

Alectoria ochroleuca, Dactylina ramulosa PD+, D. arctica PD+, Cetraria islandica,
Cetraria laevigata, Asahinea chrysantha, Cladina arbuscula ssp. beringiana,
Cladonia pocillum, C. amaurocraea, Cornicularia aculeata, Evernia perfragilis,
Dactylina arctica PD-, Alectoria nitidula, Cladina alpestris, Solorina bispora, Cladonia
pyxidata, Cetraria richardsonii, Cladina rangiferina, Cladonia uncialis, Lecidea
assimilata, Alectoria nigricans, Cetraria elenkinii, Cladonia coccifera, Cornicularia
divergens, Parmelia separata, Peltigera aphthosa, P. leucophlebia, and P. rufescens.

Fifty-one bryophyte taxa were found on soil. The principal ones were Hylocomium
splendens, Rhytidium rugosum, Hypnum bambergeri, Tomentypnum nitens, Aulacomnium
turgidum, Ditrichum flexicaule, Dicranum fuscescens, Tortella fragilis, Catascopium
nigritum, Tortella tortuosa, Ptilidium ciliare, Hypnum revolutum, Anastrophyllum
minutum, Abietinella abietina, Hypnum procerrimum, Rhacomitrium lanuginosum, Tortula
ruralis, Bryum wrightii, Campylium stellatum, Fissidens osmundioides, Hypnum vaucheri,
Meesea uliginosa, Blepharostoma trichophyllum, Bryoerythrophyllum recurvirostre,
Calliergon trifarium, Distichium capillaceum, Oncophorus virens, and Polytrichum juniperinum.

Nineteen herbs were found on soil, the principal ones being Saxifraga oppositifolia,
Pedicularis kanei ssp. kanei, Silene acaulis ssp. acaulis, Anemone parviflora, Lycopodium
selago ssp. selago, Parrya nudicaulis ssp. interior, Potentilla uniflora, Carex membranacea,
Eriophorum angustifolium ssp. triste, Draba macrocarpa, Juncus biglumis, J. triglumis ssp.
triglumis, Minuartia rossii, Parrya nudicaulis ssp. septentrionalis, and Smelowskia borealis.

Eleven shrubs were found on soil. The principal ones were Dryas integrifolia,
Cassiope tetragona, Betula nana ssp. exilis, Rhododendron lapponicum, Salix phlebophylla,
Potentilla fruticosa, Salix reticulata ssp. reticulata, Arctostaphylos rubra, and Vaccinium
uliginosum ssp. alpinum.

Mt. Clark

Fifty-six lichen taxa were found on soil on Mt. Clark, 11 more than were found on The Plains of Abraham. An examination of the list of principal species which follows, in contrast to that of the more or less calcareous soils of The Plains of Abraham, reveals a considerable difference in floristic composition and in the abundance of various species. The principal species were Cetraria cucullata, Alectoria ochroleuca, Cetraria nivalis, Cladina arbuscula ssp. beringiana, Cetraria laevigata, Cornicularia divergens, Dactylina arctica PD-, Cladina rangiferina, Cladonia amaurocraea, C. uncialis, C. coccifera, Thamnolia subuliformis, Alectoria nigricans, Cetraria nigricans, C. richardsonii, Parmelia omphalodes, Cetraria tilesii, Cladina alpestris, Cladonia chlorophaea, C. metacorallifera, Parmelia saxatilis, Asahinea chrysanthia, Cladonia deformis, C. gonecha, C. pleurota, C. squamosa, Parmelia separata, Alectoria chalybeiformis, Cladonia decorticata, C. cariosa, C. cenotea, C. cornuta, C. pocillum, C. pyxidata, C. verticillata, Dactylina arctica PD+, Lecidea demissa, Peltigera polydactyla, and Cladina mitis.

Forty bryophyte taxa were found on soil, the principal ones being Hylocomium splendens, Aulacomnium turgidum, Polytrichum juniperinum, Sphagnum girgensohnii, S. warnstorffii, Dicranum fuscescens, Rhacomitrium lanuginosum, Polytrichum juniperinum, P. piliferum, Chandonanthus setiformis, Ptilidium ciliare, Dicranum scoparium, Anastrophyllum minutum, Pohlia nutans, Ditrichum flexicaule, Calliergon cordifolium, Ceratodon purpureus, Drepanocladus revolvens, Encalypta procera, Pleurozium schreberi, Rhytidium rugosum, Gymnomitrium coralloides, Hypnum callichroum, and Calliergon sarmentosum.

Fifteen herbs were found growing on soil, the principal ones being Eriophorum callitrix, Potentilla uniflora, Anemone drummondii, Draba fladnizensis, Lycopodium selago ssp. selago, Pedicularis kanei ssp. kanei, Antennaria friesiana ssp. compacta, and Lupinus arcticus.

Nine shrubs were found on soil: Dryas integrifolia, Cassiope tetragona, Arctostaphylos rubra, Empetrum nigrum ssp. hermaphroditum, Salix pulchra, Betula nana ssp. exilis, Salix reticulata ssp. reticulata, Potentilla fruticosa, and Rhododendron lapponicum.

Mackenzie River Lowlands

Thirty-three lichen taxa were found growing on soil in the lowland sites. This figure is considerably lower than the 45 for The Plains of Abraham and the 56 for Mt. Clark and indicates that the lowlands, though often higher in lichen cover, are poorer in terms of species numbers. The principal species were Cladina alpestris, C. arbuscula ssp. beringiana, C. aberrans, C. rangiferina, Cladonia amaurocraea, Cetraria nivalis, Cladina mitis, Peltigera aphthosa, Cladonia coccifera, C. cornuta, C. gracilis var. dilatata, C. uncialis, C. cenotea, Peltigera malacea, P. rufescens, Cetraria cucullata, Cladonia crispata, C. deformis, C. gonecha, C. phyllophora, C. pocillum, Lecidea granulosa, Nephroma arcticum, Stereocaulon alpinum, and S. tomentosum.

Thirty-three bryophyte taxa were found growing on soil in the lowland sites. This compares with 51 from The Plains of Abraham and 40 for Mt. Clark and, as with the lichens, indicates that the lowlands, though often higher in bryophyte cover, are poorer in terms of species numbers. The principal species were Hylocomium splendens, Tomenthypnum nitens, Sphagnum rubellum, S. fallax, Aulacomnium palustre, Ptilidium ciliare, Sphagnum magellanicum, Dicranum fuscescens, Aulacomnium turgidum, Bryum

pseudotriquetrum, Drepanocladus uncinatus, Dicranum undulatum, Sphagnum fuscum, Drepanocladus revolvens, Catoscopium nigritum, Polytrichum juniperinum var. gracilius, Rhytidium rugosum, Marchantia polymorpha, Dicranum elongatum, D. scoparium, and Rhytidadelphus triquetrus.

Seventeen herbaceous species were found on soil in the lowland sites. It should be emphasized that this figure is lower than would be the case if examination had been carried out later in the year. The principal species were Eriophorum sp., Equisetum arvense, E. scirpoides, Geocalon lividum, Anemone parviflora, Pyrola grandiflora, Rubus chamaemorus, Epilobium angustifolium ssp. angustifolium, Equisetum hiemale, and Menyanthes trifoliata.

Twenty-seven shrub and tree taxa were found on soil in the lowland sites. This is about three times the number found on either The Plains of Abraham or on Mt. Clark. The principal species were Picea mariana, Vaccinium vitis-idaea ssp. minus, Populus balsamifera ssp. balsamifera, Picea glauca, Andromeda polifolia, Betula pumila ssp. humilis, B. glandulosa, Vaccinium uliginosum ssp. alpinum, Salix spp., Ledum palustre ssp. groenlandicum, Empetrum nigrum ssp. hermaphroditum, Larix laricina, Rhododendron lapponicum, Arctostaphylos rubra, Ledum palustre ssp. decumbens, Viburnum edule, Arctostaphylos uva-ursi, Alnus crispa ssp. crispa, Chamaedaphne calyculata, Dryas integrifolia, Oxycoccus microcarpus, Potentilla fruticosa, Rosa acicularis, Shepherdia canadensis, Juniperus communis ssp. nana, and Kalmia polifolia ssp. microphylla.

VegetabiliaThe Plains of Abraham

Twenty lichen taxa were found on herbaceous plant remains and on the roots of shrubs on The Plains of Abraham. The principal ones were Lecanora epibryon, Lecidea glomerulosa, Rinodina roscida, Lecanora verrucosa, Lecidea pallida, Caloplaca jungermanniae, Physconia muscigena, Ochrolechia frigida, O. upsaliensis, Pertusaria dactylina, Buellia papillata, Caloplaca stillicidiorum, and Rinodina turfacea.

Mt. Clark

Fourteen lichen species were found on herbaceous plant remains and on the roots of shrubs on Mt. Clark. Many changes were evident in floristic composition and in the relative abundance of various species. The principal species were Pertusaria bryontha, Rinodina turfacea, Ochrolechia frigida, O. upsaliensis, and Pertusaria dactylina. The rare Arctic-Alpine species, Coriscium viride, was found three times growing over damp mats of Dicranum fuscescens. Icmadophila ericetorum was found twice on dead Sphagnum mats.

Mackenzie River Lowlands

The vegetabilia community was almost completely lacking in the lowland sites. Some of the species characteristic of it, e.g. Lecidea glomerulosa and Rinodina turfacea, were present but were growing on trees. Icmadophila ericetorum was found growing on dead Sphagnum mats.

Dung

Members of the moss family Splachnaceae are generally numerous in the boreal and arctic regions and are characteristically found growing on the dung of animals such as moose, caribou, bear, wolf, fox, and dog. The only species of this family that was encountered was Tetraplodon mnioides which was found once on The Plains of Abraham, once on Mt. Clark, and twice in the Mackenzie River Lowlands.

Rotten Logs

Rotten logs of coniferous trees are the substrate for a characteristic community of lichens with boreal affinities. Twenty-one lichens were found on rotten conifer logs in the Mackenzie River Lowland sites. The principal ones were Cetraria pinastri, Cladonia bacillaris, C. botrytes, C. cenotea, C. deformis, C. gonecha, C. gracilis var. dilatata, Hypogymnia austrodes, H. physodes, and Parmeliopsis ambigua.

Trees and ShrubsBetula nana ssp. exilis

The following lichens were observed on the twigs of Betula nana ssp. exilis in a small copse on The Plains of Abraham: Cetraria pinastri, C. sepincola, Hypogymnia physodes, Lecanora varia, and Parmeliopsis ambigua.

Betula papyrifera ssp. humilis

The following lichens were found on Betula papyrifera ssp. humilis trees in Site 45 in the Mackenzie River Lowlands: Alectoria glabra, Cetraria halei, Hypogymnia austrodes, H. physodes, Parmelia olivacea, P. sulcata, Usnea glabrescens ssp. glabrella, and U. subfloridana.

Larix laricina

Lichens found on Larix laricina in Site 44 in the Mackenzie River Lowlands were Alectoria glabra, Cetraria halei, C. pinastri, Evernia mesomorpha, Hypogymnia physodes, Lecanora coilocarpa, Parmelia sulcata, and Usnea glabrescens ssp. glabrella.

Picea glauca

Twenty-six lichens and three mosses were found growing on Picea glauca trees in the Mackenzie River Lowlands. The principal taxa, all lichens, were Evernia mesomorpha, Hypogymnia physodes, Lecidea glomerulosa, Parmelia sulcata, Rinodina turfacea, Cetraria pinastri, Lecanora coilocarpa, Parmelia exasperatula, Physcia adscendens, Ramalina fastigiata, R. pollinaria, Usnea glabrescens ssp. glabrella, and U. subfloridana.

Picea mariana

Fourteen lichen taxa were found on Picea mariana trees in the Mackenzie River Lowlands. The principal species were Cetraria pinastri, Hypogymnia physodes, Parmeliopsis ambigua, Alectoria glabra, Cetraria halei, Evernia mesomorpha, Lecanora coilocarpa, Parmelia sulcata, and Usnea subfloridana.

Populus balsamifera ssp. balsamifera

The following lichens were observed on trees of this species in Site 48 of the Mackenzie River Lowlands: Anaptychia speciosa, Caloplaca holocarpa, Cladonia gracilis var. dilatata, Lecanora impudens, Lecidea glomerulosa, Leptogium saturninum, Nephrom parile, Parmelia exasperatula, P. sulcata, Peltigera polydactyla, Physcia aipolia, Physconia detersa, Ramalina pollinaria, and Rinodina turfacea. The following mosses were also found on the trees: Brachythecium salebrosum, Drepanocladus uncinatus, and Orthotrichum speciosum var. elegans.

Anaptychia speciosa, Lecanora impudens, and Leptogium saturninum were found only on Populus balsamifera ssp. balsamifera trees. This corresponds with the markedly different chemistry and nature of the bark of Populus trees in contrast to that of coniferous trees.

Salix spp.

The following fourteen lichens were found on willows in Site 48 of the Mackenzie River Lowlands: Alectoria glabra, Cetraria halei, C. pinastri, Evernia mesomorpha, Hypogymnia austeroedes, H. physodes, Lecanora coilocarpa, Parmelia sulcata, Parmeliopsis ambigua, P. hyperopta, Peltigera aphthosa, Physcia aipolia, Rinodina archaea, and Usnea glabrescens ssp. glabrella.

COVER

Table 6 summarizes the cover components for each of the three study areas. The following general conclusions can be made. (1) The average amount of bare rock/gravel exposed per site on The Plains of Abraham is 51.5%, in contrast to 28.3% for Mt. Clark, and nil for the Mackenzie River Lowlands. (2) The average amount of bare soil per site on The Plains of Abraham was 5.6%, in contrast to 2.5% for Mt. Clarke, and 1.0% for the Mackenzie River Lowlands. (3) The duff and algal components are small enough to be negligible. (4) The average amount of vegetation cover per site on The Plains of Abraham was 42.9%, in contrast to 69.2% for Mt. Clark, and 99% for the lowland sites. (5) The average lichen cover per site varies considerably from a low of 10.6% on The Plains of Abraham to a high of 33.9% on Mt. Clark. The high figure for Mt. Clark

seems to be directly related to the area's smaller exposure of rock/gravel and soil. An intermediate, all stratum, value of 22.5% was obtained for lichen cover in the treed lowland sites. The actual lichen ground cover is much higher but does not appear so from the air because of the cover of the tree stratum. (6) The average amount of bryophyte cover per site is lowest on The Plains of Abraham at 10.2%, is somewhat higher on Mt. Clark at 13.8%, and is highest in the lowland sites at 18.5%. The actual ground cover of bryophytes in the lowland sites is much higher than 18.5% but does not appear so from the air because of the cover of the tree stratum. (7) The average amount of herbaceous plant cover is about 10% in all of the areas. (8) The average cover of woody vegetation per site is about 10% for each of the two alpine areas, but is 46.6% in the lowland sites.

The most significant components are the amount of exposed rock/gravel and soil. These are greatest in the alpine areas where the growth conditions are harshest and where the terrain is most rugged. There is a marked floristic change as one descends to the lower levels with trees appearing and having a considerable cover value on the deeper soil, more level terrain, and in the better growth environment.

On both The Plains of Abraham and on Mt. Clark the amount of lichen-bryophyte cover fits into a dry-wet gradient with the driest sites, especially Dryas integrifolia fell fields, having the greatest lichen cover and the wettest sites, especially tussock and wet meadow communities, having the greatest bryophyte cover. This was also observed in the arctic Cape Thompson Region of Alaska by Johnson et al. (1966).

	Plains of Abraham (27 Sites)	Mt. Clark (13* Sites)	Mackenzie River Lowlands (11** Sites)
Bare rock/gravel	51.5	28.3	0.0
Bare soil	5.6	2.5	1.0
Duff/peat	0.4	0.0	1.7
Algae (<u>Nostoc</u>)	0.3	0.0	0.0
Lichens	10.6	33.9	22.5
Bryophytes	10.2	13.8	18.5
Herbaceous vegetation	10.2	12.0	9.5
Woody vegetation	11.0	9.0	46.6

Table 6. Average per cent cover per site for the three study areas.

* Excluding Site 37, the cave site.

** Excluding Site 42 and 54 which lacked cover data.

ALBEDO

Aerial photograph interpretation in the Canadian North demands an understanding of what species of lichens and bryophytes have more than trace cover values and into what color groups they fall. As each type of area has its own particular type of lichen and bryophyte communities it is also important to have some understanding of what these are. The following treatment lists, under decreasing order of cover, all those lichen and bryophyte taxa which had cover ratings of more than 1% in any of the sites investigated in this study, and arranges the taxa into different colour groups.

The Plains of Abraham

As previously mentioned, this alpine region has rocks and soils that are calcareous but it also has a number of areas which have siliceous chert/quartzite exposures.

The principal soil lichens were the following: white to light yellow - Cetraria nivalis, C. cucullata, Cladina alpestris, Dactylina arctica, and Thamnolia subuliformis; yellow to orange - Cetraria tilesii and Alectoria ochroleuca; and brown - Cetraria richardsonii.

The principal rock lichens were the following: whitish - Rhizocarpon chionaeum and Physcia phaea; grey - Agyrophora rigida; green - Rhizocarpon geographicum; and red - Xanthoria elegans.

The principal bryophytes, all of which are dark green and grow on soil, were the following: Hylocomium splendens, Hypnum bambergeri, Dicranum fuscescens, Aulacomnium turgidum, Tomentypnum nitens, Catoscopium nigritum, Rhacomitrium lanuginosum, Meesea triquetra, Hypnum revolutum, and Rhytidium rugosum.

Mt. Clark

Mt. Clark has rocks and soil that are siliceous and acidic in nature and a flora that is different in many respects from that of The Plains of Abraham.

The principal soil lichens were the following: white to light yellow - Cetraria cucullata, C. nivalis, Cladina arbuscula ssp. beringiana, Cladonia uncialis, and Dactylina arctica; yellow - Alectoria ochroleuca; brown - Cetraria laevigata, C. richardsonii, and Cornicularia divergens; and grey - Cladina rangiferina, Cladonia pocillum, and Parmelia saxatilis.

The principal rock lichens were the following: green - Lecidea armeniaca, Rhizocarpon geographicum, R. superficiale, and R. crystalligenum; grey - Agyrophora rigida, Lecanora alpina, and Parmelia alpicola; and dark brown - Umbilicaria proboscidea.

The principal bryophytes, all of which grow on soil, were the following:
dark green - Hylocomium splendens, Polytrichum juniperinum var. gracilius, Aulacomnium turgidum, Rhytidium rugosum, Dicranum fuscescens, Rhacomitrium lanuginosum, Polytrichum juniperinum, Dicranum scoparium, and Calliergon cordifolium; and light green - Sphagnum warnstorffii and S. girgensohnii.

Mackenzie River Lowlands

The lowland region is a mosaic of areas that alternate from wet to dry. The key to the puzzle seems to lie in fire and consequent depth of the active layer of the soil. The theoretical climax appears to be an open conifer forest with a lichen, mainly reindeer lichen (Cladina), cover of 50% or more over a soil with a thin active layer (eg. Sites 49 and 51). Fire, however, is of frequent occurrence. It completely destroys the lichen dominated community (Fraser 1956, Pruitt 1959, Scotter 1964, Rouse and Kershaw 1971) and, by changing an area of high albedo to one of low albedo, thus allows

more solar energy to enter the soil. This increases the depth of the active layer and, by the resultant thawing of the surface of the permafrost, a community dominated by sedges and mosses develops (eg. Sites 50 and 52). In northern Saskatchewan, Scotter (1964) found that "a century or more is required for fire-destroyed 'reindeer lichens' to reach their former abundance. Annual growth rates of Cladonia alpestris and C. rangiferina were approximated at 4.1 and 4.9 millimeters respectively. The two lichens were found infrequently in forests younger than 30 years of age".

The principal soil lichens were the following: white to light yellow - Cladina alpestris, C. arbuscula ssp. beringiana, C. aberrans, Cladonia amaurocraea, Cetraria nivalis, Cladina mitis, Cladonia coccifera, and C. uncialis; and grey - Cladina rangiferina.

The principal bryophytes occurring on soil in wet sites were the following: dark green - Aulacomnium palustre, Tomenthypnum nitens, Dicranum fuscescens, Aulacomnium turgidum, Bryum pseudotriquetrum, and Polytrichum juniperinum var. gracilius; and light green - Sphagnum rubellum, S. fallax, S. magellanicum, and S. fuscum.

The principal bryophytes growing on soil in dry sites were the following: dark green - Hylocomium splendens, Drepanocladus uncinatus, and Rhytidium rugosum; and light brownish green - Ptilidium ciliare.

THE PLAINS OF ABRAHAM AS A GLACIAL REGUGIUM

Steere (1953, 1954, 1958a, 1959b, 1963, 1965), Crum (1965), and Brassard (1971a, 1971b) have pointed out with bryophytes, Lambert (1966) and Krog (1968) with lichens, and Porsild (1958) and Calder (1959) with vascular plants, that a very interesting group of endemic species, and a number of disjunct species with more extensive distributions farther south, occur in, or near, unglaciated regions in the North American

arctic. The areas referred to are the north slope of the Brooks Range of Alaska, certain mountains of the Yukon and of the western Northwest Territories, and certain regions of the Canadian Arctic Archipelago. Steere (1953) suggests "that we are dealing with the last remnants of a widely distributed Tertiary or interglacial flora that originated in some far distant area, probably in the southern hemisphere, and that has now been restricted to the arctic regions by the destructive activities of continental glaciations at lower altitudes, as well as by the success in competition of more rapidly speciating genera and of younger and more aggressive species there". Steere (1965) feels that "the present distribution of many critical bryophytes contributes adequate evidence to the idea that many species survived at least part of the Ice Age in situ, in refugia that were situated either on mountains that projected through the continental glaciers (nunataks) or in extensive lowland areas like arctic Alaska where the prevailing precipitation was too low to produce continental ice sheets".

No evidence of glaciation was found on The Plains of Abraham by myself, nor has been reported by other works. Prest's map (1969) shows the region to have been ice free during the Wisconsin, and Hughes (1970) definitely states that the mountain was unglaciated.

Table 2 has shown that The Plains of Abraham have 3 species that are endemic to North America and 22 that are endemic to the Amphi-Beringian region. In contrast, Mt. Clark has 9 American endemics and 14 Amphi-Beringian endemics. The Mt. Clark endemics have obviously invaded the area since glaciation while some, at least, of those that occur on The Plains of Abraham may have survived there during the last glacial period.

SUMMARY

Botanical studies were carried out from May 31 to June 10, 1971, on alpine areas on The Plains of Abraham in the Mackenzie Mountains and on Mt. Clark in the Franklin Mountains, and in a number of forested lowland areas near the Mackenzie River in the vicinity of Sans Sault Rapids and of Rorey Lake. The Plains of Abraham have been unglaciated and have an exposed mantle composed mainly of dolomite and limestone. Mt. Clark has been glaciated and has an exposed mantle composed mainly of quartzite. The lowland sites have all been glaciated and have no exposed mantle.

Three hundred and sixty-three taxa were encountered of which many of the vascular plants were new records, and none of the lichens and bryophytes have been previously reported for the areas studied. The breakdown for the areas is as follows: Plains of Abraham - 96 lichens, 53 bryophytes, 18 herbaceous plants, and 11 woody plants; Mt. Clark - 111 lichens, 40 bryophytes, 15 herbaceous plants, and 9 woody plants; and Mackenzie River Lowlands - 74 lichens, 35 bryophytes, 16 herbaceous plants, and 26 woody plants.

Most of the plants encountered (35.4%) have Circumpolar Northern Hemisphere distributions, the others being Amphi-Beringian (7.4%) and American (7.2%). 91.8% of the lichens, all of the bryophytes and 50% of the vascular plants were Circumpolar.

The Plains of Abraham and Mt. Clarke have a preponderance of taxa with Arctic-Alpine affinities while most of the Mackenzie River Lowland taxa have Boreal affinities.

Sixty-three lichens were found on rock, 46 of these only on silicates, 11 only on carbonates, and most of the 6 taxa that occurred on both are characteristic of bird rocks. The latter point is significant as calcium in the bird manure may buffer the acidic nature of silicate rocks and thus allow carbonate taxa to occur on silicates.

The soil floras of the two alpine areas had a greater similarity to one another than they did to the soil flora of the forested lowland areas. They were distinctly different, however, in terms of species and of numbers of individuals of various species. This difference was due to the generally calcareous soils of The Plains of Abraham in contrast to the acidic soils of Mt. Clark.

Twenty lichen taxa were found on herbaceous plant remains and on the roots of shrubs on The Plains of Abraham in contrast to 14 on Mt. Clark and essentially none in the lowland sites. Epiphytic lichens occurred on all of the trees found in the lowland sites. In general there was a floristic difference between coniferous trees with their acidic bark and broad-leaved deciduous trees with their less acidic bark.

Table 6 summarizes all cover components for each of the study areas.

Bare rock/gravel predominated on The Plains of Abraham with an average cover of 51.5% in contrast to lichens, bryophytes, herbaceous plants and woody plants which had almost equal cover ratings of about 10%. Lichens, with an average cover of 33.9%, predominated on Mt. Clark, followed by bare rock/gravel at 28.3%, bryophytes at 13.8%, herbaceous plants at 12.0%, and woody plants at 9.0%. Woody plants (46.6%) predominated in the lowland sites, followed by lichens at 22.5%, bryophytes at 18.5%, and herbaceous plants at 9.5%.

The principal lichens and bryophytes that contribute to the albedo patterns of each of the areas have been enumerated. In the alpine areas, rocks tend to be dominated by lichens with a dark albedo, drier soil areas by lichens with a light albedo, and wetter areas by bryophytes with a dark albedo. In the lowland regions there is a mosaic of light and dark albedo areas, the light being caused mainly by reindeer lichens over soil with a shallow active layer, the dark by bryophytes and associated vascular plants over soil with a deep active layer.

There is some evidence to suggest that a number of species survived on The Plains of Abraham during the last glacial period but this is difficult to prove as Mt. Clark, which was glaciated, has an exposed mantle of a substantially different rock type.

A small collection of spiders was made on each of the two alpine areas. Eight species were found, 4 of which were restricted to The Plains of Abraham, 3 to Mt. Clark, and only one was found on both of the mountains.

ACKNOWLEDGMENTS

Financial support was received through Geological Survey of Canada Project 710020. The coordinator of this project, Dr. O.L. Hughes, deserves special thanks for instigating the study, for many fruitful discussions, and for technical help.

Mr. A.H. Marsh ably assisted in the field and has been a continual source of ecological insight.

Mrs. Delores Long assisted in the laboratory by sorting out and pressing the lichen and bryophyte voucher material.

Dr. J.W. Thomson, the outstanding authority on arctic lichens, helped by revising several lichen specimens and by giving advice on a number of taxonomic problems.

Dr. L.V. Hills and Dr. J.D. Aitken kindly identified a number of rock specimens.

Dr. D.G. Cook deserves thanks for data and advice on a number of stratigraphic problems.

Helpful field discussions were held with Drs. S. Zoltai and W. Pettapiece.

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APPENDIX I.
SUMMATION OF THE SITE DATA

Site: 1. Area: Plains of Abraham. Location: $64^{\circ}33'N$, $127^{\circ}43'W$.
 Elevation: 4600 ft. Aspect: S 5° . Date: May 31, 1971.
 Habitat: ridge top with chert, dolomite, and quartzite rocks.
 Voucher Numbers: 26099-26142.

	Cover %		Cover %
Bare rock/gravel	50	<u>Bryophytes</u>	
Soil	8		
Duff/peat	-	<i>Bryum wrightii</i>	+
Lichens	15	<i>Ditrichum flexicaule</i>	+
Bryophytes	2	<i>Hypnum revolutum</i>	+
Herbaceous vegetation	13	<i>Rhytidium rugosum</i>	+
Woody vegetation	12	<i>Tortella tortuosa</i>	+
<u>Lichens</u>		<u>Herbaceous Plants</u>	
<i>Alectoria ochroleuca</i>	3	<i>Cyperaceae/Gramineae</i>	8
<i>Cetraria tilesii</i>	2	<i>Silene acaulis</i> ssp. <i>acaulis</i>	2
<i>Agyrophora rigida</i>	+	<i>Lycopodium selago</i> ssp. <i>selago</i>	+
<i>Alectoria nigricans</i>	+	<i>Pedicularis kanei</i> ssp. <i>kanei</i>	+
<i>Asahinea chrysantha</i>	+	<i>Saxifraga oppositifolia</i>	+
<i>Cetraria cucullata</i>	+		
<i>C. islandica</i>	+	<u>Woody Plants</u>	
<i>C. laevigata</i>	+	<i>Dryas integrifolia</i>	8
<i>C. nivalis</i>	+	<i>Cassiope tetragona</i> ssp. <i>tetragona</i>	4
<i>Cladina arbuscula</i> ssp. <i>beringiana</i>	+		
<i>Cladonia amaurocraea</i>	+		
<i>Cornicularia aculeata</i>	+		
<i>C. divergens</i>	+		
<i>Dactylina arctica</i> PD+	+		
<i>D. ramulosa</i> PD+	+		
<i>Evernia perfragilis</i>	+		
<i>Lecanora cinerea</i>	+		
<i>L. epibryon</i>	+		
<i>L. verrucosa</i>	+		
<i>Lecidea pallida</i>	+		
<i>L. rubiformis</i>	+		
<i>L. stigmataea</i>	+		
<i>Ochrolechia frigida</i>	+		
<i>O. upsaliensis</i>	+		
<i>Parmelia separata</i>	+		
<i>Protoblastenia rupestris</i>	+		
<i>Rhizocarpon chioneum</i>	+		
<i>R. eupetraeoides</i>	+		
<i>R. geographicum</i>	+		
<i>Rinodina roscida</i>	+		
<i>Solorina</i> sp.	+		
<i>Sporastatia testudinea</i>	+		
<i>Thamnolia subuliformis</i>	+		
<i>Thelidium pyrenoporum</i>	+		

Site: 2. Area: Plains of Abraham. Location: $64^{\circ}33'N$, $127^{\circ}43'W$.
 Elevation: 4500 ft. Aspect: S 5° . Date: June 1, 1971.
 Habitat: bird rocks composed of dolomite, chert, and quartzite.
 Voucher Numbers: 26149-26180.

	Cover %		Cover %
Bare rock/gravel	63	<u>Bryophytes</u>	
Soil	-		
Duff/peat	-	<i>Orthotrichum alpestre</i>	1
Lichens	35	<i>Ditrichum flexicaule</i>	+
Bryophytes	2	<i>Gymnostomum aeruginosum</i>	+
Herbaceous vegetation	-	<i>Hypnum vaucheri</i>	+
Woody vegetation	-	<i>Tortella fragilis</i>	+
		<i>T. tortuosa</i>	+
		<i>Tortula ruralis</i>	+
<u>Lichens</u>			
<i>Agyrophora rigida</i>	5		
<i>Rhizocarpon</i> sp. (green)	5		
<i>R. chioneum</i>	5		
<i>Xanthoria elegans</i>	5		
<i>Physcia phaea</i>	4		
<i>Acarospora glaucocarpa</i>	+		
<i>Alectoria ochroleuca</i>	+		
<i>Caloplaca stillicidiorum</i>	+		
<i>Cetraria nivalis</i>	+		
<i>C. tilesii</i>	+		
<i>Collema auriculatum</i>	+		
<i>Dactylina arctica</i> PD+	+		
<i>D. ramulosa</i> PD-	+		
<i>Dimelaena oreina</i>	+		
<i>Lecanora epibryon</i>	+		
<i>L. pergibbosa</i>	+		
<i>Lecidea armeniaca</i>	+		
<i>L. assimilata</i>	+		
<i>L. stigmatea</i>	+		
<i>Physcia caesia</i>	+		
<i>P. sciastra</i>	+		
<i>Physconia muscigena</i>	+		
<i>Staurothele</i> sp.	+		
<i>Thamnolia subuliformis</i>	+		
<i>Thelidium</i> cfr. <i>pyrenophorum</i>	+		
<i>Toninia tristis</i>	+		

Site: 3. Area: Plains of Abraham. Location: $64^{\circ}33'N$, $127^{\circ}43'W$.
 Elevation: 4300 ft. Aspect: S 5° . Date: June 1, 1971.
 Habitat: hummocky wet meadow.
 Voucher Numbers: 26181-26200.

	Cover %		Cover %
Bare rock/gravel	-	<u>Woody Plants</u>	
Soil	10		
Duff/peat	5	<i>Cassiope tetragona</i> ssp. <i>tetragona</i>	2
Algae - Nostoc	3		
Lichens	10	<i>Dryas integrifolia</i>	2
Bryophytes	25	<i>Rhododendron lapponicum</i>	+
Herbaceous vegetation	45		
Woody vegetation	5		

Lichens

<i>Cladonia pocillum</i>	1
<i>Dactylina arctica</i> PD+	1
<i>Cetraria cucullata</i>	+
<i>C. islandica</i>	+
<i>C. laevigata</i>	+
<i>C. nivalis</i>	+
<i>C. tilesii</i>	+
<i>Cladina arbuscula</i> ssp. <i>beringiana</i>	+
<i>Dactylina ramulosa</i> PD+	+
<i>Lecidea berengeriana</i>	+

Bryophytes

<i>Hypnum bambergeri</i>	10
<i>Hylocomium splendens</i>	5
<i>Catascopium nigritum</i>	5
<i>Dicranum fuscescens</i>	4
<i>Anastrophyllum minutum</i>	+

Herbaceous Plants

<i>Cyperaceae/Gramineae</i> (incl. <i>Carex membranacea</i>)	43
<i>Androsace chamaejasme</i> ssp. <i>lehmanniana</i>	+
<i>Equisetum scirpoides</i>	+
<i>Juncus triglumis</i> ssp. <i>triglumis</i>	+

Site: 4. Area: Plains of Abraham. Location: $64^{\circ}32'N$, $127^{\circ}43'W$.
 Elevation: 4800 ft. Aspect: N 5° . Date: June 1, 1971.
 Habitat: hummocky wet meadow.
 Voucher Numbers: 26201-26252.

	Cover %		Cover %
Bare rock/gravel	-	<u>Bryophytes</u>	
Soil	5	Hypnum bambergeri	5
Duff/peat	-	Aulacomnium turgidum	4
Algae - Nostoc	3	Dicranum fuscescens	3
Lichens	28	Hylocomium splendens	3
Bryophytes	29	Meesea uliginosa	3
Herbaceous vegetation	34	Catoscopium nigritum	2
Woody vegetation	1	Drepanocladus vernicosus	1
		Anastrophyllum minutum	+
		Blepharostoma trichophyllum	+
		Calliergon richardsonii	+
<u>Lichens</u>		C. trifarium	+
Cetraria cucullata	8	Campylium stellatum	+
C. tilesii	3	Fissidens osmundioides	+
Dactylina arctica PD-	3	Lophozia hatcheri	+
Cetraria nivalis	2	Mnium blyttii	+
Thamnolia subuliformis	2	Pohlia nutans	+
Alectoria nitidula	+	Polytrichum juniperinum var.	
A. ochroleuca	+	gracilius	+
Asahinea chrysantha	+	Ptilidium ciliare	+
Caloplaca jungermanniae	+	Radula sp.	+
Cetraria islandica	+	Rhizomnium andrewsianum	+
C. laevigata	+	Rhytidium rugosum	+
Cladina arbuscula ssp.	+	Scapania paludicola	+
beringiana	+	Solenostoma sp.	+
C. rangiferina	+	Tomentypnum nitens	+
Cladonia amaurocraea	+		
C. deformis	+	<u>Herbaceous Plants</u>	
C. fimbriata	+		
C. gracilis var. dilatata	+	Cyperaceae/Gramineae	32
C. pocillum	+	others	2
C. subfurcata	+		
Dactylina ramulosa PD+	+	<u>Woody Plants</u>	
Lecanora epibryon	+		
Ochrolechia frigida	+	Dryas integrifolia	+
O. upsaliensis	+	Rhododendron lapponicum	+
Peltigera aphthosa	+	Salix reticulata ssp.	
Physconia muscigena	+	reticulata	+
Rinodina turfacea	+	Vaccinium uliginosum ssp.	
		alpinum	+

Site: 5. Area: Plains of Abraham. Location: $64^{\circ}32'N$, $127^{\circ}43'W$.
 Elevation: 4900 ft. Aspect: S 5° . Date: June 1, 1971.
 Habitat: exposed ridge top with limestone gravel and rock.
 Voucher Numbers: 26253-26281.

	Cover %		Cover %
Bare rock/gravel	60	<u>Herbaceous Plants</u>	
Soil	10		
Duff/peat	-	Cyperaceae/Gramineae	2
Lichens	10	Saxifraga oppositifolia	+
Bryophytes	5	others	+
Herbaceous vegetation	3		
Woody vegetation	2	<u>Woody Plants</u>	
<u>Lichens</u>		Dryas integrifolia	2
Cetraria tilesii	3		
C. nivalis	2		
Thamnolia subuliformis	2		
Lecanora epibryon	1		
Alectoria nitidula	+		
A. ochroleuca	+		
Buellia papillata	+		
Caloplaca stillicidiorum	+		
Cetraria cucullata	+		
C. islandica	+		
Collema auriculatum	+		
Cornicularia aculeata	+		
Dactylina ramulosa PD+	+		
Evernia perfragilis	+		
Lecanora verrucosa	+		
Lecidea stigmataea	+		
Ochrolechia upsaliensis	+		
Peltigera aphthosa	+		
Physconia muscigena	+		
Polyblastia intercedens	+		
Protoblastenia rupestris	+		
Rinodina roscida	+		
<u>Bryophytes</u>			
Hylocomium splendens	2		
Rhytidium rugosum	2		
Abietinella abietina	+		
Hypnum vaucheri	+		
Tortella fragilis	+		
Tortula ruralis	+		

Site: 6. Area: Plains of Abraham. Location: $64^{\circ}32'N$, $127^{\circ}43'W$.
 Elevation: 5100 ft. Aspect: S 5° . Date: June 1, 1971.
 Habitat: patterned ground with polygons, rocks of dolomite and
 quartzite up to 1 ft. wide between polygons.
 Voucher Numbers: 26282-26312.

	Cover %		Cover %
Bare rock/gravel	60	<u>Bryophytes</u>	
Soil	5		
Duff/peat	-	<i>Distichium capillaceum</i>	+
Lichens	17	<i>Encalypta procera</i>	+
Bryophytes	4	<i>Grimmia apocarpa</i>	+
Herbaceous vegetation	7	<i>Hypnum bambergeri</i>	+
Woody vegetation	7	<i>H. revolutum</i>	+
		<i>Tortella tortuosa</i>	+
<u>Lichens</u>			
		<u>Herbaceous Plants</u>	
<i>Cetraria tilesii</i>	4	<i>Cyperaceae/Gramineae</i>	4
<i>Alectoria ochroleuca</i>	3	<i>others</i>	2
<i>Cetraria nivalis</i>	2	<i>Stellaria longipes</i>	+
<i>Thamnolia subuliformis</i>	1		
<i>Alectoria nitidula</i>	+		
<i>Asahinea chrysanthia</i>	+	<u>Woody Plants</u>	
<i>Caloplaca jungermanniae</i>	+	<i>Dryas integrifolia</i>	5
<i>Cetraria cucullata</i>	+	<i>Cassiope tetragona ssp.</i>	
<i>C. islandica</i>	+	<i>tetragona</i>	2
<i>C. laevigata</i>	+	<i>Salix sp.</i>	+
<i>Cladina arbuscula ssp.</i> beringiana	+		
<i>Cornicularia aculeata</i>	+		
<i>Dactylina arctica PD-</i>	+		
<i>D. ramulosa PD+</i>	+		
<i>Evernia perfragilis</i>	+		
<i>Hypogymnia physodes</i>	+		
<i>Lecanora epibryon</i>	+		
<i>Lecidea armeniaca</i>	+		
<i>L. glomerulosa</i>	+		
<i>L. pallida</i>	+		
<i>Ochrolechia upsaliensis</i>	+		
<i>Parmelia separata</i>	+		
<i>Protoblastenia rupestris</i>	+		
<i>Rhizocarpon chioneum</i>	+		
<i>Thelidium cfr. pyrenophorum</i>	+		

Site: 7. Area: Plains of Abraham. Location: $64^{\circ}32'N$, $127^{\circ}43'W$.
 Elevation: 4600 ft. Aspect: N 40° . Date: June 1, 1971.
 Habitat: talus slope with dolomite and chert.
 Voucher Numbers: 26313-26319.

	Cover %		Cover %
Bare rock/gravel	94	<u>Lichens</u>	
Soil	-	<i>Rhizocarpon chionaeum</i>	4
Duff/peat	-	<i>Agyrophora rigida</i>	+
Lichens	6	<i>Lecanora caesiocinerea</i>	+
Bryophytes	-	<i>Lecidea armeniaca</i>	+
Herbaceous vegetation	-	<i>Polyblastia intercedens</i>	+
Woody vegetation	-	<i>Protoblastenia rupestris</i>	+
		<i>Rhizocarpon eupetraeoides</i>	+

Site: 8. Area: Plains of Abraham. Location: $64^{\circ}32'N$, $127^{\circ}43'W$.
 Elevation: 4500 ft. Aspect: N 10° . Date: June 1, 1971.
 Habitat: Hylocomium splendens - Cassiope tetragona community.
 Voucher Numbers: 26320-26332.

	Cover %		Cover %
Bare rock/gravel	-	<u>Herbaceous Plants</u>	
Soil	5		
Duff/peat	5	Cyperaceae/Gramineae	5
Lichens	5		
Bryophytes	60	<u>Woody Plants</u>	
Herbaceous vegetation	5		
Woody vegetation	20	Cassiope tetragona ssp. tetragona	14
<u>Lichens</u>		Dryas integrifolia	5
Alectoria ochroleuca	+	Rhododendron lapponicum	1
Cetraria nivalis	+		
C. tilesii	+		
Dactylina ramulosa PD+	+		
Lecanora epibryon	+		
Peltigera rufescens	+		
Solorina saccata	+		
Thamnolia subuliformis	+		
<u>Bryophytes</u>			
Hylocomium splendens	48		
Tomentypnum nitens	10		
Bryoerythrophyllum recurvi-			
rostris	+		
Hypnum procerrimum	+		
Platydictya jungermannioides	+		
Solenostoma sphaerocarpum	+		

Site: 9. Area: Plains of Abraham. Location: $64^{\circ}32'N$, $127^{\circ}43'W$.
 Elevation: 4500 ft. Aspect: E 5° . Date: June 1, 1971.
 Habitat: Cassiope tetragona - Dryas integrifolia community.
 Voucher Numbers: 26333-26354.

	Cover %		Cover %
Bare rock/gravel	5	<u>Herbaceous Plants</u>	
Soil	5		
Duff/peat	10	Cyperaceae/Gramineae	4
Lichens	10	Anemone parviflora	+
Bryophytes	10	others	+
Herbaceous vegetation	5		
Woody vegetation	55	<u>Woody Plants</u>	
<u>Lichens</u>		Cassiope tetragona ssp. tetragona	25
<i>Cetraria nivalis</i>	3	<i>Dryas integrifolia</i>	25
<i>C. tilesii</i>	3	<i>Potentilla fruticosa</i>	4
<i>Alectoria ochroleuca</i>	+	<i>Rhododendron lapponicum</i>	+
<i>Cetraria cucullata</i>	+	<i>Salix</i> sp.	+
<i>C. laevigata</i>	+		
<i>Cladonia pocillum</i>	+		
<i>C. pyxidata</i>	+		
<i>Dactylina arctica</i> PD+	+		
<i>D. ramulosa</i> PD+	+		
<i>Leçanora epibryon</i>	+		
<i>L. verrucosa</i>	+		
<i>Lecidea glomerulosa</i>	+		
<i>Micarea melaena</i>	+		
<i>Peltigera rufascens</i>	+		
<i>Protoblastenia rupestris</i>	+		
<i>Solorina bispora</i>	+		
<i>Thamnolia subuliformis</i>	+		
<u>Bryophytes</u>			
<i>Hylocomium splendens</i>	4		
<i>Dicranum fuscescens</i>	2		
<i>Hypnum bambergeri</i>	2		
<i>Oncophorus virens</i>	+		
<i>Tomenthypnum nitens</i>	+		

Site: 10. Area: Plains of Abraham. Location: $64^{\circ}33'N$, $127^{\circ}45'W$.
 Elevation: 5100 ft. Aspect: E $1-3^{\circ}$. Date: June 2, 1971.
 Habitat: Dryas integrifolia - frost boil community with chert gravel.
 Voucher Numbers: 26355-26392.

	Cover %		Cover %
Bare rock/gravel	50	<u>Bryophytes</u>	
Soil	-	Racomitrium lanuginosum	2
Duff/peat	-	Anastrophyllum minutum	+
Lichens	20	Dicranum fuscescens	+
Bryophytes	3	Distichium sp.	+
Herbaceous vegetation	5	Fissidens osmundioides	+
Woody vegetation	22	Hypnum bambergeri	+
<u>Lichens</u>		Polytrichum juniperinum	+
<i>Rhizocarpon geographicum</i>	3	Ptilidium ciliare	+
<i>Agyropha rigida</i>	2	<u>Herbaceous Plants</u>	
<i>Cetraria nivalis</i>	2	<i>Cyperaceae/Gramineae</i>	2
<i>Cladina aberrans</i>	1	<i>Silene acaulis</i> ssp. <i>acaulis</i>	2
<i>C. arbuscula</i> ssp. <i>beringiana</i>	1	<i>Lycopodium selago</i> ssp. <i>selago</i>	+
<i>C. rangiferina</i>	1	<i>Pedicularis kanei</i> ssp. <i>kanei</i>	+
<i>Alectoria ochroleuca</i>	+	<u>Woody Plants</u>	
<i>A. pubescens</i>	+	<i>Dryas integrifolia</i>	12
<i>Asahinea chrysanthia</i>	+	<i>Cassiope tetragona</i> ssp. <i>tetragona</i>	9
<i>Cetraria commixta</i>	+	<i>Salix phlebophylla</i>	1
<i>C. cucullata</i>	+		
<i>C. laevigata</i>	+		
<i>C. nigricans</i>	+		
<i>C. tilesii</i>	+		
<i>Cladonia amaurocraea</i>	+		
<i>C. coccifera</i>	+		
<i>C. uncialis</i>	+		
<i>Cornicularia aculeata</i>	+		
<i>Dactylina arctica</i> PD+	+		
<i>Dactylina ramulosa</i> PD+	+		
<i>Lecanora caesiocinerea</i>	+		
<i>L. epibryon</i>	+		
<i>L. polytropa</i>	+		
<i>Lecidea armeniaca</i>	+		
<i>Ochrolechia frigida</i>	+		
<i>Pertusaria dactylina</i>	+		
<i>Sporastatia testudinea</i>	+		
<i>Thamnolia subuliformis</i>	+		
<i>Umbilicaria proboscidea</i>	+		

Site: 11. Area: Plains of Abraham. Location: $64^{\circ}33'N$, $127^{\circ}45'W$.
 Elevation: 5100 ft. Aspect: E $2-3^{\circ}$. Date: June 2, 1971.
 Habitat: Cassiope tetragona community with chert.
 Voucher Numbers: 26393-26425.

	Cover %		Cover %
Bare rock/gravel	20	<u>Bryophytes</u>	
Soil	10	Dicranum fuscescens	2
Duff/peat	-	Rhacomitrium lanuginosum	2
Lichens	25	Anastrophyllum minutum	+
Bryophytes	5	Hylocomium splendens	+
Herbaceous vegetation	5	Ptilidium ciliare	+
Woody vegetation	35		
<u>Lichens</u>		<u>Herbaceous Plants</u>	
Cladina alpestris	5	Cyperaceae/Gramineae	3
Alectoria ochroleuca	3	Lycopodium selago ssp. selago	1
Rhizocarpon geographicum	3	Pyrola sp.	+
Cetraria nivalis	2	Silene acaulis ssp. acaulis	+
Rhizocarpon eupetraeoides	1		
Agyrophora rigida	+	<u>Woody Plants</u>	
Arthroraphis citrinella var.		Cassiope tetragona ssp.	
alpina	+	tetragona	30
Asahinea chrysantha	+	Dryas integrifolia	4
Cetraria cucullata	+	Salix phlebophylla	+
C. islandica	+	Vaccinium uliginosum ssp.	
C. laevigata	+	alpinum	+
C. richardsonii	+		
C. tilesii	+		
Cladina arbuscula ssp.			
beringiana	+		
C. rangiferina	+		
Cladonia amaurocraea	+		
C. coccifera	+		
C. pyxidata	+		
C. uncialis	+		
Dactylina arctica PD+	+		
D. ramulosa PD+	+		
Lecanora caesiocinerea	+		
L. epibryon	+		
Parmelia alpicola	+		
Peltigera leucophlebia	+		
Pertusaria dactylina	+		
Thamnolia subuliformis	+		
Umbilicaria proboscidea	+		

Site: 12. Area: Plains of Abraham. Location: $64^{\circ}33'N$, $127^{\circ}51'W$.
 Elevation: 5600 ft. Aspect: level. Date: June 2, 1971.
 Habitat: patterned ground with polygons, large dolomite boulders up
 to 3 ft. wide. Highest point of Canol Road.
 Voucher Numbers: 26426-26438.

	Cover %		Cover %
Bare rock/gravel	75	<u>Herbaceous Plants</u>	
Soil	5		
Duff/peat	-	Cyperaceae/Gramineae	1
Lichens	7	Saxifraga oppositifolia	+
Bryophytes	1	Silene acaulis ssp. acaulis	+
Herbaceous vegetation	2		
Woody vegetation	10	<u>Woody Plants</u>	
		<u>Lichens</u>	
Cetraria tilesii	2	Dryas integrifolia	9
Alectoria ochroleuca	+	Cassiope tetragona ssp. tetragona	+
Cetraria islandica	+	Salix phlebophylla	+
C. nivalis	+		
Dactylina arctica PD+	+		
D. ramulosa PD+	+		
Polyblastia intercedens	+		
Rhizocarpon chioneum	+		
Solorina bispora	+		
Thamnolia subuliformis	+		
		<u>Bryophytes</u>	
Ditrichum flexicaule	+		
Hypnum bambergeri	+		
Tomentypnum nitens	+		
Tortella fragilis	+		

Site: 13. Area: Plains of Abraham. Location: $64^{\circ}33'N$, $127^{\circ}48'W$.
 Elevation: 5600 ft. Aspect: level. Date: June 2, 1971.
 Habitat: patterned ground with polygons, rocks of dolomite and of chert.
 Voucher Numbers: 26439-26462.

	Cover %		Cover %
Bare rock/gravel	50	<u>Herbaceous Plants</u>	
Soil	20		
Duff/peat	-	Cyperaceae/Gramineae (incl.	
Lichens	7	Carex capillaris and C. membranacea)	4
Bryophytes	6	Eriophorum angustifolium ssp.	
Herbaceous vegetation	7	triste	2
Woody vegetation	10	Juncus biglumis	+
		Pedicularis kanei ssp. kanei	+
		Saxifraga oppositifolia	+
<u>Lichens</u>			
Cetraria tilesii	2		
Polyblastia intercedens	1	<u>Woody Plants</u>	
Agyrophora rigida	+		
Caloplaca tetraspora	+	Dryas integrifolia	7
Cetraria cucullata	+	Cassiope tetragona ssp.	
C. islandica	+	tetragona	2
C. nivalis	+	Salix phlebophylla	1
Dactylina arctica PD+	+		
D. ramulosa PD+	+		
Lecanora verrucosa	+		
Lecidea glomerulosa	+		
Rhizocarpon sp. (green)	+		
R. chionium	+		
Sporastatia testudinea	+		
Thamnolia subuliformis	+		
<u>Bryophytes</u>			
Hypnum bambergeri	2		
H. revolutum	2		
Tomentypnum nitens	1		
Bryum pseudotriquetrum	+		
Dicranum fuscescens	+		
Ditrichum flexicaule	+		

Site: 14. Area: Plains of Abraham. Location: $64^{\circ}33'N$, $127^{\circ}48'W$.
 Elevation: 5300 ft. Aspect: E 5° . Date: June 2, 1971.
 Habitat: Dryas integrifolia - stone stripe community, rocks of dolomite and of quartzite.
 Voucher Numbers: 26463-26475.

	Cover %		Cover %
Bare rock/gravel	60	<u>Herbaceous Plants</u>	
Soil	20		
Duff/peat	-	Cyperaceae/Gramineae	2
Lichens	5	Minuartia sp.	+
Bryophytes	1	Saxifraga oppositifolia	+
Herbaceous vegetation	3	Silene acaulis ssp. acaulis	+
Woody vegetation	11		
		<u>Woody Plants</u>	
<u>Lichens</u>			
Cetraria tilesii	1	Dryas integrifolia	10
Dactylina arctica PD+	1	Cassiope tetragona ssp. tetragona	1
D. ramulosa PD+	+		
Lecanora epibryon	+		
Lecidea assimilata	+		
L. marginata	+		
Polyblastia intercedens	+		
Protoblastenia rupestris	+		
Rhizocarpon chioneum	+		
Rinodina roscida	+		
Thamnolia subuliformis	+		
<u>Bryophytes</u>			
Ditrichum flexicaule	+		
Drepanocladus revolvens	+		
Tomentypnum nitens	+		

Site: 15. Area: Plains of Abraham. Location: $64^{\circ}33'N$, $127^{\circ}48'W$.
 Elevation: 5300 ft. Aspect: SE 5° . Date: June 2, 1971.
 Habitat: Dryas integrifolia - stone stripe community, rocks of dolomite, quartzite, and chert.
 Voucher Numbers: 26476-26497.

	Cover %		Cover %
Bare rock/gravel	50	<u>Herbaceous Plants</u>	
Soil	25		
Duff/peat	-	Cyperaceae/Gramineae	2
Lichens	5	Silene acaulis ssp. acaulis	1
Bryophytes	2	Pedicularis kanei ssp. kanei	+
Herbaceous vegetation	4	Saxifraga oppositifolia	+
Woody vegetation	14		
		<u>Woody Plants</u>	
<u>Lichens</u>			
Cetraria nivalis	1	Dryas integrifolia	13
C. tilesii	1	Cassiope tetragona ssp. tetragona	+
Alectoria ochroleuca	+	Salix sp.	+
Cetraria cucullata	+		
C. islandica	+		
Dactylina arctica PD+	+		
D. ramulosa PD+	+		
Lecanora epibryon	+		
Lecidea assimilata	+		
L. glomerulosa	+		
L. macrocarpa	+		
L. tessellata	+		
Polyblastia intercedens	+		
Protoblastenia rupestris	+		
Rhizocarpon geographicum	+		
Rinodina roscida	+		
Thamnolia subuliformis	+		
<u>Bryophytes</u>			
Brachythecium turgidum	+		
Ditrichum flexicaule	+		
Fissidens osmundioides	+		
Hypnum bambergeri	+		
H. procerrimum	+		
Tomentypnum nitens	+		
Tortella fragilis	+		

Site: 16. Area: Plains of Abraham. Location: $64^{\circ}34'N$, $127^{\circ}43'W$.
 Elevation: 5100 ft. Aspect: $0-10^{\circ}$. Date: June 2, 1971.
 Habitat: limestone rubble.
 Voucher Numbers: 26498-26513.

	Cover %		Cover %
Bare rock/gravel	90	<u>Herbaceous Plants</u>	
Soil	2		
Duff/peat	-	<i>Saxifraga oppositifolia</i>	+
Lichens	3		
Bryophytes	2	<u>Woody Plants</u>	
Herbaceous vegetation	1		
Woody vegetation	2	<i>Dryas integrifolia</i>	1
		<i>Salix phlebophylla</i>	+
<u>Lichens</u>			
<i>Cetraria tilesii</i>	1		
<i>C. cucullata</i>	+		
<i>Lecanora epibryon</i>	+		
<i>L. verrucosa</i>	+		
<i>Lecidea pallida</i>	+		
<i>L. stigmatea</i>	+		
<i>Ochrolechia frigida</i>	+		
<i>Polyblastia intercedens</i>	+		
<i>Protoblastenia rupestris</i>	+		
<i>Rinodina roscida</i>	+		
<i>Solorina bispora</i>	+		
<i>Thamnolia subuliformis</i>	+		
<u>Bryophytes</u>			
<i>Catoscopium nigritum</i>	+		
<i>Ditrichum flexicaule</i>	+		
<i>Grimmia apocarpa</i>	+		
<i>Hypnum revolutum</i>	+		
<i>Tetraplodon mnioides</i>	+		
<i>Tortella tortuosa</i>	+		
<i>Tortula ruralis</i>	+		

Site: 17. Area: Plains of Abraham. Location: $64^{\circ}33'N$, $127^{\circ}42'W$.
 Elevation: 4600 ft. Aspect: SW 10° . Date: June 3, 1971.
 Habitat: solifluction slope with dolomite rock.
 Voucher Numbers: 26514-26539.

	Cover %		Cover %
Bare rock/gravel	73	<u>Herbaceous Plants</u>	
Soil	3		
Duff/peat	-	Cyperaceae/Gramineae	3
Algae - Nostoc	1	Draba macrocarpa	+
Lichens	6	Pedicularis kanei ssp. kanei	+
Bryophytes	6	Saxifraga oppositifolia	+
Herbaceous vegetation	5		
Woody vegetation	6	<u>Woody Plants</u>	
<u>Lichens</u>			
Alectoria nitidula	+	Dryas integrifolia	5
A. ochroleuca	+	Salix polaris ssp. pseudopolaris	1
Cetraria cucullata	+		
C. islandica	+		
C. nivalis	+		
C. tilesii	+		
Cladonia pocillum	+		
Dactylina arctica PD+	+		
D. ramulosa PD+	+		
Lecanora epibryon	+		
Lecidea pallida	+		
Polyblastia intercedens	+		
Protoblastenia rupestris	+		
Rhizocarpon chioneum	+		
Rinodina roscida	+		
Thamnolia subuliformis	+		
<u>Bryophytes</u>			
Hypnum bambergeri	3		
Bryum angustirete	+		
B. wrightii	+		
Calliergon trifarium	+		
Ceratodon purpureus	+		
Ditrichum flexicaule	+		
Oncophorus virens	+		
Tortella fragilis	+		

Site: 18. Area: Plains of Abraham. Location: $64^{\circ}33'N$, $127^{\circ}42'W$.
 Elevation: 4600 ft. Aspect: SW 15° . Date: June 3, 1971.
 Habitat: slump slope with solifluction and limestone rock.
 Voucher Numbers: 26540-26559.

	Cover %		Cover %
Bare rock/gravel	79	<u>Herbaceous Plants</u>	
Soil	3		
Duff/peat	-	Saxifraga oppositifolia	1
Lichens	7	Cyperaceae/Gramineae	+
Bryophytes	1	Oxytropis sp.	+
Herbaceous vegetation	4	Pedicularis kanei ssp. kanei	+
Woody vegetation	6	Smelowskia borealis	+
<u>Lichens</u>		<u>Woody Plants</u>	
Cetraria tilesii	1	Dryas integrifolia	5
Alectoria ochroleuca	+	Salix reticulata ssp. reticulata	+
Cetraria cucullata	+		
C. nivalis	+		
Cornicularia aculeata	+		
Dactylina arctica PD+	+		
D. ramulosa PD+	+		
Evernia perfragilis	+		
Lecanora epibryon	+		
Lecidea glomerulosa	+		
L. macrocarpa	+		
Polyblastia intercedens	+		
Protoblastenia rupestris	+		
Rhizocarpon chionium	+		
Rinodina roscida	+		
Solorina bispora	+		
Thamnolia subuliformis	+		
<u>Bryophytes</u>			
Hypnum bridelianum	+		
Tortella fragilis	+		
T. tortuosa	+		

Site: 19. Area: Plains of Abraham. Location: $64^{\circ}33'N$, $127^{\circ}41'W$.
 Elevation: 4800 ft. Aspect: S $5-10^{\circ}$. Date: June 3, 1971.
 Habitat: limestone rubble.
 Voucher Numbers: 26560-26580.

	Cover %		Cover %
Bare rock/gravel	84	<u>Herbaceous Plants</u>	
Soil	3		
Duff/peat	-	Cyperaceae/Gramineae	+
Lichens	5	Minuartia rossii	+
Bryophytes	1	Parrya nudicaulis ssp. interior	+
Herbaceous vegetation	3	Pedicularis kanei ssp. kanei	+
Woody vegetation	4	Potentilla uniflora	+
		Saxifraga oppositifolia	+
		Smelowskia borealis	+
<u>Lichens</u>			
Alectoria ochroleuca	+		
Cetraria cucullata	+	<u>Woody Plants</u>	
C. islandica	+		
C. nivalis	+	Dryas integrifolia	3
C. tilesii	+	Salix phlebophylla	+
Lecanora epibryon	+	S. reticulata ssp. reticulata	+
Lecidea pallida	+		
L. stigmatis	+		
Parmelia separata	+		
Protoblastenia rupestris	+		
Rhizocarpon chionium	+		
Rinodina roscida	+		
Thamnolia subuliformis	+		
<u>Bryophytes</u>			
Ditrichum flexicaule	+		
Tortella fragilis	+		

Site: 20. Area: Plains of Abraham. Location: $64^{\circ}33'N$, $127^{\circ}40'W$.
 Elevation: 4800 ft. Aspect: NNE $5-10^{\circ}$. Date: June 3, 1971.
 Habitat: solifluction slope with some limestone rock.
 Voucher Numbers: 26581-26607.

	Cover %		Cover %
Bare rock/gravel	78	<u>Herbaceous Plants</u>	
Soil	3		
Duff/peat	-	Cyperaceae/Gramineae	1
Lichens	6	Saxifraga oppositifolia	1
Bryophytes	3	Potentilla uniflora	+
Herbaceous vegetation	4	Silene acaulis ssp. acaulis	+
Woody vegetation	6		
		<u>Woody Plants</u>	
<u>Lichens</u>			
Cetraria tilesii	1	Dryas integrifolia	5
Alectoria ochroleuca	+	Cassiope tetragona ssp. tetragona	+
Asahinea chrysanthia	+		
Caloplaca jungermanniae	+		
Cetraria cucullata	+		
C. islandica	+		
C. laevigata	+		
C. nivalis	+		
Cladonia pocillum	+		
Cornicularia aculeata	+		
Dactylina arctica PD-	+		
D. ramulosa PD+	+		
Evernia perfragilis	+		
Lecanora epibryon	+		
L. verrucosa	+		
Lecidea glomerulosa	+		
L. pallida	+		
L. stigmatica	+		
Polyblastia intercedens	+		
Protoblastenia rupestris	+		
Thamnolia subuliformis	+		
<u>Bryophytes</u>			
Campylium stellatum	+		
Dicranum elongatum	+		
Ditrichum flexicaule	+		
Hypnum procerrimum	+		
Rhytidium rugosum	+		
Tortella fragilis	+		

Site: 21. Area: Plains of Abraham. Location: $64^{\circ}33'N$, $127^{\circ}40'W$.
 Elevation: 5000 ft. Aspect: $0-2^{\circ}$. Date: June 3, 1971.
 Habitat: ridge summit with small polygons, fine gravel of limestone
 and dolomite.
 Voucher Numbers: 26608-26632.

	Cover %		Cover %
Bare rock/gravel	85		<u>Herbaceous Plants</u>
Soil	3		
Duff/peat	-	Cyperaceae/Gramineae (incl.	
Lichens	4	<i>Carex membranacea</i>	2
Bryophytes	2	<i>Draba macrocarpa</i>	+
Herbaceous vegetation	3	<i>Eriophorum angustifolium</i> ssp.	
Woody vegetation	3	<i>triste</i>	+
		<i>Juncus biglumis</i>	+
		<i>J. triglumis</i> ssp. <i>triglumis</i>	+
		<i>Minuartia rossii</i>	+
		<i>Pedicularis kanei</i> ssp. <i>kanei</i>	+
		<i>Potentilla uniflora</i>	+
		<i>Saxifraga oppositifolia</i>	+
			<u>Woody Plants</u>
<u>Lichens</u>			
<i>Cetraria tilesii</i>	1	<i>Dryas integrifolia</i>	2
<i>C. cucullata</i>	+	<i>Salix arctica</i> ssp. <i>arctica</i>	1
<i>C. elenkinii</i>	+		
<i>C. islandica</i>	+		
<i>C. nivalis</i>	+		
<i>Cladonia pocillum</i>	+		
<i>Dactylina arctica</i> PD+	+		
<i>D. ramulosa</i> PD+	+		
<i>Lecanora epibryon</i>	+		
<i>Polyblastia intercedens</i>	+		
<i>Protoblastenia rupestris</i>	+		
<i>Solorina</i> sp.	+		
<i>Thamnolia subuliformis</i>	+		
<i>Thelidium</i> cfr. <i>pyrenoporum</i>	+		
			<u>Bryophytes</u>
<u>Bryophytes</u>			
<i>Bryum</i> sp.	+		
<i>Campylium stellatum</i>	+		
<i>Ditrichum flexicaule</i>	+		
<i>Hypnum procerrimum</i>	+		

Site: 22. Area: Plains of Abraham. Location: $64^{\circ}33'N$, $127^{\circ}40'W$.
 Elevation: 4600 ft. Aspect: S 5° . Date: June 3, 1971.
 Habitat: dolomite bird rock, 4 ft high x 15 ft x 5 ft.
 Voucher Numbers: 26633-26661.

	Cover %		Cover %
Bare rock/gravel	84	<u>Herbaceous Plants</u>	
Soil	-		
Duff/peat	-	Cyperaceae/Gramineae	1
Lichens	7	Potentilla uniflora	1
Bryophytes	5	Pedicularis kanei ssp. kanei	+
Herbaceous vegetation	3	fern	+
Woody vegetation	1		
		<u>Woody Plants</u>	
		<u>Lichens</u>	
		Dryas integrifolia	1
Physcia caesia	1		
Caloplaca cinnamomea	+		
C. jungermanniae	+		
Candelariella aurella	+		
Cetraria cucullata	+		
C. nivalis	+		
C. tilesii	+		
Collema auriculatum	+		
C. polycarpon	+		
Dactylina ramulosa PD+	+		
Lecanora epibryon	+		
L. verrucosa	+		
Physcia sciastra	+		
Rhizocarpon chioneum	+		
Rinodina roscida	+		
R. turfacea	+		
Staurothele sp.	+		
Thamnolia subuliformis	+		
Toninia tristis	+		
Xanthoria elegans	+		
		<u>Bryophytes</u>	
Abietinella abietina	+		
Bryoerythrophyllum recurvirostre	+		
Bryum sp.	+		
Ditrichum flexicaule	+		
Grimmia apocarpa	+		
Hypnum vaucheri	+		
Myurella julacea	+		
Rhytidium rugosum	+		
Tortella tortuosa	+		
Tortula ruralis	+		

Site: 23. Area: Plains of Abraham. Location: $64^{\circ}32'N$, $127^{\circ}41'W$.
 Elevation: 4500 ft. Aspect: S 25° . Date: June 3, 1971.
 Habitat: steep dolomite rubble.
 Voucher Numbers: 26662-26668.

	Cover %		Cover %
Bare rock/gravel	74	<u>Herbaceous Plants</u>	
Soil	4		
Duff/peat	-	Cyperaceae/Gramineae	10
Lichens	6	Anemone parviflora	+
Bryophytes	1	Parrya nudicaulis ssp. interior	+
Herbaceous vegetation	13	Pedicularis kanei ssp. kanei	+
Woody vegetation	2	Saxifraga oppositifolia	+
<u>Lichens</u>			
		<u>Woody Plants</u>	
Cetraria tilesii	2	Rhododendron lapponicum	1
Lecanora epibryon	1	Dryas integrifolia	+
Thamnolia subuliformis	1		
Alectoria ochroleuca	+		
Evernia perfrgilis	+		
Polyblastia intercedens	+		
Rhixocarpon chioneum	+		
<u>Bryophytes</u>			
Bryum wrightii	+		

Site: 24. Area: Plains of Abraham. Location: $64^{\circ}32'N$, $127^{\circ}41'W$.
 Elevation: 4500 ft. Aspect: SE 15° . Date: June 3, 1971.
 Habitat: sedge slope with ground squirrel burrows.
 Voucher Numbers: 26669-26699.

	Cover %		Cover %
Bare rock/gravel	5	<u>Herbaceous Plants</u>	
Soil	-		
Duff/peat	-	Cyperaceae/Gramineae	71
Lichens	10	Silene acaulis ssp. acaulis	1
Bryophytes	1	Anemone parviflora	+
Herbaceous vegetation	74	Parrya nudicaulis ssp. interior	+
Woody vegetation	9	Pedicularis kanei ssp. kanei	+
		Saxifraga oppositifolia	+
<u>Lichens</u>			
Alectoria nitidula	+	<u>Woody Plants</u>	
A. ochroleuca	+		
Asahinea chrysanthia	+	Dryas integrifolia	5
Caloplaca jungermanniae	+	Rhododendron lapponicum	2
Cetraria cucullata	+	Potentilla fruticosa	1
C. islandica	+	Arctostaphylos rubra	+
C. laevigata	+	Cassiope tetragona ssp. tetragona	+
C. nivalis	+	Salix reticulata ssp. reticulata	+
C. tilesii	+		
Cladina arbuscula ssp. beringiana	+		
Cladonia amaurocraea	+		
C. pocillum	+		
Cornicularia aculeata	+		
Dactylina arctica PD-	+		
D. ramulosa PD+	+		
Evernia perfragilis	+		
Lecanora epibryon	+		
Lecidea glomerulosa	+		
L. pallida	+		
Ochrolechia frigida	+		
Physconia muscigena	+		
Solorina bispora	+		
Thamnolia subuliformis	+		
<u>Bryophytes</u>			
Abietinella abietina	+		
Distichium capillaceum	+		
Rhytidium rugosum	+		

Site: 25. Area: Plains of Abraham. Location: $64^{\circ}32'N$, $127^{\circ}42'W$.
 Elevation: 4500 ft. Aspect: S 5° . Date: June 3, 1971.
 Habitat: Betula nana ssp. exilis copse, 40 x 10 ft in size.
 Voucher Numbers: 26700-26725.

	Cover %		Cover %
Bare rock/gravel	3	<u>Herbaceous Plants</u>	
Soil	2		
Duff/peat	-	Cyperaceae/Gramineae	5
Lichens	6		
Bryophytes	40	<u>Woody Plants</u>	
Herbaceous vegetation	5		
Woody vegetation	44	Betula nana ssp. exilis	40
		Arctostaphylos rubra	1
<u>Lichens</u>		Dryas integrifolia	1
Alectoria ochroleuca	+	Potentilla fruticosa	1
Asahinea chrysanthia	+	Rhododendron lapponicum	1
Cetraria cucullata	+		
C. islandica	+		
C. laevigata	+		
C. nivalis	+		
C. pinastri	+		
C. sepincola	+		
C. tilesii	+		
Cladina arbuscula ssp. beringiana	+		
Cladonia amaurocraea	+		
C. pocillum	+		
Dactylina ramulosa PD+	+		
Hypogymnia physodes	+		
Lecanora epibryon	+		
L. varia	+		
Lecidea glomerulosa	+		
Ochrolechia upsaliensis	+		
Parmeliopsis ambigua	+		
Physconia muscigena	+		
Thamnolia subuliformis	+		
<u>Bryophytes</u>			
Rhytidium rugosum	37		
Abietinella abietina	+		
Brachythecium salebrosum	+		
Dicranum fuscescens	+		
Ditrichum flexicaule	+		
Polytrichum juniperinum	+		
Tomenthypnum nitens	+		

Site: 26. Area: Plains of Abraham. Location: $64^{\circ}32'N$, $127^{\circ}42'W$.
 Elevation: 4500 ft. Aspect: SW 35° . Date: June 3, 1971.
 Habitat: talus slope with large dolomite blocks and some chert and quartzite.
 Voucher Numbers: 26726-26730.

	Cover %		Cover %
Bare rock/gravel	96	<u>Lichens</u>	
Soil	-		
Duff/peat	-	<i>Agyrophora rigida</i>	+
Lichens	4	<i>Lecidea armeniaca</i>	+
Bryophytes	-	<i>Rhizocarpon</i> sp. (green)	+
Herbaceous vegetation	-	<i>R. chionaeum</i>	+
Woody vegetation	-	<i>R. polycarpum</i>	+
		<i>Sporastatia testudinea</i>	+

Site: 27. Area: Plains of Abraham. Location: $64^{\circ}33'N$, $127^{\circ}43'W$.
 Elevation: 4600 ft. Aspect: S $0-3^{\circ}$. Date: June 4, 1971.
 Habitat: moist mossy ground beside slow-flowing ponded stream.
 Voucher Numbers: 26731-26761.

	Cover %		Cover %
Bare rock/gravel	2	<u>Bryophytes</u>	
Soil	-	Aulacomnium turgidum	39
Duff/peat	-	Hylocomium splendens	5
Lichens	18	Tomentypnum nitens	5
Bryophytes	54	Ptilidium ciliare	3
Herbaceous vegetation	16	Anastrophyllum minutum	+
Woody vegetation	10	Blepharostoma trichophyllum	+
<u>Lichens</u>			
Cetraria cucullata	5	Dicranum fuscescens	+
Dactylina arctica PD+	4	Lophozia barbata	+
Cetraria richardsonii	2	Rhytidium rugosum	+
C. islandica	1	Solenostoma sp.	+
C. nivalis	1	<u>Herbaceous Plants</u>	
Thamnolia subuliformis	1	Cyperaceae/Gramineae	15
Alectoria nigricans	+	Pedicularis kanei ssp. kanei	+
A. ochroleuca	+	Saxifraga oppositifolia	+
Asahinea chrysanthia	+	<u>Woody Plants</u>	
Buellia papillata	+	Cassiope tetragona ssp.	
Caloplaca jungermanniae	+	tetragona	6
Cetraria elenkinii	+	Dryas integrifolia	3
C. tilesii	+	Salix sp.	+
Cladina arbuscula ssp.	+		
beringiana			
Cladonia amaurocraea	+		
C. pyxidata	+		
C. uncialis	+		
Cornicularia divergens	+		
Dactylina ramulosa PD+	+		
Lecanora epibryon	+		
Lecidea glomerulosa	+		
L. vernalis	+		
Peltigera leucophlebia	+		
Pertusaria dactylina	+		
Physcia constipata	+		
Physconia muscigena	+		

Site: 28. Area: Mt. Clark. Location: $64^{\circ}24'N$, $124^{\circ}12'W$.
 Elevation: 3700 ft. Aspect: level. Date: June 4, 1971.
 Habitat: rocky saddle with quartzite rock and numerous erratics of diorite, granite and schist up to 3 ft in diameter.
 Voucher Numbers: 26762-26825.

	Cover %		Cover %
Bare rock/gravel	42	<i>L. macrocarpa</i>	+
Soil	2	<i>L. vorticosa</i>	+
Duff/peat	-	<i>Parmelia alpicola</i>	+
Lichens	41	<i>P. centrifuga</i>	+
Bryophytes	1	<i>P. omphalodes</i>	+
Herbaceous vegetation	5	<i>P. separata</i>	+
Woody vegetation	9	<i>Peltigera spuria</i>	+
<u>Lichens</u>			
<i>Alectoria ochroleuca</i>	7	<i>Rinodina turfacea</i>	+
<i>Lecidea armeniaca</i>	6	<i>Sporastatia testudinea</i>	+
<i>Cetraria cucullata</i>	5	<i>Thamnolia subuliformis</i>	+
<i>C. nivalis</i>	5	<i>Tominia tristis</i>	+
<i>C. laevigata</i>	3	<i>Umbilicaria cylindrica</i>	+
<i>Rhizocarpon geographicum</i>	3	<i>U. hyperborea</i>	+
<i>Umbilicaria proboscidea</i>	2		
<i>Agyrophora rigida</i>	1	<u>Bryophytes</u>	
<i>Cetraria nigricans</i>	1		
<i>Alectoria chalybeiformis</i>	+	<i>Anastrophyllum minutum</i>	+
<i>A. minuscula</i>	+	<i>Chandonanthus setiformis</i>	+
<i>A. nigricans</i>	+	<i>Dicranum fuscescens</i>	+
<i>A. subdivergens</i>	+	<i>Ditrichum flexicaule</i>	+
<i>Asahinea chrysantha</i>	+	<i>Encalypta rhaftocarpa</i>	+
<i>Candelariella vitellina</i>	+	<i>Grimmia apocarpa</i>	+
<i>Cetraria richardsonii</i>	+	<i>Pohlia nutans</i>	+
<i>C. tilesii</i>	+	<i>Polytrichum juniperinum</i>	+
<i>Cladina alpestris</i>	+	<i>P. piliferum</i>	+
<i>C. arbuscula</i> ssp. <i>beringiana</i>	+	<i>Rhacomitrium lanuginosum</i>	+
<i>C. rangiferina</i>	+		
<i>Cladonia amaurocraea</i>	+	<u>Herbaceous Plants</u>	
<i>C. chlorophaeae</i>	+		
<i>C. macrophyllodes</i>	+	<i>Cyperaceae/Gramineae</i>	4
<i>C. metacorallifera</i>	+	<i>Pedicularis kanei</i> ssp. <i>kanei</i>	+
<i>C. pocillum</i>	+	<i>Potentilla uniflora</i>	+
<i>Cornicularia divergens</i>	+		
<i>Dactylina arctica</i> PD-	+	<u>Woody Plants</u>	
<i>Haematomma lapponicum</i>	+		
<i>Lecanora alpina</i>	+	<i>Dryas integrifolia</i>	4
<i>L. polytropa</i>	+	<i>Arctostaphylos rubra</i>	2
<i>L. thomsonii</i>	+	<i>Salix</i> sp.	2
<i>Lecidea atrobrunnea</i>	+	<i>Betula nana</i> ssp. <i>exilis</i>	+
<i>L. latypiza</i>	+	<i>Empetrum nigrum</i> ssp.	+
<i>L. lithophila</i>	+	<i>hermaphroditum</i>	+

Site: 29. Area: Mt. Clark. Location: $64^{\circ}25'N$, $124^{\circ}13'W$.
 Elevation: 4400 ft. Aspect: SE 15° . Date: June 5, 1971.
 Habitat: Cassiope tetragona - sedge community.
 Voucher Numbers: 26826-26861.

	Cover %		Cover %
Bare rock/gravel	20	<u>Bryophytes</u>	
Soil	-		
Duff/peat	-	<i>Hylocomium splendens</i>	7
Lichens	25	<i>Polytrichum juniperinum</i>	4
Bryophytes	20	<i>Dicranum scoparium</i>	3
Herbaceous vegetation	15	<i>Rhacomitrium lanuginosum</i>	2
Woody vegetation	20	<i>Dicranum fuscescens</i>	1
		<i>Aulacomnium turgidum</i>	+
		<i>Pleurozium schreberi</i>	+
		<i>Polytrichum piliferum</i>	+
		<i>Ptilidium ciliare</i>	+
		<u>Lichens</u>	
<i>Cladina arbuscula</i> ssp. beringiana	10		
<i>Cetraria richardsonii</i>	3	<u>Herbaceous Plants</u>	
<i>Dactylina arctica</i> PD-	3		
<i>Cetraria laevigata</i>	3	<i>Cyperaceae/Gramineae</i>	15
<i>Cladina rangiferina</i>	2		
<i>Alectoria ochroleuca</i>	+		
<i>Buellia alboatra</i>	+	<u>Woody Plants</u>	
<i>Cetraria cucullata</i>	+	<i>Cassiope tetragona</i> ssp. <i>tetragona</i>	16
<i>C. hepaticoides</i>	+	<i>Arctostaphylos rubra</i>	2
<i>C. nigricans</i>	+	<i>Empetrum nigrum</i> ssp. <i>hermaphroditum</i>	2
<i>C. nivalis</i>	+		
<i>C. tilesii</i>	+		
<i>Cladonia amaurocraea</i>	+		
<i>C. cariosa</i>	+		
<i>C. chlorophaeae</i>	+		
<i>C. coccifera</i>	+		
<i>C. decorticata</i>	+		
<i>C. metacorallifera</i>	+		
<i>C. pleurota</i>	+		
<i>C. uncialis</i>	+		
<i>C. verticillata</i>	+		
<i>Lecanora badia</i>	+		
<i>Parmelia centrifuga</i>	+		
<i>Peltigera malacea</i>	+		
<i>Rhizocarpon geographicum</i>	+		
<i>Rinodina roscida</i>	+		
<i>Thamnolia subuliformis</i>	+		
<i>Umbilicaria cylindrica</i>	+		

Site: 30. Area: Mt. Clark. Location: $64^{\circ}25'N$, $124^{\circ}13'W$.
 Elevation: 4500 ft. Aspect: SSW 5-10°. Date: June 5, 1971.
 Habitat: stone stripes and polygons, quartzite rock.
 Voucher Numbers: 26862-26902.

	Cover %		Cover %
Bare rock/gravel	35	<u>Bryophytes</u>	
Soil	4		
Duff/peat	-	Polytrichum juniperinum	2
Lichens	45	Racomitrium lanuginosum	2
Bryophytes	5	Dicranum fuscescens	1
Herbaceous vegetation	6	Aulacomnium turgidum	+
Woody vegetation	5	Chandonanthus setiformis	+
		Gymnomitrion coralloides	+
		Lophozia sp.	+
		Polytrichum piliferum	+
	13	P. piliferum var. hyperboreum	+
<u>Lichens</u>			
Alectoria ochroleuca			
Rhizocarpon geographicum	8		
Cetraria cucullata	6	<u>Herbaceous Plants</u>	
C. nivalis	6		
C. laevigata	2	Cyperaceae/Gramineae	5
Cladina arbuscula ssp.		Potentilla uniflora	+
beringiana	2		
Umbilicaria proboscidea	2	<u>Woody Plants</u>	
Cetraria nigricans	1		
Cornicularia divergens	1	Cassiope tetragona ssp.	
Dactylina arctica PD-	1	tetragona	4
Lecidea armeniaca	1	Arctostaphylos rubra	1
Umbilicaria cylindrica	1		
U. hyperborea	1		
Agyrophora rigida	+		
Alectoria minuscula	+		
A. nigricans	+		
Cetraria hepatizon	+		
C. richardsonii	+		
Cladina rangiferina	+		
Cladonia amaurocraea	+		
C. coccifera	+		
C. decorticata	+		
Haematomma lapponicum	+		
Lecanora alpina	+		
Lecidea auriculata	+		
Parmelia alpicola	+		
P. centrifuga	+		
P. separata	+		
Pertusaria bryontha	+		
Sporastatia testudinea	+		
Thamnolia subuliformis	+		
Umbilicaria deusta	+		

Site: 31. Area: Mt. Clark. Location: $64^{\circ}25'N$, $124^{\circ}13'W$.
 Elevation: 4500 ft. Aspect: SW 5° . Date: June 5, 1971.
 Habitat: hummocky wet meadow.
 Voucher Numbers: 26903-26932, 27010.

	Cover %		Cover %
Bare rock/gravel	2	<u>Bryophytes</u>	
Soil	5		
Duff/peat	-	Aulacomnium turgidum	8
Lichens	20	Sphagnum girgensohnii	8
Bryophytes	38	Polytrichum juniperinum var.	
Herbaceous vegetation	30	gracilius	6
Woody vegetation	5	Hylocomium splendens	4
<u>Lichens</u>			
Cetraria cucullata	4	Dicranum fuscescens	2
C. nivalis	4	Drepanocladus sp.	2
Cladonia uncialis	4	Sphagnum warnstorffii	2
Cladina rangiferina	3	Calliergon sarmentosum	1
Alectoria ochroleuca	1	Rhacomitrium lanuginosum	1
Cetraria laevigata	1	Anastrophyllum minutum	+
Cladonia amaurocraea	1	Ceratodon purpureus	+
Coriscium viride	1	Dicranum scoparium	+
Dactylina arctica PD-	1	Lophozia sp.	+
Cetraria richardsonii	+	Pleurozium schreberi	+
Cladina arbuscula ssp.		Polytrichum juniperinum	+
beringiana	+	Rhizomnium andrewsianum	+
Cladonia cenotea	+	<u>Herbaceous Plants</u>	
C. coccifera	+	Cyperaceae/Gramineae	30
C. deformis	+	Lycopodium selago ssp. selago	+
C. gonecha	+	<u>Woody Plants</u>	
Peltigera polydactyla	+	Cassiope tetragona ssp.	
Pertusaria bryontha	+	tetragona	2
Thamnolia subuliformis	+	Salix sp.	2
		Arctostaphylos rubra	1

Site: 32. Area: Mt. Clark. Location: $64^{\circ}25'N$, $124^{\circ}13'W$.
 Elevation: 4750 ft. Aspect: level. Date: June 5, 1971.
 Habitat: hummocky wet meadow with projecting quartzite rocks.
 Voucher Numbers: 26933-26974.

	Cover %		Cover %
Bare rock/gravel	20	<u>Bryophytes</u>	
Soil	8	Aulacomnium turgidum	4
Duff/peat	-	Hylocomium splendens	4
Lichens	20	Polytrichum juniperinum var.	
Bryophytes	25	gracilius	4
Herbaceous vegetation	25	Sphagnum warnstorffii	3
Woody vegetation	2	Dicranum fuscescens	2
		Drepanocladus revolvens	1
<u>Lichens</u>		Hypnum callichroum	1
Cetraria cucullata	5	Anastrophyllum minutum	+
Rhizocarpon superficiale	4	Calliergon stramineum	+
Cetraria laevigata	2	Plagiomnium medium	+
Cladonia uncialis	2	Ptilidium ciliare	+
Cladina rangiferina	1	Rhacomitrium heterostichum	
Dactylina arctica PD-	1	var. microcarpon	+
Agyrophora rigida	+		
Alectoria nigricans	+	<u>Herbaceous Plants</u>	
A. minuscula	+	Cyperaceae/Gramineae	24
A. ochroleuca	+	others	1
Cetraria hepaticoides	+		
C. richardsonii	+	<u>Woody Plants</u>	
Cladina arbuscula ssp.		Salix sp.	1
beringiana	+	Arctostaphylos rubra	+
Cladonia amaurocraea	+		
C. cariosa	+		
C. coccifera	+		
Coriscium viride	+		
Cornicularia divergens	+		
Haematomma lapponicum	+		
Hypogymnia intestiniformis	+		
Icmadophila ericetorum	+		
Lecanora badia	+		
L. polytropa	+		
Lecidea armeniaca	+		
L. macrocarpa	+		
Sporastatia testudinea	+		
Umbilicaria cylindrica	+		
U. hyperborea	+		
U. proboscidea	+		

Site: 33. Area: Mt. Clark. Location: $64^{\circ}25'N$, $124^{\circ}13'W$.
 Elevation: 4750 ft. Aspect: level. Date: June 5, 1971.
 Habitat: patterned ground with polygons, summit of Mt. Clarke.
 Voucher Numbers: 26975-27009.

	Cover %		Cover %
Bare rock/gravel	43	<u>Bryophytes</u>	
Soil	4	Dicranum fuscescens	2
Duff/peat	-	Polytrichum juniperinum var.	
Lichens	40	gracilius	2
Bryophytes	6	Rhacomitrium lanuginosum	1
Herbaceous vegetation	4	Anastrophyllum minutum	+
Woody vegetation	3	Chandonanthus setiformis	+
		Polygonatum alpinum	+
<u>Lichens</u>		Pohlia nutans	+
Cetraria cucullata	10	Polytrichum piliferum	+
Rhizocarpon sp. (green)	8		
Lecidea armeniaca	7	<u>Herbaceous Plants</u>	
Alectoria ochroleuca	3	Cyperaceae/Gramineae	3
Umbilicaria proboscidea	2	Potentilla uniflora	+
Agyrophora rigida	1		
Cetraria nivalis	1	<u>Woody Plants</u>	
Alectoria nigricans	+	Salix sp.	1
Cetraria hepaticoides	+	Arctostaphylos rubra	+
C. laevigata	+	Cassiope tetragona ssp.	
C. nigricans	+	tetragona	+
Cladina arbuscula ssp.		Empetrum nigrum ssp.	
beringiana	+	hermaphroditum	+
Cladonia amaurocraea	+		
C. coccifera	+		
Cornicularia divergens	+		
Dactylina arctica PD-	+		
Haematomma lapponicum	+		
Lecanora thomsonii	+		
Lecidea demissa	+		
L. flavocaerulescens	+		
L. lulensis	+		
L. macrocarpa	+		
Parmelia separata	+		
Pertusaria bryontha	+		
P. dactylina	+		
Sporastatia testudinea	+		
Thamnolia subuliformis	+		
Umbilicaria cylindrica	+		
U. hyperborea	+		

Site: 34. Area: Mt. Clark. Location: $64^{\circ}25'N$, $124^{\circ}13'W$.
 Elevation: 4800 ft. Aspect: NW 5° . Date: June 5, 1971.
 Habitat: wet meadow, 300 x 150 yds, with a few shallow ponds.
 Voucher Numbers: 27011-27042.

	Cover %		Cover %
Bare rock/gravel	-	<u>Bryophytes</u>	
Soil	1		
Duff/peat	-	<i>Hylocomium splendens</i>	25
Lichens	4	<i>Sphagnum girgensohnii</i>	10
Bryophytes	57	<i>S. warnstorffii</i>	10
Herbaceous vegetation	35	<i>Aulacomnium turgidum</i>	3
Woody vegetation	2	<i>Polytrichum juniperinum</i> var. <i>gracilius</i>	3
<u>Lichens</u>			
<i>Dactylina arctica</i> PD-	1	<i>Lophozia</i> spp.	1
<i>Alectoria ochroleuca</i>	+	<i>Blepharostoma trichophyllum</i>	+
<i>Cetraria cucullata</i>	+	<i>Brachythecium turgidum</i>	+
<i>C. laevigata</i>	+	<i>Bryum calophyllum</i>	+
<i>C. nivalis</i>	+	<i>B. pseudotriquetrum</i>	+
<i>Cladonia amaurocraea</i>	+	<i>Dicranum fuscescens</i>	+
<i>C. cenotea</i>	+	<i>Drepanocladus revolvens</i>	+
<i>C. cornuta</i>	+	<i>Paludella squarrosa</i>	+
<i>C. deformis</i>	+	<i>Scapania irrigua</i>	+
<i>C. gonecha</i>	+		
<i>Coriscium viride</i>	+	<u>Herbaceous Plants</u>	
<i>Cornicularia divergens</i>	+		
<i>Peltigera aphthosa</i>	+	<i>Eriophorum callitrix</i>	25
<i>P. polydactyla</i>	+	<i>Cyperaceae/Gramineae</i>	10
<i>P. scabrosa</i>	+		
<u>Woody Plants</u>			
		<i>Salix pulchra</i>	2

Site: 35. Area: Mt. Clark. Location: $64^{\circ}25'W$, $124^{\circ}14'W$.
 Elevation: 4400 ft. Aspect: N 30° . Date: June 5, 1971.
 Habitat: talus slope with large quartzite boulders.
 Voucher Numbers: 27044-27082.

	Cover %		Cover %
Bare rock/gravel	36	<u>Bryophytes</u>	
Soil	-	Rhacomitrium lanuginosum	2
Duff/peat	-	Chandonanthus setiformis	+
Lichens	60	Dicranum fuscescens	+
Bryophytes	4	Ditrichum flexicaule	+
Herbaceous vegetation	-	Orthotrichum rupestre	+
Woody vegetation	-	Pohlia nutans	+
<u>Lichens</u>		Polytrichum commune	+
		Tetraplodon mnioides	+
Rhizocarpon superficiale	20		
Lecidea armeniaca	15		
Agyrophora rigida	6		
Lecanora alpina	5		
Umbilicaria proboscidea	3		
Parmelia saxatilis	2		
Cetraria cucullata	1		
Cladina alpestris	1		
Umbilicaria hyperborea	1		
Alectoria minuscula	+		
A. ochroleuca	+		
Cetraria hepatizon	+		
C. laevigata	+		
C. nigricans	+		
C. nivalis	+		
C. tilesii	+		
Cladonia amaurocraea	+		
C. coccifera	+		
C. fimbriata	+		
C. pleurota	+		
C. squamosa	+		
Cornicularia divergens	+		
Dactylina arctica PD-	+		
Haematomma lapponicum	+		
Hypogymnia intestiniformis	+		
Lecidea flavocaerulescens	+		
Ochrolechia geminipara	+		
Parmelia alpicola	+		
P. omphalodes	+		
P. separata	+		
Sporastatia testudinea	+		

Site: 36. Area: Mt. Clark. Location: $64^{\circ}24'N$, $124^{\circ}12'W$.
 Elevation: 3900 ft. Aspect: N $0-10^{\circ}$. Date: June 6, 1971.
 Habitat: rocky saddle of ridge.
 Voucher Numbers: 27083-27127.

	Cover %		Cover %
Bare rock/gravel	40	<i>Hypogymnia intestiniformis</i>	+
Soil	-	<i>Lecidea flavocaerulescens</i>	+
Duff/peat	-	<i>Ochrolechia frigida</i>	+
Lichens	48	<i>Parmelia alpicola</i>	+
Bryophytes	4	<i>P. centrifuga</i>	+
Herbaceous vegetation	5	<i>P. omphalodes</i>	+
Woody vegetation	3	<i>P. saxatilis</i>	+
		<i>P. separata</i>	+
<u>Lichens</u>			
<i>Cetraria cucullata</i>	8		
<i>Lecidea armeniaca</i>	8	<i>Rhacomitrium lanuginosum</i>	2
<i>Rhizocarpon crystalligenum</i>	6	<i>Polytrichum juniperinum</i>	1
<i>R. geographicum</i>	4	<i>Chandonanthus setiformis</i>	+
<i>Cornicularia divergens</i>	3	<i>Dicranum fuscescens</i>	+
<i>Agyrophora rigida</i>	2	<i>Polytrichum piliferum</i>	+
<i>Cladina arbuscula</i> ssp. beringiana	2	<i>Ptilidium ciliare</i>	+
<i>Umbilicaria proboscidea</i>	2		
<i>Alectoria ochroleuca</i>	1		
<i>Asahinea chrysantha</i>	1	<i>Cyperaceae/Gramineae</i>	3
<i>Cetraria nivalis</i>	1	<i>Potentilla uniflora</i>	1
<i>Lecanora thomsonii</i>	1	<i>Minuartia</i> sp.	+
<i>Thamnolia subuliformis</i>	1		
<i>Umbilicaria hyperborea</i>	1		
<i>Alectoria chalybeiformis</i>	+		
<i>A. minuscula</i>	+	<i>Arctostaphylos rubra</i>	2
<i>A. nigricans</i>	+	<i>Cassiope tetragona</i> ssp. tetragona	+
<i>A. pubescens</i>	+	<i>Dryas integrifolia</i>	+
<i>Buellia alboatra</i>	+	<i>Empetrum nigrum</i> ssp. <i>hermaphroditum</i>	+
<i>Cetraria hepatizon</i>	+		
<i>C. laevigata</i>	+		
<i>C. nigricans</i>	+		
<i>C. tilesii</i>	+		
<i>Cladina alpestris</i>	+		
<i>C. rangiferina</i>	+		
<i>Cladonia amaurocraea</i>	+		
<i>C. chlorophaea</i>	+		
<i>C. coccifera</i>	+		
<i>C. decorticata</i>	+		
<i>C. pleurota</i>	+		
<i>C. squamosa</i>	+		
<i>C. uncialis</i>	+		
<i>Dactylina arctica</i> PD-	+		
<i>Haematomma lapponicum</i>	+		

Site: 37. Area: Mt. Clark. Location: $64^{\circ}24'N$, $124^{\circ}12'W$.
 Elevation: 4000 ft. Aspect: NW 30° . Date: June 6, 1971.
 Habitat: cave in large quartzite blocks, depth 20 ft.
 Voucher Numbers: 27128-27137.

	Cover %		Cover %
Bare rock/gravel	93	<u>Bryophytes</u>	
Soil	-		
Duff/peat	-	<i>Ceratodon cfr. purpureus</i>	+
Lichens	2	<i>Chandonanthus setiformis</i>	+
Bryophytes	5	<i>Dicranum scoparium</i>	+
Herbaceous vegetation	-	<i>Ditrichum flexicaule</i>	+
Woody vegetation	-	<i>Lophozia sp.</i>	+
		<i>Pohlia nutans</i>	+
<u>Lichens</u>			
<i>Parmelia omphalodes</i>	1		
<i>Alectoria ochroleuca</i>	+		
<i>Cladonia glauca</i>	+		
<i>Cornicularia divergens</i>	+		

Site: 38. Area: Mt. Clark. Location: $64^{\circ}24'N$, $124^{\circ}12'W$.
 Elevation: 4200 ft. Aspect: $0-5^{\circ}$. Date: June 6, 1971.
 Habitat: exposed ridge top.
 Voucher Numbers: 27137-27181.

	Cover %		Cover %
Bare rock/gravel	35	P. saxatilis	+
Soil	-	P. separata	+
Duff/peat	-	Sporastatia testudinea	+
Lichens	54	Thamnolia subuliformis	+
Bryophytes	4		
Herbaceous vegetation	4		<u>Bryophytes</u>
Woody vegetation	3		
<u>Lichens</u>			
Cetraria cucullata	15	Chandonanthus setiformis	1
Rhizocarpon geographicum	6	Polytrichum juniperinum var. gracilius	1
Alectoria ochroleuca	5	Rhacomitrium lanuginosum	1
Cetraria nivalis	5	Dicranum fuscescens	+
Umbilicaria proboscidea	3	Polytrichum piliferum	+
Lecidea armeniaca	2	Ptilidium ciliare	+
Rhizocarpon crystalligenum	2		<u>Herbaceous Plants</u>
R. superficiale	2	Cyperaceae/Gramineae	3
Agyrophora rigida	1	Potentilla uniflora	1
Cetraria laevigata	1		<u>Woody Plants</u>
Cladina arbuscula ssp. beringiana	1	Arctostaphylos rubra	3
C. rangiferina	1		
Cladonia amaurocraea	1		
Dactylina arctica PD-	1		
Cornicularia divergens	1		
Haematomma lapponicum	1		
Parmelia centrifuga	1		
Umbilicaria hyperborea	1		
Alectoria minuscula	+		
A. nigricans	+		
A. pubescens	+		
Cetraria hepatizon	+		
C. nigricans	+		
Cladina alpestris	+		
Cladonia deformis	+		
C. merochlorophaea	+		
C. metacorallifera	+		
C. pyxidata	+		
C. squamosa	+		
C. uncialis	+		
Lecidea demissa	+		
L. macrocarpa	+		
Parmelia alpicola	+		
P. omphalodes	+		

Site: 39. Area: Mt. Clark. Location: $64^{\circ}24'N$, $124^{\circ}12'W$.
 Elevation: 4100 ft. Aspect: S $15-20^{\circ}$. Date: June 6, 1971.
 Habitat: Exposed ridge.
 Voucher Numbers: 27182-27246.

	Cover %		Cover %
Bare rock/gravel	53	<i>L. thomsonii</i>	+
Soil	4	<i>Lecidea atrobrunnea</i>	+
Duff/peat	-	<i>L. macrocarpa</i>	+
Lichens	31	<i>Ochrolechia frigida</i>	+
Bryophytes	3	<i>O. inaequatula</i>	+
Herbaceous vegetation	6	<i>O. upsaliensis</i>	+
Woody vegetation	3	<i>Parmelia omphalodes</i>	+
		<i>P. separata</i>	+
		<i>Pertusaria dactylina</i>	+
		<i>Rinodina turfacea</i>	+
		<i>Sporastatia testudinea</i>	+
		<i>Thamnolia subuliformis</i>	+
<u>Lichens</u>			
<i>Rhizocarpon crystallinum</i>	6		
<i>Cetraria cucullata</i>	3		
<i>Lecidea armeniaca</i>	3		
<i>Agyrophora rigida</i>	2		
<i>Cetraria nivalis</i>	2		
<i>Parmelia alpicola</i>	2	<u>Bryophytes</u>	
<i>Rhizocarpon geographicum</i>	2	<i>Polytrichum juniperinum</i>	1
<i>Umbilicaria proboscidea</i>	2	<i>Dicranum fuscescens</i>	+
<i>Alectoria ochroleuca</i>	1	<i>Encalypta rhaftocarpa</i>	+
<i>Cetraria laevigata</i>	1	<i>Gymnomitrion coralloides</i>	+
<i>Haematomma lapponicum</i>	1	<i>Polytrichum piliferum</i>	+
<i>Parmelia centrifuga</i>	1	<i>Ptilidium ciliare</i>	+
<i>Stereocaulon saxatile</i>	1	<i>Rhacomitrium lanuginosum</i>	+
<i>Umbilicaria hyperborea</i>	1	<i>Rhytidium rugosum</i>	+
<i>Alectoria minuscula</i>	+		
<i>A. nigricans</i>	+		
<i>Cladina arbuscula</i> ssp. <i>beringiana</i>	+	<u>Herbaceous Plants</u>	
<i>C. rangiferina</i>	+	<i>Cyperaceae/Gramineae</i>	2
<i>Cladonia amaurocraea</i>	+	<i>Potentilla uniflora</i>	1
<i>C. coccifera</i>	+	<i>Antennaria friesiana</i> ssp. <i>compacta</i>	1
<i>C. deformis</i>	+	<i>Anemone drummondii</i>	+
<i>C. gonecha</i>	+	<i>Draba fladnizensis</i>	+
<i>C. gracilis</i> var. <i>dilatata</i>	+	<i>Luzula confusa</i>	+
<i>C. metacorallifera</i>	+	<i>Sibbaldia procumbens</i>	+
<i>C. pyxidata</i>	+	<i>Silene acaulis</i> ssp. <i>acaulis</i>	+
<i>C. squamosa</i>	+		
<i>C. subfurcata</i>	+		
<i>C. uncialis</i>	+	<u>Woody Plants</u>	
<i>C. verticillata</i>	+	<i>Arctostaphylos rubra</i>	1
<i>Cornicularia divergens</i>	+	<i>Empetrum nigrum</i> ssp. <i>hermaphroditum</i>	1
<i>Dactylina arctica</i> PD-	+	<i>Rhododendron lapponicum</i>	1
<i>Hypogymnia austeroedes</i>	+	<i>Salix pulchra</i>	1
<i>H. intestiniformis</i>	+	<i>Dryas integrifolia</i>	+
<i>Lecanora alpina</i>	+		
<i>L. polytropa</i>	+		

Site: 40. Area: Mt. Clark. Location: $64^{\circ}24'N$, $124^{\circ}12'W$.
 Elevation: 4000 ft. Aspect: S 30° . Date: June 6, 1971.
 Habitat: Dryas integrifolia community.
 Voucher Numbers: 27247-27301.

	Cover %	Cover %	
Bare rock/gravel	10	Physconia muscigena	+
Soil	5	Rinodina turfacea	+
Duff/peat	-	Sporastatia testudinea	+
Lichens	22	Thamnolia subuliformis	+
Bryophytes	3	Umbilicaria hyperborea	+
Herbaceous vegetation	17	U. polyphylla	+
Woody vegetation	43		
		<u>Bryophytes</u>	
		<u>Lichens</u>	
Rhizocarpon geographicum	5	Dicranum fuscescens	+
Cetraria cucullata	3	Polytrichum piliferum	+
Cladonia pocillum	3	Rhytidium rugosum	+
Agyrophora rigida	1	Tortella fragilis	+
Alectoria ochroleuca	1		
Cetraria nivalis	1	<u>Herbaceous Plants</u>	
C. tilesii	1	Cyperaceae/Gramineae	10
Ochrolechia upsaliensis	1	Anemone drummondii	3
Umbilicaria proboscidea	1	Lupinus arcticus	1
Alectoria chalybeiformis	+	Androsace chamaejasme ssp.	
A. minuscula	+	lehmanniana	+
A. nigricans	+	Draba fladnizensis	+
Asahinea chrysantha	+	D. nivalis	+
Caloplaca jungermanniae	+	Oxyria digyna	+
Cetraria hepaticoides	+	Potentilla uniflora	+
C. laevigata	+	Saxifraga tricuspidata	+
Cladina arbuscula ssp.			
beringiana	+	<u>Woody Plants</u>	
Cladonia amaurocraea	+	Dryas integrifolia	40
C. chlorophaea	+	Salix reticulata ssp.	
C. coccifera	+	reticulata	2
Cornicularia divergens	+	Potentilla fruticosa	1
Dactylina arctica PD+	+		
Hypogymnia austerores	+		
H. intestiniformis	+		
H. physodes	+		
Lecanora epibryon	+		
Lecidea armeniaca	+		
L. atrobrunnea	+		
L. glomerulosa	+		
Parmelia omphalodes	+		
P. saxatilis	+		
Peltigera praetextata	+		
Pertusaria panyrga	+		
P. trochisea	+		

Site: 41. Area: Mt. Clark. Location: $64^{\circ}24'N$, $124^{\circ}12'W$.
 Elevation: 3700 ft. Aspect: SW $5-10^{\circ}$. Date: June 6, 1971.
 Habitat: rock ravine.
 Voucher Numbers: 27302-27350

	Cover %		Cover %
Bare rock/gravel	32	P. saxatilis	+
Soil	-	Rhizocarpon badioatrum	+
Duff/peat	-	Sporastatia testudinea	+
Lichens	31	Stereocaulon saxatile	+
Bryophytes	9	Thamnolia subuliformis	+
Herbaceous vegetation	9	Umbilicaria proboscidea	+
Woody vegetation	19		
		<u>Bryophytes</u>	
		<u>Lichens</u>	
Cetraria nivalis	5	Sphagnum warnstorffii	3
C. cucullata	3	Dicranum fuscescens	2
Lecidea armeniaca	3	Polytrichum juniperinum var. gracilius	2
Alectoria ochroleuca	2	P. piliferum	1
Cetraria richardsonii	2	Aulacomnium turgidum	+
C. laevigata	2	Chandonanthus setiformis	+
Cladina rangiferina	2	Dicranum scoparium	+
Cetraria hepaticoides	1	Hylocomium splendens	+
Cladina alpestris	1	Kiaeria blyttii	+
C. mitis	1	Polytrichum juniperinum	+
Cladonia cornuta	1	Ptilidium ciliare	+
Rhizocarpon eupetraeoides	1	Rhacomitrium lanuginosum	+
R. geographicum	1		
R. superficiale	1	<u>Herbaceous Plants</u>	
Umbilicaria cylindrica	1		
U. hyperborea	1	Cyperaceae/Gramineae	8
Alectoria nigricans	+	Lycopodium selago ssp. selago	+
Cetraria nigricans	+	Pedicularis kanei ssp. kanei	+
C. simmonsii	+		
C. tilesii	+	<u>Woody Plants</u>	
Cladonia amaurocraea	+		
C. coccifera	+	Cassiope tetragona ssp. tetragona	8
C. gonecha	+	Empetrum nigrum ssp. hermaphroditum	6
C. metacorallifera	+	Arctostaphylos rubra	2
C. pleurota	+	Betula nana ssp. exilis	1
C. uncialis	+	Dryas integrifolia	1
Cornicularia divergens	+		
Dactylina arctica PD+	+		
D. arctica PD-	+		
Haematomma lapponicum	+		
Hypogymnia intestiniformis	+		
Icmadophila ericetorum	+		
Lecanora badia	+		
Lecidea granulosa	+		
Parmelia alpicola	+		

Site: 42. Area: Mackenzie River Lowlands. Location: 65 miles
 WNW of Norman Wells, Sans Sault Rapids, $65^{\circ}40'N$, $128^{\circ}50'W$.
 Elevation: 200 ft. Habitat: stunted *Picea glauca* woods.
 Voucher Numbers: 27351-27385. Date: June 7, 1971.

<u>Species present</u>	<u>Species present</u>
<u>Lichens</u>	
<i>Alectoria glabra</i>	<i>Ptilidium ciliare</i>
<i>Anaptychia kaspica</i>	<i>Rhytidiodelphus triquetrus</i>
<i>Caloplaca holocarpa</i>	<i>Tomenthypnum nitens</i>
<i>Candelariella aurella</i>	
<i>Cetraria nivalis</i>	
<i>C. pinastri</i>	
<i>Cladina alpestris</i>	
<i>C. arbuscula</i> ssp. <i>beringiana</i>	
<i>C. rangiferina</i>	
<i>Cladonia amaurocraea</i>	
<i>C. bacillaris</i>	
<i>C. botrytes</i>	
<i>C. cenotea</i>	
<i>C. coccifera</i>	
<i>C. coniocraea</i>	
<i>C. cornuta</i>	
<i>C. deformis</i>	
<i>C. gonecha</i>	
<i>C. gracilis</i> var. <i>dilatata</i>	
<i>Evernia mesomorpha</i>	
<i>Hypogymnia austeroedes</i>	
<i>H. physodes</i>	
<i>Lecanora coilocarpa</i>	
<i>Lecidea glomerulosa</i>	
<i>Parmelia exasperatula</i>	
<i>P. sulcata</i>	
<i>Parmeliopsis ambigua</i>	
<i>P. hyperopta</i>	
<i>Peltigera aphthosa</i>	
<i>Physcia adscendens</i>	
<i>Ramalina fastigiata</i>	
<i>R. pollinaria</i>	
<i>Rinodina turfacea</i>	
<i>Usnea cavernosa</i>	
<i>U. glabrescens</i> ssp. <i>glabrella</i>	
<i>U. subfloridana</i>	
<u>Bryophytes</u>	
<i>Aulacomnium palustre</i>	
<i>Bryum pseudotriquetrum</i>	
<i>Dicranum fuscescens</i>	
<i>Hylocomium splendens</i>	
<i>Marchantia polymorpha</i>	
	<u>Herbaceous Plants</u>
	<i>Achillea lanulosa</i>
	<i>Epilobium angustifolium</i> ssp. <i>angustifolium</i>
	<i>Equisetum arvense</i>
	<i>E. hiemale</i>
	<i>E. scirpoide</i> s
	<i>Eriophorum</i> sp.
	<i>Geocaulon lividum</i>
	<i>Pyrola grandiflora</i>
	<i>Ranunculus</i> sp.
	<i>Rubus chamaemorus</i>
	<u>Woody Plants</u>
	<i>Alnus crispa</i> ssp. <i>crispa</i>
	<i>Andromeda polifolia</i>
	<i>Arctostaphylos rubra</i>
	<i>Betula papyrifera</i> ssp. <i>humilis</i>
	<i>Dryas integrifolia</i>
	<i>Empetrum nigrum</i> ssp. <i>hermafroditum</i>
	<i>Juniperus communis</i> ssp. <i>nana</i>
	<i>Larix laricina</i>
	<i>Ledum palustre</i> ssp. <i>groenlandicum</i>
	<i>Oxycoccus microcarpus</i>
	<i>Picea glauca</i>
	<i>P. mariana</i>
	<i>Populus balsamifera</i> ssp. <i>balsamifera</i>
	<i>Rosa acicularis</i>
	<i>Salix</i> spp.
	<i>Shepherdia canadensis</i>
	<i>Vaccinium uliginosum</i> ssp. <i>alpinum</i>
	<i>V. vitis-idaea</i> ssp. <i>minus</i>
	<i>Viburnum edule</i>

Site: 43. Area: Mackenzie River Lowlands. Location: 70 miles WNW of Norman Wells, 5 miles SW of the junction of the Mountain and Mackenzie Rivers, $65^{\circ}38'N$, $128^{\circ}59'W$. Elevation: 300 ft.

Habitat: bog area at edge of shallow lake.

Voucher Numbers: 27386-27400. Date: June 8, 1971.

	Cover %		Cover %
Bare rock/gravel	-	<u>Herbaceous Plants</u>	
Soil (mud)	8	Cyperaceae/Gramineae	10
Duff/peat	-	Menyanthes trifoliata	1
Lichens	9	Rubus chamaemorus	1
Bryophytes	30		
Herbaceous vegetation	12		
Woody vegetation	41	<u>Woody Plants</u>	
		Lichens	
Cladonia coccifera	3	Andromeda polifolia	35
Cladina mitis	2	Ledum palustre ssp. decumbens	5
Cladonia cenotea	1	Kalmia polifolia ssp. microphylla	1
C. cornuta	1		
C. deformis	1		
C. gonecha	1		
		<u>Bryophytes</u>	
Sphagnum fallax	20		
S. magellanicum	10		
Dicranum undulatum	+		

Site: 44. Area: Mackenzie River Lowlands. Location: 70 miles WNW of Norman Wells, 5 miles SW of the junction of the Mountain and Mackenzie Rivers, $65^{\circ}38'N$, $128^{\circ}59'W$. Elevation: 300 ft.

Habitat: raised palsas.

Voucher Numbers: 27401-27438

Date: June 8, 1971.

	Cover %		Cover %
Bare rock/gravel	-	<u>Bryophytes</u>	
Soil	-		
Duff/peat	-	Polytrichum juniperinum var.	
Lichens	68	gracilius	2
Bryophytes	4	Dicranum undulatum	1
Herbaceous vegetation	-	Pohlia nutans	+
Woody vegetation	28		
		<u>Woody Plants</u>	
<u>Lichens</u>			
Cladina aberrans	21	Andromeda polifolia	5
C. alpestris	21	Picea mariana	5
C. arbuscula ssp. beringiana	5	Larix laricina	4
C. rangiferina	5	Ledum palustre ssp.	4
Cladonia amaurocraea	4	groenlandicum	4
Cladina mitis	3	L. palustre ssp. decumbens	3
Cetraria nivalis	2	Vaccinium vitis-idaea ssp.	
Cladonia uncialis	1	minus	4
Hypogymnia physodes	1	Chamaedaphne calyculata	2
Lecidea glomerulosa	1	Betula glandulosa	1
Alectoria glabra	+	Betula papyrifera ssp. humilis	1
Cetraria halei	+		
C. pinastri	+		
Cladonia bacillaris	+		
C. botrytes	+		
C. cenotea	+		
C. coccifera	+		
C. cornuta	+		
C. deformis	+		
C. gonecha	+		
C. gracilis var. dilatata	+		
Evernia mesomorpha	+		
Hypogymnia austerores	+		
Icmadophila ericetorum	+		
Lecanora coilocarpa	+		
Parmelia sulcata	+		
Parmeliopsis aleurites	+		
P. ambigua	+		
Peltigera aphthosa	+		
P. malacea	+		
Usnea glabrescens ssp.			
glabrella	+		

Site: 45. Area: Mackenzie River Lowlands. Location: 70 miles WNW of Norman Wells, 5 miles SW of the junction of the Mountain and Mackenzie Rivers, $65^{\circ}38'N$, $128^{\circ}59'W$. Elevation: 300 ft.

Habitat: Picea mariana woods.

Voucher Numbers: 27439-27467.

Date: June 8, 1971.

	Cover %		Cover %
Bare rock/gravel	-	<u>Bryophytes</u>	
Soil	-		
Duff/peat	-	<i>Hylocomium splendens</i>	34
Lichens	4	<i>Dicranum undulatum</i>	+
Bryophytes	35	<i>Drepanocladus revolvens</i>	+
Herbaceous vegetation	1	<i>D. uncinatus</i>	+
Woody vegetation	60	<i>Ptilidium ciliare</i>	+
		<i>Ptilium crista-castrensis</i>	+
<u>Lichens</u>			
		<u>Herbaceous Plants</u>	
<i>Cladonia amaurocraea</i>	1	<i>Geocaulon lividum</i>	+
<i>Peltigera aphthosa</i>	1	<i>Pyrola grandiflora</i>	+
<i>Alectoria glabra</i>	+		
<i>Cetraria halei</i>	+	<u>Woody Plants</u>	
<i>C. pinastri</i>	+		
<i>Cladonia cornuta</i>	+	<i>Picea mariana</i>	51
<i>Evernia mesomorpha</i>	+	<i>Betula papyrifera</i> ssp. <i>humilis</i>	5
<i>Hypogymnia austeroedes</i>	+	<i>Ledum palustre</i> ssp. <i>groenlandicum</i>	3
<i>H. physodes</i>	+	<i>Vaccinium vitis-idaea</i> ssp. <i>minus</i>	1
<i>Lecidea glomerulosa</i>	+	<i>Cornus canadensis</i>	+
<i>Parmelia olivacea</i>	+	<i>Rosa acicularis</i>	+
<i>P. sulcata</i>	+	<i>Vaccinium uliginosum</i> ssp. <i>alpinum</i>	+
<i>Parmeliopsis ambigua</i>	+		
<i>Ramalina fastigiata</i>	+		
<i>Rinodina turfacea</i>	+		
<i>Usnea glabrescens</i> ssp. <i>glabrella</i>	+		
<i>U. subfloridana</i>	+		

Site: 46. Area: Mackenzie River Lowlands. Location: 70 miles WNW of Norman Wells, 5 miles SW of the junction of the Mountain and Mackenzie Rivers, $65^{\circ}38'N$, $128^{\circ}59'W$. Elevation: 300 ft.
 Habitat: Populus balsamifera woods on gray wooded soil beside pond.
 Voucher Numbers: 27468-27493. Date: June 8, 1971.

	Cover %		Cover %
Bare rock/gravel	-	<u>Herbaceous Plants</u>	
Soil	-		
Duff/peat	4	Equisetum arvense	4
Lichens	1	Geocaulon lividum	+
Bryophytes	1		
Herbaceous vegetation	6	<u>Woody Plants</u>	
Woody vegetation	88	Populus balsamifera ssp. balsamifera	46
<u>Lichens</u>		Betula papyrifera ssp. humilis	22
Anaptychia speciosa	+	Viburnum edule	10
Caloplaca holocarpa	+	Picea glauca	9
Cetraria pinastri	+	Salix spp.	+
Cladonia chlorophaeae	+		
C. gracilis var. dilatata	+		
Evernia mesomorpha	+		
Hypogymnia physodes	+		
Lecanora coilocarpa	+		
L. impudens	+		
L. subrugosa	+		
Lecidea glomerulosa	+		
Leptogium saturninum	+		
Nephroma parile	+		
Parmelia exasperatula	+		
P. sulcata	+		
Peltigera polydactyla	+		
Physcia aipolia	+		
Physconia detersa	+		
Ramalina pollinaria	+		
Rinodina turfacea	+		
<u>Bryophytes</u>			
Brachythecium salebrosum	+		
Dicranum fuscescens	+		
Drepanocladus uncinatus	+		
Hylocomium splendens	+		
Orthotrichum speciosum var. elegans	+		

Site: 47. Area: Mackenzie River Lowlands. Location: 70 miles WNW of Norman Wells, 5 miles SW of the junction of the Mountain and Mackenzie Rivers, $65^{\circ}38'N$, $128^{\circ}59'W$. Elevation: 300 ft.

Habitat: Betula glandulosa carr.

Voucher Numbers: 27494-27496. Date: June 8, 1971.

	Cover %		Cover %
Bare rock/gravel	-	<u>Woody Plants</u>	
Soil	-		
Duff/peat	-	<i>Betula glandulosa</i>	25
Lichens	-	<i>Vaccinium uliginosum</i> ssp.	
Bryophytes	43	<i>alpinum</i>	7
Herbaceous vegetation	6	<i>Picea mariana</i>	5
Woody vegetation	51	<i>Larix laricina</i>	4
		<i>Oxycoccus microcarpus</i>	4
		<i>Chamaedaphne calyculata</i>	3
		<i>Ledum palustre</i> ssp.	
		<i>groenlandicum</i>	2
<u>Bryophytes</u>		<i>Salix</i> spp.	1
Sphagnum rubellum	30		
Aulacomnium palustre	5		
Tomentypnum nitens	5		
Sphagnum fallax	3		
<u>Herbaceous Plants</u>			
Cyperaceae/Gramineae	5		
Equisetum sp.	1		

Site: 48. Area: Mackenzie River Lowlands. Location: 70 miles WNW of Norman Wells, 5 miles SW of the junction of the Mountain and Mackenzie Rivers, $65^{\circ}38'N$, $128^{\circ}59'W$. Elevation: 300 ft.

Habitat: dry open Betula papyrifera woods.

Voucher Numbers: 27497-27519. Date: June 8, 1971.

	Cover %		Cover %
Bare rock/gravel	-	<u>Bryophytes</u>	
Soil	3	Dicranum fuscescens	1
Duff/peat	10	Hylocomium splendens	1
Lichens	33		
Bryophytes	2		
Herbaceous vegetation	1	<u>Herbaceous Plants</u>	
Woody vegetation	51	Lycopodium sp.	+
		L. annotinum	+
		<u>Lichens</u>	
Cladina alpestris	19	<u>Woody Plants</u>	
C. mitis	4	Vaccinium vitis-idaea ssp.	
Cladonia uncialis	3	minus	25
C. amaurocraea	2	Betula papyrifera ssp. humilis	8
C. crispata	2	Ledum palustre ssp.	
Cetraria nivalis	1	groenlandicum	5
Stereocaulon tomentosum	1	Salix spp.	4
Alectoria glabra	+	Picea mariana	3
Cetraria halei	+	Alnus crispa ssp. crispa	2
C. pinastri	+	Arctostaphylos rubra	2
Cladonia cornuta	+	Empetrum nigrum ssp.	
C. gracilis var. dilatata	+	hermaphroditum	2
Evernia mesomorpha	+		
Hypogymnia austeroedes	+		
H. physodes	+		
Lecanora coilocarpa	+		
Parmelia sulcata	+		
Parmeliopsis ambigua	+		
P. hyperopta	+		
Peltigera aphthosa	+		
P. leucophlebia	+		
P. malacea	+		
Physcia aipolia	+		
Rinodina archaea	+		
Usnea glabrescens ssp.			
glabrella	+		

Site: 49. Area: Mackenzie River Lowlands. Location: 45 miles north of Fort Good Hope, Rorey Lake, $66^{\circ}50'N$, $128^{\circ}30'W$.
 Elevation: 300 ft. Habitat: stunted open Picea mariana woods (trees about 150 years old).
 Voucher Numbers: 27524-27554. Date: June 9, 1971.

	Cover %		Cover %
Bare rock/gravel	-	<u>Bryophytes</u>	
Soil	-	Aulacomnium palustre	3
Duff/peat	-	Sphagnum fuscum	3
Lichens	53	Aulacomnium turgidum	2
<u>Bryophytes</u>	12	Ptilidium ciliare	2
Herbaceous vegetation	1	Dicranum elongatum	1
Woody vegetation	34	Anastrophyllum minutum	+
		Blepharostoma trichophyllum	+
<u>Lichens</u>		Hylocomium splendens	+
<i>Cladina arbuscula</i> ssp. beringiana	29	Sphagnum rubellum	+
<i>C. alpestris</i>	9	Tomentypnum nitens	+
<i>C. rangiferina</i>	5		
<i>Cetraria nivalis</i>	4	<u>Herbaceous Plants</u>	
<i>Cladonia amaurocraea</i>		<i>Anemone parviflora</i>	+
<i>Alectoria glabra</i>	+	<i>Equisetum scirpoide</i> s	+
<i>Cetraria cucullata</i>	+		
<i>C. halei</i>	+	<u>Woody Plants</u>	
<i>C. pinastri</i>	+	<i>Picea mariana</i>	10
<i>C. sepincola</i>	+	<i>Ledum palustre</i> ssp. <i>decumbens</i>	5
<i>Cladonia cenotea</i>	+	<i>Vaccinium vitis-idaea</i> ssp. <i>minus</i>	5
<i>C. cornuta</i>	+	<i>Alnus crispa</i> ssp. <i>crispa</i>	3
<i>C. gracilis</i> var. <i>dilatata</i>	+	<i>Empetrum nigrum</i> ssp. <i>hermafroditum</i>	3
<i>C. multiformis</i>	+	<i>Rhododendron lapponicum</i>	3
<i>C. pocillum</i>	+	<i>Salix</i> spp.	2
<i>C. uncialis</i>	+	<i>Vaccinium uliginosum</i> ssp. <i>alpinum</i>	2
<i>Evernia mesomorpha</i>	+	<i>Andromeda polifolia</i>	+
<i>Hypogymnia physodes</i>	+	<i>Dryas integrifolia</i>	+
<i>Lecanora coilocarpa</i>	+	<i>Larix laricina</i>	+
<i>Nephroma expallidum</i>	+	<i>Ledum palustre</i> ssp. <i>groenlandicum</i>	+
<i>Parmelia sulcata</i>	+	<i>Potentilla fruticosa</i>	+
<i>Parmeliopsis ambigua</i>	+		
<i>Peltigera aphthosa</i>	+		
<i>P. rufescens</i>	+		
<i>Usnea subfloridana</i>	+		

Site: 50. Area: Mackenzie River Lowlands. Location: 45 miles north of Fort Good Hope, Rorey Lake, $66^{\circ}50'N$, $128^{\circ}30'W$. Elevation: 300 ft. Habitat: old burn with young (ca. 60 years old) Picea mariana woods.

Voucher Numbers: 27556-27558. Date: June 9, 1971.

	Cover %		Cover %
Bare rock/gravel	-	<u>Woody Plants</u>	
Soil	-		
Duff/peat	-	<i>Picea mariana</i>	13
Lichens	-	<i>Salix</i> spp.	4
Bryophytes	20	<i>Rhododendron lapponicum</i>	3
Herbaceous vegetation	52	<i>Vaccinium uliginosum</i> ssp. <i>alpinum</i>	
Woody vegetation	28	<i>Arctostaphylos rubra</i>	2
		<i>Betula glandulosa</i>	2
		<i>Andromeda polifolia</i>	+
<u>Bryophytes</u>		<i>Dryas integrifolia</i>	+
<i>Aulacomnium palustre</i>	8	<i>Potentilla fruticosa</i>	+
<i>Tomenthypnum nitens</i>	8		
<i>Bryum pseudotriquetrum</i>	3		
<i>Aulacomnium turgidum</i>	+		
<i>Catoscopium nigritum</i>	+		
		<u>Herbaceous Plants</u>	
<i>Cyperaceae/Gramineae</i>	51		
<i>Anemone parviflora</i>	+		

Site: 51. Area: Mackenzie River Lowlands. Location: 45 miles north of Fort Good Hope, Rorey Lake, $66^{\circ}50'N$, $128^{\circ}30'W$.
 Elevation: 300 ft. Habitat: stunted open Picea glauca woods that form a light albido strip on an aerial photograph.
 Voucher Numbers: 27559-27577. Date: June 9, 1971.

	Cover %		Cover %
Bare rock/gravel	-	<u>Herbaceous Plants</u>	
Soil	-		
Duff/peat	-	Eriophorum sp.	1
Lichens	46		
Bryophytes	11	<u>Woody Plants</u>	
Herbaceous vegetation	1		
Woody vegetation	42	Picea glauca	10
		Vaccinium uliginosum ssp.	
		alpinum	6
		Arctostaphylos rubra	5
		Empetrum nigrum ssp.	
		hermaphroditum	5
Cladina arbuscula ssp.	11	Rhododendron lapponicum	4
beringiana		Vaccinium vitis-idaea ssp.	
C. alpestris	8	minus	4
C. mitis	7	Larix laricina	2
Cladonia amaurocraea	7	Ledum palustre ssp.	
Cetraria nivalis	6	groenlandicum	2
Cladina rangiferina	4	Salix spp.	2
Cladonia phyllophora	1	Dryas integrifolia	1
Cetraria islandica	+	Picea mariana	1
Cladonia cenotea	+		
C. coccifera	+		
C. cornuta	+		
C. verticillata	+		
Peltigera aphthosa	+		
P. malacea	+		
		<u>Bryophytes</u>	
Aulacomnium turgidum	4		
Dicranum fuscescens	3		
Tomenthypnum nitens	2		
Hylocomium splendens	1		
Aulacomnium palustre	+		
Ptilidium ciliare	+		

Site: 52. Area: Mackenzie River Lowlands. Location: 45 miles north of Fort Good Hope, Rorey Lake, $66^{\circ}50'N$, $128^{\circ}30'W$. Elevation: 300 ft. Habitat: stunted wet open Picea woods that form a dark albido strip on an aerial photograph. Voucher Numbers: 27578-27584. Date: June 9, 1971.

	Cover %		Cover %
Bare rock/gravel	-	<u>Herbaceous Plants</u>	
Soil	-		
Duff/peat	-	Cyperaceae/Gramineae	8
Lichens	10	Eriophorum sp.	8
Bryophytes	25	Equisetum scirpoides	2
Herbaceous vegetation	19	E. sp.	1
Woody vegetation	46		
		<u>Woody Plants</u>	
		<u>Lichens</u>	
Cladina alpestris	4	Picea glauca	10
Cetraria nivalis	2	Vaccinium uliginosum ssp. alpinum	6
Cladina rangiferina	2	Picea mariana	5
Cladonia amaurocraea	2	Rhododendron lapponicum	5
C. gracilis var. dilatata	+	Salix spp.	5
		Arctostaphylos rubra	4
		Ledum palustre ssp. groenlandicum	4
		Larix laricina	3
Hylocomium splendens	8	Empetrum nigrum ssp. hermaphroditum	2
Tomenthypnum nitens	8	Dryas integrifolia	1
Aulacomnium palustre	4	Potentilla fruticosa	1
Bryum pseudotriquetrum	2		
Drepanocladus uncinatus	2		
Catoscopium nigritum	1		
Drepanocladus revolvens	+		

Site: 53. Area: Mackenzie River Lowlands. Location: 45 miles north of Fort Good Hope, Rorey Lake, $66^{\circ}50'N$, $128^{\circ}30'W$. Elevation: 300 ft. Habitat: dry open Picea glauca woods on esker. Voucher Numbers: 27585-27616. Date: June 9, 1971.

	Cover %		Cover %
Bare rock/gravel	-	<u>Herbaceous Plants</u>	
Soil	-		
Duff/peat	5	Cyperaceae/Gramineae	8
Lichens	26	Geocaulon lividum	1
Bryophytes	20	Androsace septentrionalis	+
Herbaceous vegetation	5	Linnaea borealis ssp.	
Woody vegetation	44	americana	+
		Galium sp.	+
<u>Lichens</u>		Pyrola sp.	+
		Zygadenus elegans	+
<i>Cladina arbuscula</i> ssp. <i>beringiana</i>	12	<u>Woody Plants</u>	
<i>Cetraria nivalis</i>	2	<i>Picea glauca</i>	15
<i>Cladina alpestris</i>	2	<i>Vaccinium vitis-idaea</i> ssp. <i>minus</i>	9
<i>C. rangiferina</i>	2	<i>Arctostaphylos uva-ursi</i>	8
<i>Cladonia amaurocraea</i>	2	<i>Empetrum nigrum</i> ssp. <i>hermaphroditum</i>	4
<i>Cetraria cucullata</i>	1	<i>Shepherdia canadensis</i>	3
<i>Cladonia coccifera</i>	1	<i>Rosa acicularis</i>	2
<i>C. cornuta</i>	1	<i>Betula glandulosa</i>	1
<i>Stereocaulon alpinum</i>	1	<i>Juniperus communis</i> ssp. <i>nana</i>	1
<i>Buellia papillata</i>	+	<i>Salix</i> ssp.	1
<i>Cetraria laevigata</i>	+	<i>Betula papyrifera</i> ssp. <i>humilis</i>	+
<i>Cladonia cenotea</i>	+		
<i>C. deformis</i>	+		
<i>C. gonecha</i>	+		
<i>C. gracilis</i> var. <i>dilatata</i>	+		
<i>C. phyllophora</i>	+		
<i>C. pocillum</i>	+		
<i>C. subfurcata</i>	+		
<i>Peltigera aphthosa</i>	+		
<i>P. malacea</i>	+		
<i>P. rufescens</i>	+		
<u>Bryophytes</u>			
<i>Hylocomium splendens</i>	8		
<i>Ptilidium ciliare</i>	6		
<i>Dicranum fuscescens</i>	3		
<i>Rhytidium rugosum</i>	2		
<i>Ceratodon purpureus</i>	+		
<i>Drepanocladus uncinatus</i>	+		
<i>Hypnum cupressiforme</i>	+		
<i>Tetraplodon mnioides</i>	+		
<i>Tortella fragilis</i>	+		
<i>Tortula mucronifolia</i>	+		

Site: 54. Area: Mackenzie River Lowlands Location: 70 miles
 WNW of Norman Wells, ca. 5 miles NW of Sans Sault Rapids, island in
 the Mackenzie River, $65^{\circ}50'N$, $129^{\circ}00'W$. Elevation: 200 ft.
 Habitat: Picea glauca - Salix woods on alluvial soil.
 Voucher Numbers: 27618-27642. Date: June 10, 1971.

<u>Species present</u>	<u>Species present</u>
<u>Lichens</u>	<u>Bryophytes</u>
<i>Evernia mesomorpha</i>	<i>Campylium chrysophyllum</i>
<i>Hypogymnia physodes</i>	<i>Dicranum scoparium</i>
<i>Lecanora coilocarpa</i>	<i>Drepanocladus uncinatus</i>
<i>Lecidea glomerulosa</i>	<i>Hylocomium splendens</i>
<i>Parmelia exasperatula</i>	<i>Orthotrichum speciosum</i> var. <i>elegans</i>
<i>P. septentrionalis</i>	<i>Pylaisiella polyantha</i>
<i>P. sulcata</i>	<i>Tomenthypnum nitens</i>
<i>Peltigera aphthosa</i>	
<i>P. rufescens</i>	
<i>Physcia adscendens</i>	
<i>P. aipolia</i>	
<i>P. orbicularis</i>	
<i>Physconia detersa</i>	
<i>Ramalina fastigiata</i>	
<i>R. pollinaria</i>	
<i>Usnea glabrescens</i> ssp. <i>glabrella</i>	
<i>U. subfloridana</i>	

APPENDIX II.

SPIDERS FROM THE PLAINS OF ABRAHAM AND FROM MT. CLARKE

A small collection of spiders was made on each of the two alpine areas. It was hoped that, in addition to providing new data on spider distributions, some interesting comparisons might be made between the two regions.

All specimens were donated to, and determined by, Dr. Robin E. Leech, Entomology Research Institute, Central Experimental Farm, Ottawa 3, Ontario. He made the following general comments: "Most of the spiders on mainland North America in the arctic regions are highly vagile, and for the mostpart make poor critters for zoogeographic studies. Also, the distributions of most species is so poorly known that each time someone picks up a known species, a major new locality is recorded."

An enumeration of the specimens collected is given below together with any geographic and/or taxonomic notes made by Leech.

Araneidae

Aculepeira sp. nr. aculeata (Emerton)

Mt. Clarke: 1 female.

General distribution: the genus is holarctic.

Taxonomy: This is probably a new species as most of the species in this small genus have very small distributions, and are restricted to the mountains. Herb Levi at Harvard will be working up the group in the near future.

Clubionidae

Clubiona praematura Emerton

Plains of Abraham: 1 female.

General distribution: rare; NE US to Alaska.

Lycosidae

Pardosa n. sp. ?

Plains of Abraham: 1 female.

General distribution: arctic North America.

Taxonomy: This species is near P. concinna (Thorell), but it does not look quite like it. It could be a variant.

Pardosa glacialis (Thorell)

Mt. Clarke: 1 male.

General distribution: Arctic North America and Greenland, above treeline. This is a good range extension to the SW.

Pardosa sp. nr. groenlandica (Thorell)

Plains of Abraham: 1 male, 12 immatures.

Mt. Clarke: 4 females, 2 males.

General distribution: Alaska-Yukon area.

Taxonomy: This is probably P. trisooides Chamerlain and Ivie, but I do not have the types to compare it with, nor is the male of trisooides known.

Tarentula sp. nr. hirta Kulczynski

Mt. Clarke: 2 males, 1 female.

General distribution: The particular complex of species to which this species belongs is found in the NE Siberian - NW Nearctic region, apparently north of and altitudinally above treeline. Specimens are rare in collections.

Taxonomy: The genus Tarentula needs to be worked up in the worst way.

Thomisidae

Oxyptila bryantae Gertsch

Plains of Abraham: 1 female.

General distribution: NE US to Alaska.

Thanatus arcticus Thorell

Plains of Abraham: 1 female.

General distribution: Alaska to Greenland.