

# Vascular Plants of the Truelove Inlet Region, Devon Island

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**ABSTRACT.** Ninety-three species of vascular plants are recorded from a 16 sq. mile coastal lowland on the northern coast of Devon Island, Northwest Territories. The following taxa are apparently new records for Devon Island: *Cystopteris fragilis*, *Woodsia alpina*, *Equisetum variegatum*, *Poa alpigena*, *Carex amblyorhyncha*, *Draba oblongata*, *Saxifraga tenuis*, *Epilobium arcticum*, *Hippuris vulgaris*, *Pedicularis lanata*, *Puccinellia vaginata* var. *paradoxa*. These additions bring the total known flora of Devon Island to 115 species. The Truelove flora is part of the High Arctic biogeographic element of the Canadian Arctic Archipelago. However, a distinct element of species of more southerly distribution is present probably due to the moderating influence of the lowland environment.

**RÉSUMÉ:** *Plantes vasculaires de la région de Truelove Inlet, île Devon.* Sur la côte nord de l'île Devon, Territoires du Nord-Ouest, le long d'une basse-terre cotière de 16 milles (25.7 km) de long, les auteurs ont recueilli quatre-vingt-treize espèces de plantes vasculaires. Les taxa suivants sont apparemment nouveaux pour l'île Devon: *Cystopteris fragilis*, *Woodsia alpina*, *Equisetum variegatum*, *Poa alpigena*, *Carex amblyorhyncha*, *Draba oblongata*, *Saxifraga tenuis*, *Epilobium arcticum*, *Hippuris vulgaris*, *Pedicularis lanata*, *Puccinellia vaginata* var. *paradoxa*. Ces additions portent à 115 espèces la flore totale connue pour cette île. La flore de Truelove est une partie de l'élément biogéographique haut-arctique de l'archipel arctique canadien. Cependant, la présence d'un élément distinct d'espèces de distribution plus méridionale s'explique probablement par l'influence modératrice du milieu de basse-terre.

**РЕЗЮМЕ.** *Сосудистые растения района Трулав-Инлет, о.Девон.* На участке приморской низменности, расположенном на северном побережье о.Девон, Северо-Западные Территории, и имеющем площадь 16 кв. миль, обнаружено 93 вида сосудистых растений. Из их числа следующие виды описаны на острове впервые: *Cystopteris fragilis*, *Woodsia alpina*, *Equisetum variegatum*, *Poa alpigena*, *Carex amblyorhyncha*, *Draba oblongata*, *Saxifraga tenuis*, *Epilobium arcticum*, *Hippuris vulgaris*, *Pedicularis lanata*, *Puccinellia vaginata* var. *paradoxa*. Это пополнение доводит число известных растений о.Девон до 115 видов. Флора района Трулав-Инлет представляет часть высоко-арктического биogeографического элемента Канадского Арктического архипелага. Однако, в ней представлено и определенное число видов более южного распространения, что вероятно связано со смягчающим влиянием специфических условий низменности.

## INTRODUCTION

Devon Island, southeasternmost of the Queen Elizabeth group, lies in the heart of the Canadian Arctic Islands at 75°N., 86°W. Between the years 1824 and 1928 sporadic collections of botanical material were made by a number of individuals, principally during Canadian expeditions and the early explorations of the Fram. Between 1934 and 1936 plants of the southern portion of the island

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at Dundas Harbor were collected by Nicholas Polunin, who subsequently summarized previous collection records and published a list of the total vascular flora then known for the island (Polunin 1940). With this publication Polunin had added 14 taxa to the records, bringing the total to 104. Since Polunin's publication, there have been no published additions to the flora of the island or observations from other collecting localities. During the summers of 1968-70 an intensive collection of vascular plants was made by the authors in conjunction with ecological studies at a coastal location on the northeastern portion of the island.

The collection area ( $75^{\circ}41'N.$ ,  $84^{\circ}33'W.$ ) is a gently sloping, post Pleistocene strand flat known as "The Truelove Lowland". Approximately 16 square miles in area, the lowland is bordered on three sides by the waters of Jones Sound and on the east by an abrupt vertical escarpment. The area is the southernmost of three rather naturally delimited lowlands which form a complex from Cape Hardy in the north to "Truelove Inlet" in the south.

Climatically and geographically the area is typically high arctic in character, but is uncharacteristically rich in both flora and vegetation in terms of a "typical" high arctic location (Polunin 1948). Closed stands of vegetation cover the major portion of the landscape, and only on the crests of elevated strand beaches are communities poor in terms of vegetational coverage. (Fig. 1).

The geology and geomorphology of the area have been commented on elsewhere (Glenister 1963; King 1969; Muller and Barr 1966, Barr 1971). Germane to the present discussion, however, are two features contributing to the richness

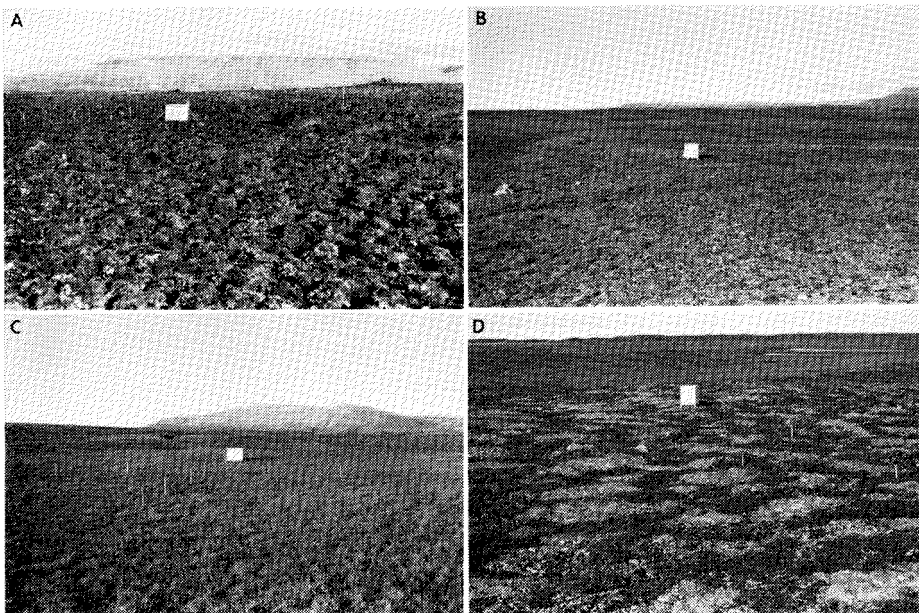


FIG. 1. A diversity of ground surfaces provides numerous habitats for plant colonization. A. Pronounced earth hummocks on the foreslopes of raised beaches. B. Gravel and rock pavements of raised beach ridges. C. Wet meadow tundra. D. Non-sorted circles.

of the vegetation found there. First is the occurrence of two distinctive parent materials: one a series of sedimentary rock types rich in dolomite resulting in a decidedly calcicolous flora, the other a series of acid igneous rocks of Pre-Cambrian origin. The latter occurs frequently as outcrops throughout the lowland and provides a distinctive substrate for plant colonization. The second notable feature is the complex geomorphology within the lowland proper. King (1969) has described the polygenetic nature of the many landforms found there. Numerous forms of patterned ground and varied relief features combine to provide a mosaic of environments in which a number of distinct vegetational assemblages can be found (Barrett 1972). Habitats range from the xeric, coarse textured, polar desert pavements of the emergent beach crests to the permanently saturated, fine textured silts of the low areas found in their lee. Such a spectrum of habitats results in a rich and diverse flora.

#### ANNOTATED LIST OF SPECIES

After each citation of species we have indicated the collection number, location of the voucher specimens and the name of the recorder, with an indication of the abundance of the species.

Nomenclature follows that of Porsild (1964) except where noted.

Following is the key to symbols used:

UBC: University of British Columbia, Vancouver, Canada

DUKE: Duke University, Durham, U.S.A.

A : Abundant

C : Common

O : Occasional

R : Rare

Pol : Previously recorded for Devon Island by Polunin only

Pr : Previously recorded for Devon Island by Porsild only

\* : Previously recorded for Devon Island by both Polunin and Porsild

F : Reported for the first time from Devon Island

*Cystopteris fragilis* (L.) Bernh. 0477, 0481 UBC R. F.

Previously unreported from Devon Island. Specimens, all of which were dwarfed, had well developed sori and indusia. Appears to be restricted to areas of Pre-Cambrian outcrops.

*Woodsia glabella* R. Br. 0478, 0480 UBC O-R.\*

Found chiefly on Pre-Cambrian rock outcrops.

*Woodsia alpina* (Boulton) S. F. Gray. 0479 UBC R. F.

Unreported from Devon Island and apparently only the second collection from northern Archipelago locations.

*Equisetum arvense* L. 0424, 0429, 0431, 0432 UBC O-C.\*

Appears to develop best in wet-mesic meadows and is often found near the shelter of large rocks and boulders.

*Equisetum variegatum* Schleich. 0422-0428, 0430, 0433-0435 UBC C. F.

Common plant throughout the Canadian Arctic, particularly in the wet sedge meadows, it is surprising that this species has been overlooked on Devon Island, although nearly all specimens are very reduced in size and often grow immersed in the thick moss cover found in these habitats.

*Huperzia selago* (L.) Bernh. ex. Schrank and Mart. According to Böcher *et. al.* 1968. ssp. *artica* (Grossh.) Löve and Löve 0415-0418 UBC O.\*

Occurs primarily on moist shallow soils on Pre-Cambrian outcrops.

*Hierochloa alpina* (SW.) R. & S. 0351, 0352, 0355 UBC C.\*

Common and perhaps restricted to Pre-Cambrian crystalline rock outcrops. Frequently on the drier, turfy crests of these areas.

*Hierochloa pauciflora* R. Br. 0029-0031, 0051, 0353, 0354, 0356, 0357. UBC C.\*

Most common in *Arctagrostis*-dominated meadows on fine textured tundra soils and occasional in wet sedge meadows.

*Alopecurus alpinus* L. 003-008, 0378, 0379 UBC C.\*

Most common on bog soils of high centred ice wedge polygons and often a minor component of wet sedge meadows.

*Phippsia algida* (Sol.) R. Br. 0049, 0381, 0382 UBC O.\*

The habitat description of Porsild conforms in all respects with its location in the Basecamp lowland where it grows most frequently in late snowbed communities. These are moss-dominated, saturated throughout the summer and form over fine textured calcareous material.

*Arctagrostis latifolia* (R. Br.) Griseb. 009-0020, 0057, 0364, 0365, 0367-0371, 0373-0375, 0377, 0383, 0386 UBC A. Pol.

Abundant on the lowland, this grass often is a dominant in the wet-mesic meadows where standing water does not occur all summer. Less frequent in wet sedge communities and can be found to some extent in all but the most xeric habitats. In the wettest sites the percentage of flowering appears to be quite reduced.

*Trisetum spicatum* (L.) Richt. 0045, 0046 UBC C.\*

Locally abundant in dry "turfy" localities.

*Poa alpigena* (Fr.) Lindm. var. *colpodea* (Fr.) Schol. 0335 UBC R. F.

Recorded for the first time for Devon Island. The station where it was found was a wet sward of grasses at an outcropping of Pre-Cambrian material.

*Poa arctica* R. Br. 0037-0044, 0338-0341, 0343-0347 UBC C.\*

Common especially on organic soils of high centred ice wedge polygons and grassy areas on acidic rocks. On Devon, mature panicles do not always show the spreading of low branches and may remain contracted.

*Poa glauca* M. Vahl 1090 DUKE. R.\*

This ubiquitous northern species was located at only one station in the lowland area.

*Poa abbreviata* R. Br. 0032-0036, 0054, 0058 UBC O.\*

Porsild's habitat description fits well for our area.

*Poa hartzii* Gand. 0050, 0342 UBC R. Pr.

While not cited by Polunin the species is recorded on Porsild's later distribution maps from Devon Island.

*Pleuropogon sabinei* R. Br. 0047, 0048, 0336 UBC C-O.\*

Most commonly admixed with grasses and mosses in saturated areas along brooks and in wet sedge meadows. Only one pure stand was noted and this occurred on a calcareous tuffa-like silt on the Truelove River.

*Colpodium vahlianum* (Liebm.) Nevski 0062, 0188, 0334, 0800-0803 UBC C.\*

Grows on mesic to wet mesic locations and appears never to form extensive stands.

*Dupontia fisheri* R. Br. 001, 002, 0348-0350, 0372, 0376 UBC C.\*

Most common in tundra meadows which are often dominated by *Arctagrostis latifolia*. Easily noted in flower by the bronze colouration of the spikes, but may be easily overlooked if not in flower.

*Puccinellia vaginata* (Lge.) Fern. and Weath. var. *paradoxa* Th. Sør. 0028, 0059 UBC O. F.

Porsild's description of habitat preference appears to conform with the lowland collection sites. Previously unrecorded from Devon Island.

*Festuca brachyphylla* Schultes 0021-0024, 0358-0363 UBC C.\*

Common in dry turfy and mesic sites, especially around bases of large boulders.

*Festuca baffinensis* Polunin 0025-0027 UBC O-C. F.

On calcareous strand beaches especially by bird perches and in clumps of vegetation. Two numbers (0052, 0053) show quite intermediate characteristics between the above two taxa and introgression is most probably occurring.

*Eriophorum angustifolium* Honck. 0064-0066, 0068, 0069, 0074, 0075, 0546, 0549, 0552, 0554, 0558, 0563 UBC C. Pol.

Common, but seldom in pure stands. Typically a component of wet sedge meadows.

- Eriophorum scheuchzeri* Hoppe 0067, 0072, 0545, 0547, 0548, 0551, 0553, 0556 UBC C.\*  
Habitat similar to above, but not found as a community dominant in the lowlands.
- Eriophorum triste* (Th. Fr.) Hadac and Löve 0063, 0070, 0071, 0073, 0076, 0550, 0555, 0557, 0560-0562, 0565-0568 UBC C. Pr.  
Not reported in Polunin's collections from the Dundas area, this species is the common cottongrass on the lowland. It appears from detailed plot analysis (Barrett 1972) that this species prefers a slightly drier site than the previous two taxa and is generally found on fine textured upland tundra soils. Specimen 0562, however, was the sole invader of a flooded vehicle track formed in the early 1960's; it was morphologically atypical from other numbers, having shorter and much wider leaves and very reduced culms.
- Kobresia myosuroides* (Vill.) Fiori and Paol. 0086, 0543 UBC O-R.\*  
Found in dry turfey areas on calcareous beaches. Specimen 0086 was collected from a bog soil of a high centred ice wedge polygon.
- Kobresia simpliciuscula* (Wahlenb.) Mack. 0731, 0732 UBC R.\*  
Appears in more mesic sites than the above.
- Carex nardina* Fr. 0083-0085, 0087-0089, 0295-0297, 0796 UBC C.\*  
A characteristic species of the exposed beach crests but occasionally found in moist situations on gentle beach slopes or drier upper portions of Pre-Cambrian outcrops. Appeared to be either heavily grazed or wind eroded on beach sites. The clustered persistent sheaths are frequently white with overgrowing crustose lichens, chiefly *Pertusaria* sp.
- Carex rupestris* All. 0090-0097, 0099, 0100, 0298-0300 UBC C.\*  
Found in more mesic, sheltered sites than the previous species, often in the drier micro-sites of *Cassiope* — *Dryas* heath associations.
- Carex amblyorhyncha* Krecz. 0082, 0098 UBC R(?) F.  
This new record for Devon Island fills a gap in the northern distribution of the species. The collection, however, is not an unexpected addition as a number of specimens have been reported for similar latitudes in eastern Greenland. Recording of abundance here is questionable as identification depends upon finding fruiting material (a situation which holds true here for many of the *Carex* species.)
- Carex stans* Drej. 0080, 0132-0145, 0301, 0304, 0307, 0310-1314, 0316, 0797, 0798 UBC A.\*  
One of the most abundant species on the lowland. Reproduces vigorously by rhizomes and dominates the low lying hydric communities which cover a major portion of the area. Aware of Polunin's record of *C. bigelowii* from the Dundas area, a large number of individuals from numerous fruiting populations were collected. No plants which could be identified positively as *C. bigelowii* Torr. were found.
- Carex atrofusca* Schk. 0101-0106, 0799 UBC C-O.\*  
Found on moist sedge meadows and organic soils.
- Carex misandra* R. Br. 0078, 0107-0131, 0308, 0317-0320 UBC A.\*  
A very plastic species ecologically, specimens were noted in all except the very driest communities. Appears most abundantly in our area in mesic to wet mesic locations.
- Carex membranacea* Hook. 0079, 0081, 0146, 0147, 0302, 0303, 0305, 0306, 0309, 0315, 0380, 0784 UBC C(?) \*  
Difficult to judge abundance as many plants do not flower or fruit in the field. Appears to prefer drier environments than *C. stans*. Frequently colonizes turf hummocks in sedge meadows.
- Juncus biglumis* L. 0182, 0189, 0452-0469 UBC C.\*  
Widely found throughout the lowland in all mesic to hydric communities.
- Luzula arctica* Blytt (According to Böcher *et al.* 1968.) 0734-0763, 0738 UBC C.\*  
Commonly in mesic soils, particularly in *Cassiope tetragona* heath which forms over Pre-Cambrian outcrops. Habitats appear similar to those described by Böcher *et al.* for Greenland specimens.
- Luzula confusa* Lindeb. 0764-0782, 0794, 0795 UBC C.\*  
On Pre-Cambrian outcrops as was the previous species but also extending to more xeric sites. Abundantly found on bog soils of high centred ice wedge polygons.
- Tofieldia* sp. 1032 DUKE. R.\*  
On wet slopes over Pre-Cambrian material. The species has not been observed in flower; it is likely to be *T. coccinea* Richards based on the presently-known distribution of that species.
- Salix reticulata* L. 1158 DUKE. R.\*  
This single station occurred on a small polygon on a wet site.

*Salix arctica* Pall. 0395-0402 UBC U.\*

One of the most common plants of the lowland and found in all sites from calcareous xeric beach crests to hydric sedge meadows. One specimen (0544 UBC) appears to fit Porsild's variety *kophophylla* (Schneid.) Polunin. The morphological variations in this species, however, are numerous and deserve further study. Young (1971) observed a similar complexity with the group on St. Lawrence Island. Morphological intermediates between *S. arctica* and *S. reticulata* were also observed.

*Oxyria digyna* (L.) Hill 0408-0413 UBC C.\*

On late-thawing slopes, dominated by *Rhacomitrium heterostichum* var. *sudeticum*, localized populations of exceedingly dwarfed specimens were found. On more mesic sites plants of larger stature were observed.

*Polygonum viviparum* L. 0403-0407 UBC C.\*

This species has been noted to show a wide variation in leaf and peduncle morphology.

*Stellaria longipes* Goldie s. lat. 0571-0601 UBC C.\*

This collective grouping, while common in the lowland, flowers rarely and is thus difficult to separate further into subspecific taxa. The following numbers have, however, been further identified and Böcher's *et al.* (1968) categories were used in the naming: *S. edwardsii* R. Br. (0571, 0586, 0592, 0598); *S. laeta* Rich. (0573, 0597, 0599); *S. monantha* Hult. (0600, 0601). Flowering specimens are generally found more commonly in turfy areas in Pre-Cambrian outcrops. The species is also abundant on high-centred polygons.

*Cerastium alpinum* L. 0667-0700 UBC C.\*

Common on mesic to dry locations. A wide range of forms intermediate between this species and *C. arcticum* occur on the lowland.

*Cerastium arcticum* Lge. 0704 UBC O-R. Pr.

Only one station of this arctic endemic was located.

*Cerastium Regelii* Ostf. 0321-0330 UBC C.\*

Most commonly found immersed in thick moss mats along streams and standing water of sedge meadows; also in late snow areas. All plants collected were the near pulvinate, sterile forms described by Porsild.

*Minuartia rubella* (Wahlenb.) Hiern. (According to Böcher *et al.* 1968). 0715-0725 UBC O.\*

Occurs chiefly on raised beaches but is also found on Pre-Cambrian outcrops, high-centred polygons and beach foreslopes where conditions are more mesic.

*Minuartia rossii* (R. Br.) Graebn. (According to Böcher *et al.* 1968.) 0701-0703, 0705-0715 UBC C.\*

Prefers much wetter locations than the previous species and is found mainly in both late snowpatch and snowbed environments. Also found commonly in late-thawing mossy slopes and occasionally in wet sedge meadows.

*Silene acaulis* L. var. *exscapa* (All.) DC. 0602-0605 UBC O.\*

Scattered on raised beach gravels and Pre-Cambrian outcrops, both calcareous and acidic sites.

*Melandrium apetalum* (L.) Fenzl ssp. *arcticum* (Fr.) Hult. 0282-0283, 0287-0290 UBC O.\*

Primarily found in wet sedge meadows.

*Melandrium affine* (J. Vahl.) Hartm. 0284, 0286, 0291 UBC O.\*

Unlike the above, is found on xeric beach crests and gravelly locations. May occasionally be found in large caespitose tufts with numerous flowers.

*Ranunculus hyperboreus* Rottb. 0441-0442 UBC O.\*

Found in running water among sedges. Flowers only rarely.

*Ranunculus sulphureus* Sol. 0443-0451 UBC O-C.\*

Observed in a variety of environments including bird mounds, lemming holes, moist slopes, seepage sites and late snowbed areas. Polunin's report of *R. nivalis* was known to us and a large number of specimens were examined in search of this taxon. In no specimens were the receptacles completely glabrous of the dark stiff hairs mentioned in both Böcher *et al.* (1968) and Porsild (1964).

*Papaver radicum* Rottb. 0387-0392 UBC C.\*

Common in a number of habitats but appears to prefer wet mesic sites. Large populations are frequently found in disturbed locations such as old soil pit excavations and the edge of the camp airstrip. White flowered forms were noted rarely in the area.

*Cochlearia officinalis* L. 0496, 0497 UBC O-R.\*

Both stations were found in turfy locations in rocky areas close to the present shoreline. Both populations appeared to be thriving and numerous seedlings were noted. Why the species is not more widespread in the area is puzzling as it flowers and fruits abundantly.

*Eutrema Edwardsii* R. Br. 0499-0509 UBC C-O.\*

Nearly all collections were from fine-textured silts and clays. This is also one of the few species found colonizing the centres of non-sorted silt circles (mud-boils).

*Cardamine bellidifolia* L. 0482-0495, 0498, 0516, 0517, 0640 UBC C.\*

Found chiefly on mesic sites over Pre-Cambrian outcrops.

*Cardamine pratensis* L. var. *angustifolia* Hook. 0419-0421 UBC O.\*

Found in wet sedge meadows. All plants were sterile and extremely dwarfed, often with only a single pinnate leaf.

*Draba alpina* L. 0154-0156A, 0186, 0612, 0614A, 0656, 0657, 0664 UBC O.\*

Occurs scattered in a number of habitats.

*Draba Bellii* Holm 0148-0153, 0160-0162, 0170, 0184, 0613A, 0614B, 0653-0655 UBC C. Pr.

One of the most common *Draba* species on the lowland. Found on mesic turfy soils or gravelly areas.

*Draba nivalis* Liljeb. 0177A. UBC R.\*

This specimen was identified by Dr. A. E. Porsild of the National Museum of Canada.

*Draba lactea* Adams 0165-0168, 0171-0176, 0626-0635, 0638, 0641, 0643, 0646, 0647, 0651, 0662, 0785. UBC C.\*

Very common from wet mesic to hydric locations. Flowers and fruits abundantly.

*Draba subcapitata* Simm. 0606, 0666 UBC O.\*

This small cushion plant is found chiefly on the calcareous, dry beach crests.

*Draba cinerea* Adams 0159, 0179, 0665 UBC O. Pol.

Although cited by Polunin the species is not listed from Devon Island in Porsild's later flora. Well developed specimens with characteristic grey shaded siliques were collected from moist locations. This is the largest of the *Draba* collected and is a conspicuous plant in the field.

*Draba oblongata* R. Br. 0163A, 0164, 0169, 0185, 0608-0610, 0613B, 0620, 0623, 0633B, 0639, 0642, 0644, 0645, 0648-0650, 0658, 0804 UBC C. F.

Nearly all our numbers were identified by Dr. Porsild. Previously unrecorded from Devon Island and listed by Porsild as rare or local this species is most likely more abundant in certain areas than existing records indicate. Certainly on the lowland this species was frequently collected.

*Braya purpurascens* (R. Br.) Bunge 0510-0515 UBC O.\*

One of the few species to colonize non-sorted silt circles. Appears to prefer moist fine textured soils.

*Saxifraga caespitosa* L. 0219-0220 UBC O.\*

Occurs principally in moist microsites of Pre-Cambrian outcrops. Flowers continuously throughout the summer.

*Saxifraga cernua* L. 0913, 0915, 0916 UBC C.\*

The species occurs primarily in hydric sites but may also be seen on bird mounds and moist soils of tundra polygons. On 24 June, 1969, one plant was noted in a wet meadow which had just recently become snow free. The plant lay beneath 4.5 cm. of water and appeared to be growing vigorously. Spot temperature measurements taken with a Y.S.I. thermometer and thermister probes indicated that while the surface temperature of the water was 4.8°C., the water temperature near the plant base was 2.1°C. and the sediment in which the plant was rooted was frozen solid.

*Saxifraga hirculus* L. var. *propinqua* (R. Br.) Simm. 0200, 0213, 0216 UBC O.\*

Appears to be restricted to hydric locations. The latest flowering saxifrage in our area. During 1968 and 1969 the earliest flowering noted was on 11 and 12 July respectively.

*Saxifraga oppositifolia* L. 0199, 0211 UBC A.\*

Found in all plant communities the species occurs in a number of morphological forms, many of which appear distinctively correlated with specific environments.

*Saxifraga flagellaris* Willd. ssp. *platysepala* (Trautv.) Porsild 1246 DUKE. R.\*

This single lowland station was on shallow gravels on Pre-Cambrian material; species is more common on the interior plateau.

*Saxifraga foliolosa* R. Br. 0223-0225, 0229-0232 UBC O.\*

This species is found chiefly on moist sites.

*Saxifraga hieracifolia* Waldst. & Kit. R.\*

Observed on the lowland but not collected. Nearly always among mosses on sloping wet meadow sites.

*Saxifraga nivalis* L. 0191, 0203, 0204, 0236, 0237 UBC C.\*

More common than the closely related *S. tenuis* and found scattered chiefly in heath communities forming over acidic rocks. Also noted in late snowpatch and snowbed locations.

*Saxifraga rivularis* L. 0197 UBC O.\*

Chiefly found on wet slopes and late snowpatch areas.

*Saxifraga tenuis* Sm. 1258 DUKE. R. F.

Previously unreported from Devon Island. Found only occasionally on wet mossy ground.

*Saxifraga tricuspidata* Rottb. 1268 DUKE. O.\*

Frequently found as local clumped populations on bird mounds or near perch rocks.

*Potentilla hyparctica* Malte 0518-0523, 0531-0539 UBC O. Pol.

Collected by Polunin but not listed in Porsild's flora this species appears commonly over granite outcrops and bird mounds.

*Potentilla rubricaulis* Lehm. 0527-0530 UBC O.\*

Not as common as the previous species but found in similar environments.

*Dryas integrifolia* M. Vahl. 0727, 0730 UBC A.\*

Found in all but the wettest habitats. The species is distinctly variable here and populations with partially crenate leaves were noted. No forms which were clearly *D. octopetala* were found.

*Epilobium latifolium* L. 0540-0541 UBC O.\*

Abundant but only in scattered local populations.

*Epilobium arcticum* Samuelss. 1312 DUKE. R. F.

Previously unreported for Devon Island, the single station here was located in a wet meadow.

*Hippuris vulgaris* L. 0331-0333 UBC R. F.

Previously unreported from Devon Island the distribution of this species is primarily confined to the southern islands, although Porsild indicated one collection from central Ellesmere region. Dwarfed specimens may be easily overlooked in collecting since they are frequently located in the midst of thick moss cover near streams or pond margins.

*Cassiope tetragona* (L.) D. Don. 0470-0473 UBC C.\*

Found characteristically on the foreslopes of raised beaches, where it dominates late snowpatch communities associated with well-developed tundra earth hummocks. Also a dominant of the Pre-Cambrian rock outcrop communities, where it is found in association with *Rhacomitrium lanuginosum*.

*Vaccinium uliginosum* L. var. *alpinum* Big. 0474-0476 UBC O.\*

Appears restricted to shallow acidic lithosolic soils associated with granitic outcrops.

*Armeria maritima* (Mill.) Willd. ssp. *labradorica* (Wallr.) Hult. 0542 UBC R.\*

The specimen reported here was actually collected on the Sparbo-Hardy lowland to the north. The peduncle was so reduced that the inflorescence was developed at the level of the leaves.

*Pedicularis capitata* Adams 0259, 0266, 0791 UBC C-O.\*

Here the latest flowering species of the genus. Found in wet to wet-mesic localities.

*Pedicularis lanata* Cham. & Schlecht. 0251, 0253, 0267, 0272, 0274-0276, 0280, 0281, 0788, 0792 UBC C. F.

It is surprising that this common species was overlooked for so long having been collected on numerous other arctic islands to the north and west. Commonly found in mesic to xeric sites.

*Pedicularis hirsuta* L. 0247, 0250, 0252, 0254-0257, 0260, 0262, 0263, 0265, 0268, 0269, 0271, 0273, 0277-0279, 0786, 0787, 0790 UBC C.\*

Common on mesic soils.

*Pedicularis sudetica* Willd. 0248, 0249, 0258, 0261, 0264, 0270, 0789 UBC C.\*

Restricted to wet areas.

*Campanula uniflora* L. 0392A, 0393, 0394 UBC O.\*

Although Porsild's habitat description for this species is "calcareous cliffs" all stations here were on acidic rock ledges.

*Taraxacum phymatocarpum* J. Vahl. 0436-0440 UBC O.\*

Scattered on gravels and always very reduced in size.



## DISCUSSION

The majority of the flora of the Truelove Lowland belongs to the High Arctic element of the Canadian Arctic Archipelago. Typically High Arctic species such as *Poa Hartzii*, *Poa abbreviata* and *Cerastium Regellii* are present on the lowland. A second distinctive element of the Truelove flora, however, is represented by a more southerly group of species that are at, or near, their northern distributional limits in the Arctic Archipelago: *Tofieldia coccinea*, *Salix reticulata*, *Hippuris vulgaris*, *Draba cinerea*, *Kobresia simpliciuscula*, *Woodsia glabella* and *Woodsia alpina*.

When compared to most of the high arctic, the flora of the Truelove Lowland is unusually rich in the number of species found in such a limited area. In addition the vegetation cover of the lowland is nearly complete, the primary "barrens" being limited to the dry gravels of raised beach ridges.

Polunin (1948) felt that the similarly rich vegetation of the nearby Cape Hardy lowlands was attributable to the presence of muskoxen. More recently, Young (1971) has correlated floristic diversity with aggregate summer warmth and on this basis has segregated the polar regions into four contiguous floristic zones. Examination of mean annual degree day isopleths for the Canadian Arctic (Thomas 1953) shows general correspondence with Young's zonal boundaries. It should be pointed out, however, that a majority of areas in the eastern Canadian Arctic, where botanical collecting has been relatively intense, are coastal locations showing moderated climates due perhaps to local marine influence or extensive fiord systems [e.g. eastern Devon Island, 115 species; Bylot Island, 101 species (Drury 1962); Tanquary Fiord, 119 species (Brassard and Beschel 1968)]. In many cases these coastal systems, influenced by local environmental conditions, differ markedly from the more extensive adjoining uplands. The interior plateau of Devon Island which lies directly adjacent to the Truelove Lowland, and which covers a far larger area, is more typically "High Arctic" in character. Here raw soils and felsenmeer predominate and both species number and vegetation cover are greatly reduced.

While the eastern portion of Devon is placed by Young in a floristic zone with pronounced southern affinities and relatively high floristic diversity, that portion of the landscape to which these characteristics may be attributed is quite limited in extent.

The ecological basis for the floristic and vegetation richness of certain coastal lowlands in the High Arctic is, at present, only poorly understood. It is probable that the synergistic effects of varied soil types, complex geomorphology, adjacent marine influence, sizable animal populations and favourable moisture regimes, combine to allow the development of such systems. The need for comparative ecosystematic work between these and the more "typical" high arctic systems must be undertaken if the ecological impact of these lowlands on the biome is to be properly assessed.

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