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Noteworthy Vascular Plants Collected in Southwestern Banks Island, N.W.T.

During the summers of 1968 and 1969, while conducting a geobotanical survey in southwestern Banks Island (see Fig. 1), the author made an extensive collection of plants. This paper comprises a list of vascular plants new to the Canadian Arctic Archipelago or to Banks Island, as well as comments on some rare species.

The field studies were made possible by the National Research Council of Canada (1968) and by the Geological Survey of Canada (1969). The Polar Continental Shelf Project supplied logistic support during both summers.

Specimens have been deposited in the Phanerogamic Herbarium of the Canada Department of Agriculture, Ottawa.

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Achillea nigrescens (E. Mey.) Rydb.

Found in the Masik River valley: in single localities on the delta, inland commonly up to 600 ft. on south-facing slopes, but rarely as high as 300 ft. on north-facing ones; absent in the innermost parts of the valley. Several depauperate specimens found on alluvium in the middle reaches of the Kellett River valley. Its main habitats are well-exposed and moderately-elevated slopes where it grows on gravelly, muddy, peaty and weathered rock substrates. Previously reported from the middle part of the Masik River valley¹.

Arctophila fulva (Trin.) Anders.

Common over the whole area in ponds, usually with *Hippuris vulgaris*, *Eriophorum* sp. and mosses *Calliergon trifarium* and *Scorpidium scorpioides*. Previously reported only from the northeastern corner of Banks Island².

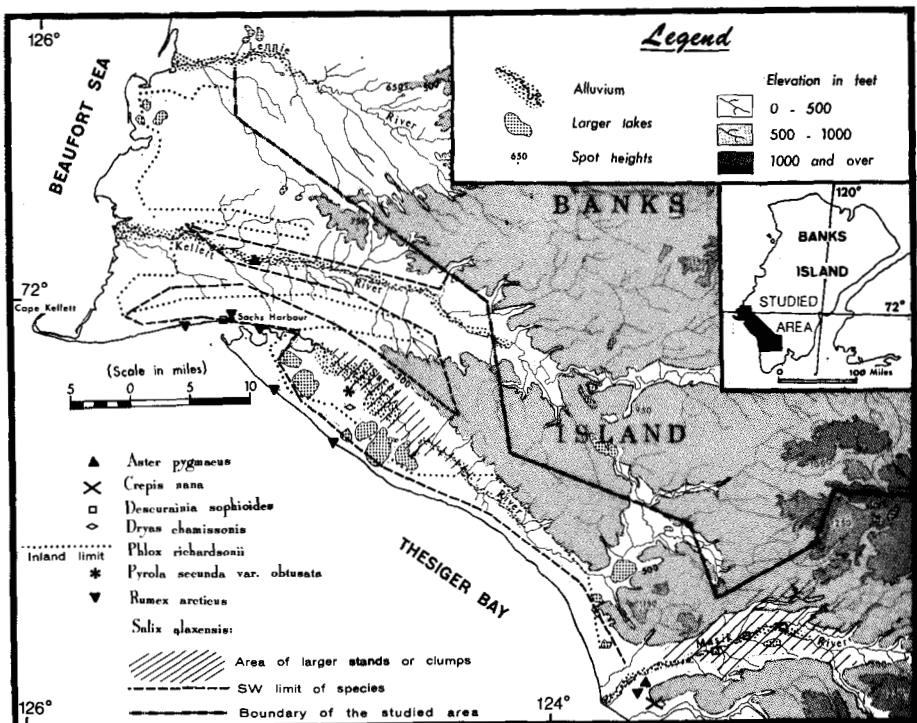


FIG. 1. Distribution of some plant species in southwestern Banks Island, N.W.T.

Arenaria sajanensis Willd.

Common up to 1,000 ft. in mountains adjacent to the south of the Masik River valley where it forms abundant cushions on stony beds in the upper reaches of streams. Rare at lower elevations on alluvium. From Banks Island previously recorded only as a rare plant from two coastal localities (Sachs Harbour and Cape Lembton) by Porsild³. A montane element in the Banks Island flora.

Artemisia borealis Pall.

Common on sunny, dry and elevated slopes, on coastal cliffs and on alluvium. Found up to 600 ft. in the Masik River valley. New to Banks Island.

A. hyperborea Rydb.

Common over the entire area. Coastal specimens are short or even stunted. Found among open vegetation, on stony and dry soils. Previously reported from the Masik River valley¹.

A. tilesii Ledeb.

Common in the Sachs River valley and the Masik River valley, elsewhere rare. Luxuriant specimens grow on drier places in valley bottoms in sheltered depressions on lower slopes, on margins of *Salix alaxensis* stands, and near houses in Sachs Harbour village. Only depauperate specimens are present on open and windswept places. Found at altitudes up to 800 ft. On the northern rolling parts of the area it is rare. Banks Island specimens, except those from Sachs Harbour village, are much shorter than those from the subarctic (e.g., vicinity of Inuvik). Previously reported from the north coast of the island² and from the middle reaches of the Masik River valley¹.

Aster pygmaeus Lindl.

One flowering specimen (3 in. tall) found on alluvium in the middle of Kellett River, and several specimens in the delta of Masik River and on adjacent gravelly alluvial terraces (see Fig. 1). These are northernmost locations of *A. pygmaeus* (see Porsild²).

Carex ursina Dew.

Found on sandy and muddy shores between Lennie River and Sachs Harbour. Most abundant on Cape Kellett (see Kuc⁴) and at southern Blue Fox Point. Hitherto not reported from the west coast of Banks Island.

Crepis nana Richards.

Found on top of the morainic hill between the mouths of Masik and Atitok Rivers (see

Fig. 1), numerous luxuriant specimens being located near nests of Snowy Owl. New to Banks Island.

Descurainia sophioides (Fisch.) O. E. Schultz

Common and abundant in Sachs Harbour village in anthropogenic habitats: mostly old refuse heaps or places laid bare by man, e.g., along roads and cliffs, and in the Masik River valley at several localities associated with former Eskimo camps and bare, eroded river banks (depauperate forms) (see Fig. 1). Hitherto known at one locality on Banks Island (see Porsild²).

Dryas chamissonis Juz.

Found at Swan Lake on bare soil, in dry parts of moss-bogs and in sheltered places (see Fig. 1). Specimens are sterile. This species is neglected by botanists, although it is morphologically quite readily recognized by its flat, non-shiny and coarsely crenulated leaves etc. (see Porsild⁵). Young, immature leaves are very similar to *D. integrifolia*. Det. A. E. Porsild.

Halimolobos mollis (Hook.) Rollins

Found in refuse heaps in Sachs Harbour village and in the Masik River valley in areas of former Eskimo camps. Specimens were seen only in habitats disturbed by man. Previously reported from the middle reaches of the Masik River valley¹.

Melandrium ostefeldii Porsild

Most commonly found on slopes with southern exposures in the Masik River valley. Rare in other parts of the area studied: in the middle of Kellett River valley, on slopes above Sachs Harbour village and at Sand Hills. These are the northernmost known locations of the species^{1,2}.

Melandrium triflorum (R. Br.) J. Vahl

Found at Sachs Harbour village on coastal cliffs. High Arctic specimens (e.g. from Eureka or Mould Bay) are taller and better developed in all respects than those from Sachs Harbour, which have distinctly smaller leaves and flowers and thinner stems. New for the southern part of Banks Island, which is one of its southernmost locations (see Porsild²).

Parnassia kotzebuei Cham. & Schlecht.

Found on alluvium in the Masik River area from the coast to the upper reaches of valleys, but most common in the middle part of the main valley; between stones in dry stream beds, on sandy, muddy, and gravel

alluvial and deltaic deposits; rare among wet tundras in places with running water and on moist eroded ground; single specimens on alluvium in the middle part of Kellett River and on bogs of the Sachs River valley. Banks Island is the northernmost part of the range of *P. kotzebuei*^{1,2,6}.

Phlox richardsonii Hook.

Common, but confined to coastal cliffs and alluvium (see Fig. 1). Grows on loose sand and gravel. The best developed and largest cushions occur on slopes facing the sea and around houses in Sachs Harbour. Inland it was observed only on the northern slopes of the lower part of Kellett River, where it grows in small tufts or in single specimens.

Plantago septata Morris

Found at many localities at the mouth of Lennie River, along Kellett River and Sachs River, on coastal hills around Thesiger Bay, in abundance at Sachs Harbour village, and on sunny slopes up to 600 ft. in the Masik Valley. It grows on dry, stony and loose substrates. These are the northernmost known locations of this plant (see Mason *et al.*¹, Porsild²).

Pleuropogon sabinei R. Br.

Very rare plant, found in several tundra ponds between Sachs Harbour Meteorological Station and Kellett River, and in the small pool in Sachs Harbour village. These are the southwesternmost locations of the species.

Potentilla nivea L.-s. s.

Found in the Sachs Harbour area (especially frequently in anthropogenic habitats in Sachs Harbour village) among drier parts of tundra, on loose mineral soils of southern exposures. This is the only known location of the species on the island.

Pulsatilla ludoviciana (Nutt.) Heller

Rare in low and middle elevated, southern and dry exposures in the Masik River valley (see also Mason *et al.*¹), but very rare on north-facing exposures. Seen also in the vicinity of Sachs Harbour village.

Pyrola secunda var. *obtusata* Turcz.

Found between Carpenter Lake and Sachs River (see Fig. 1) among *Dryas integrifolia* and mosses, on tops of moss hummocks with humic soil. Specimens are sterile and very small, and their stems are thin and have few leaves. This is the northernmost reported location of this plant in the Arctic.

Rumex arcticus Trautv.

Luxuriant specimens found on anthropogenic habitats in Sachs Harbour village are up to 3 ft. tall, with large, wide leaves, thick stems and inflorescences abundantly flowered. Single smaller plants occur on coastal cliffs and on beaches around Thesiger Bay. Specimens from more inland localities are distinctly depauperate (low, with narrow, short leaves, thin stems and few flowered inflorescences). Fig. 1 indicates the locations. Coastal plants usually grow on loose soils and in well-exposed places, whereas inland specimens are found on gravel, muddy or sandy flats and stony, barren substrates. It is new to the Canadian Arctic Archipelago.

Salix alaxensis (Anderss.) Cov.

S. alaxensis has been more carefully studied than other plants because of its interesting ecology, its peat-forming properties and its occurrence in interglacial and postglacial deposits^{7,8,9} that have great significance in tracing the development of the flora on Banks Island.

Generally, this is a common species in the interior of the island, but it is absent, or very rare, on the coast. Large clumps of *S. alaxensis* were observed many times from the air in swampy areas in the upper parts of Barnard River and Big River. Its distribution over the area studied is shown in Fig. 1. It is possible to distinguish three zones of occurrence: 1 — individual localities near the coast; 2 — groups of localities associated with areas of old peat deposits, sheltered valleys and larger alluvial patches; and 3 — large patches covering the lowest inland slopes, old alluvium and in swamps. The altitudinal range of *S. alaxensis* is also very interesting. It is absent, or very rarely found, on level terrain of elevation up to 50 ft. In the main it is found only in level areas away from the coast, and farther inland on slopes of elevation 50-300 ft. It does not grow in summit areas but loose small clumps of it are to be seen at heights of up to 500 ft.

In the past this plant was more widely distributed than at present, as is shown by twig and moss deposits containing its remains (often as subdominating components) and associated with *Sphagnum*^{7,10} of interglacial age (older than 43,000 radiocarbon years, GSC-1293) in the coastal cliff at Worth Point. *Betula* sp. lower in the same section is >54,000 years old (GSC-1236). Its branches are also common but are not associated with *Sphagnum* peat in postglacial strata (younger than 9730 ± 150 years, GSC-1525) exposed in the coastal cliff between Middle Lake and

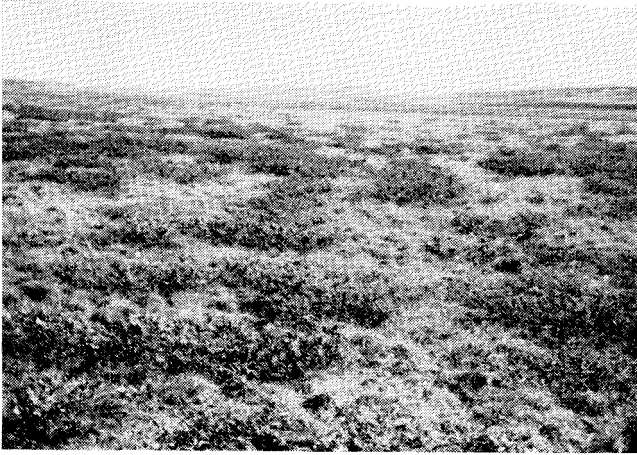


FIG. 2. *Salix alaxensis* community in the middle part of the Masik River valley.

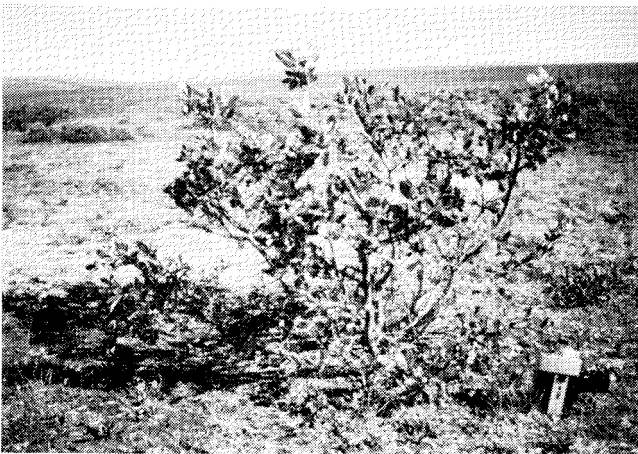


FIG. 3. Luxuriant specimen of *Salix alaxensis* (Anderss.) Cov.

Sand Hills and on alluvium in the lower part of the Masik River Valley^{7,9}.

Edaphic and climatic requirements of *S. alaxensis* on Banks Island can be described as follows. Well developed specimens and their stands occur on moist humic soils, on muddy and gravelly alluvium and on scree. Specimens are distinctly better developed in sheltered and deep depressions with thick snow cover in winter (Fig. 2). Luxuriant forms (Fig. 3) appear around larger bodies of water with shallow shores, along slowly running streams on old alluvial terraces and on well watered scree adjacent to valley bottoms. The most depauperate forms occur in frost cracks both near the sea and at highest elevations. The habitats of *S. alaxensis* in areas south of Banks Island are distinctly different. Observations were made near Tuktoyaktuk and Inuvik and in many places between Great Bear Lake and the Mackenzie

Mountains, mostly in the Norman Wells area.

In the vicinity of Tuktoyaktuk *S. alaxensis* is not dominant in the shrubby tundra, but is often subdominant in the dense shrubby growth composed of *Betula glandulosa* and *Alnus crispa*. In such habitats specimens of *S. alaxensis* are quite similar to the luxuriant forms on Banks Island.

Around Inuvik the plant occupies two main habitats. (1) It grows on fluvial mud flats and forms pure stands up to 18 ft. high, with the ground layer mainly composed of *Equisetum arvense*; plants are tall and thick (main branches reach 2 in. in diameter), with long annual lengths of terminal twigs that are entirely different from those on Banks Island and at Tuktoyaktuk. (2) In bogs it grows in groups together with some associates which do not occur in the Canadian Arctic Archipelago.

In the Norman Wells area, which is close

to the southern border of the species, the plant is a component of the dense, *Salix-Betula-Populus* growth occurring along streams, in ditches and around bogs. Specimens are tall, though thin, densely branched, and usually growing in groups (see Cody¹¹). Extreme life forms have specimens in the lower alpine belt of the Mackenzie Mountains where they grow on dry rocky soils, often in windy places, but rarely among deeper bogs and denser plant communities. Plants are short with dense, thick, strongly-twisted stems distinctly damaged by wind in upper parts.

S. alaxensis is a subarctic species common in the west and rare towards the east, but reaching Hudson Bay. To the south it is alpine. Differences in the behaviour of the plant in the above areas (Banks Island, Tuktoyaktuk, Inuvik, Norman Wells and the Mackenzie Mountains) show that this narrow ranging species can adapt itself to varying environments and climates.

S. alaxensis on Banks Island is one of the main components of twig and mossy peat, in which it is represented mostly by thick branches and nearly entire root systems. Stems, in addition to their thickness and the characteristic type of branching, have distinct striation and nodes on the surface of the wood.

Salix richardsonii Hook.

Common in the Masik River valley, especially on older alluvium ascending to 500 ft. In the Sachs River valley also frequent on alluvium and in moss-bogs. Several small clumps were found on alluvium of the middle of Kellett River (cf. Mason *et al.*¹).

Stellaria edwardsii R. Br.

Collected only twice: (1) on swamps between lakes near the middle of Sachs River and (2) in depressions in wet tundra near Thesiger Bay — though commonly observed in many other places. New to Banks Island. Det. A. E. Porsild.

Marian Kuc
Terrain Sciences Division
Geological Survey of Canada
Ottawa K1A 0E8, Canada

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Three-rooted Mandibular First Permanent Molars in Greenland Eskimo Skulls

The first permanent mandibular molar normally has two roots; however, in a number of individuals a third root develops. This anomaly with three roots (3RM1) occurs in between 0.9%¹ and 3.4%² of Caucasians. The anomaly is unknown in the Negro, but in Mongoloid races is of such a high prevalence as to be termed a racial characteristic. In Eskimos and Aleuts the percentage of individuals showing the anomaly has been variously reported as between 43.7%³ and 12.5%⁴. The wide variation in reports based on studies of arctic peoples leads to the suspicion that the prevalence of 3RM1 may vary according to the different sub-groups of Eskimos in different geographic areas of the Arctic.