

June 1967, when this fragment was drifting near shore close to the end of the airstrip at Alert, two clusters of drums were put on it. The clusters were centrally located approximately 300 m. apart. Each cluster was made up of 20 empty 45-gallon drums securely banded and tied together, and erected in a pyramid similar to the clusters on WH-1. The clusters toppled as a result of the summer melt but each cluster remained a unit (like those on WH-1). Attempts to re-erect the two clusters on LT-1 failed because strong south winds (11 July 1967) caused the pack ice and the ice island fragment to move off shore, leaving approximately 10 miles of open water between the coast and the edge of the pack. Between 11 and 17 July, the fragment carrying the two clusters or radar markers moved 16 miles east and LT-1 was last sighted at 82°30'N, 60°30'W.

Although it is possible to estimate the rate and direction of ice island movement, it is important periodically to locate and identify particular islands. It was hoped that the drums set out by PCSP would assist the various sea ice reconnaissance groups to identify specific pieces of ice as they moved in the waters of the Arctic. Reports from the "Birds Eye" flights suggest that the specific patterns of drums are readily picked up by radar as well as the human eye, and that the drums will prove to be a very effective means of identifying ice islands.

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A Plant Collection from the Wrangell Mountains, Alaska

INTRODUCTION

During the summer of 1966, I participated in a reconnaissance in the easternmost Wrangell Mountains. This was part of a survey for a scientific program in a high mountain region, under the sponsorship of the Arctic Institute of North America (AINA).¹ After a brief survey of the Skolai

(formerly spelled Scolai, Scholai) Creek floodplain, we made a rapid traverse from Skolai Pass up to Chitistone Pass and down the Chitistone River to the mouth of Glacier Creek.² Vascular plants were collected by Barbara Murray and myself from the Skolai Creek floodplain (4,800 ft.), the steep slopes leading to Chitistone Pass, and from Chitistone Pass (5,800 ft.). We were able to return briefly to these same localities in 1967 for additional collecting.

Although there is a published account of a trip through Skolai Pass as early as 1891,³ and both Skolai and Chitistone passes received traffic headed for Chisana, Alaska, during a stampede for gold in 1913 and 1914,^{4,5} the flora has remained unknown. Richard Scott, a participant in the AINA High Mountain Environment Project, is now engaged in an intensive study of this flora. The following list of 115 taxa may be useful in providing distribution data until a more complete analysis is available.

Since the chain of mountains is continuous it might be expected that many of the species noted from the Wrangell Mountains would already be known from the St. Elias Mountains. Some of our collections from the Wrangell Mountains bridge "gaps" of occurrence for species with populations in both the mountains of central Alaska and southwestern Yukon Territory. Other species reported here are known from so few localities that their distribution in Alaska cannot be characterized. A southern extension of an arctic species, *Draba oblongata*, is also noted. The remainder are widely distributed species common to most alpine areas in Alaska and the Yukon.

Collection numbers follow the citation of species. Numbers 680 to 731 were collected on 30 June and 1 July 1966; numbers 970 to 1064 were collected on 21 and 22 July 1967. Vouchers for most of the species are deposited at National Herbarium, National Museum of Canada.

LIST OF SPECIES

Cystopteris fragilis (L.) Bernh. 978a.

Woodsia glabella R. Br. 978b

det. A. E. Porsild.

Equisetum scirpoides Michx. 701.

Equisetum variegatum Schleich. 697.

Lycopodium selago L. 694.

Festuca baffinensis Polunin 1026.

Previously known only from arctic location;⁶ a recent publication by Hultén⁷ includes other interior Alaskan localities.

Hierochloa alpina (Sw.) Roem. & Schult.

1002.

Phippia algida (Sol.) R. Br. 1046.

This species has been found along the northern and western coasts and at 2 localities in the Alaska Range.⁸ Recently reported for the Yukon by Porsild,⁹ I have also found it there at several places along the Kaskawulsh and Steele glaciers in the St. Elias Mountains. A diminutive grass, it has probably been overlooked as Gjaerevoll has suggested. It should be sought on high, shaded north-facing slopes or other exposures that are well irrigated by meltwater from late-lying snowbanks.

Trisetum spicatum (L.) Richt. 1018.

Eriophorum triste (Th. Fr.) Hadac & Löve 998 det. A. E. Porsild.

Eriophorum scheuchzeri Hoppe 992.

Carex consimilis Holm 973.

The relationship of this species to *C. lugens* Holm is still not clear to me. Porsild¹⁰ prefers to recognize both as distinct species. This collection contains plants with hairy rhizomes (so densely hairy that they appear to be covered with felt), contiguous short-cylindric spikes, and perigynia that are short-beaked, papillose, and in several instances sparingly serrulate above.

Carex membranacea Hook. 994.

Carex microchaeta Holm 1019.

Carex podocarpa R. Br. 972.

Carex stans Lrej. 993.

An arctic species known also from scattered stations in the high mountains of the Mackenzie-Yukon Divide,¹¹ St. Elias Mountains,⁹ and the southern Rocky Mountains.¹² This species is distinguished from *C. aquatilis*, with which it is often lumped, on the basis of ecology and morphology, including a significant difference in chromosome number.^{10,12}

Juncus balticus Willd. var. *alaskanus* (Hult.) Pors. (*J. arcticus* ssp. *alaskanus*) 986 det. A. E. Porsild.

Juncus biglumis L. 1029.

Luzula arctica Blytt (*L. nivalis*) 1027 det. A. E. Porsild.

Luzula parviflora (Ehrh.) Desv. 981.

Lloydia serotina (L.) Rchb. 1010.

Salix alaxensis (Anders.) Cov. 688.

Salix arctica Pall. 1013 det. G. W. Argus.

Salix polaris Wahl. (*S. polaris* ssp. *pseudopolaris*) 685, 1042, 1043.

Salix reticulata L. 721.

Salix richardsonii Hook. 977.

Betula glandulosa Michx. 983.

Oxyria digyna (L.) Hill 718.

Polygonum bistorta L. ssp. *plumosum* (Small) Hult. 691, 975.

Polygonum viviparum L. 979.

Claytonia bostockii Pors. 987.

The only previous Alaskan record is from Ketchumstock Creek; it was first re-

ported by Hultén¹³ as *Claytonia* sp., but has recently been determined.⁷ Originally described from material collected in the Dawson Range, Yukon, there is now abundant material available from southwestern Yukon. I have collected it there in wet alpine meadows, and in the centres of active, non-sorted circles at elevations up to 6,500 ft. In the Wrangell Mountains it occurs in meadows at the edge of the Skolai Creek floodplain, and in areas of intense frost disturbance high on the approach to Chitistone Pass.

Claytonia sarmentosa Meyer 714.

Cerastium beeringianum Cham. & Schlecht. 681.

Melandrium apetalum (L.) Fenzl. ssp.

attenuatum (Farr) Hara 970.

Minuartia arctica (Stev.) Aschers. & Graebn. (*Arenaria arctica*) 686.

Minuartia biflora (L.) Schinz & Thell.

(*Arenaria sajanensis*) 719.

Minuartia rubella (Wahlenb.) Graebn.

(*Arenaria rubella*) 680.

Silene acaulis L. var. *exscapa* (All.) DC. 689.

Stellaria alaskana Hult. 1049

det. A. E. Porsild.

A striking plant with large flowers and scarious-margined bracts. Known from only a few localities in Alaska and Yukon,^{9, 14} this collection indicates a greater continuity of populations from the Alaska Range into the St. Elias Mountains. It is also known in the Yukon from the head of Bridge Creek (*Raup, Drury & Raup 13851* CAN) and near Canyon City (*Cairnes s.n.* CAN, incorrectly cited for the Eastern Pacific Coast District by Hultén¹³).

Stellaria laeta Richards. 684.

Stellaria monantha Hult. 682.

Stellaria umbellata Turcz. 1044

det. A. E. Porsild.

Forming small mats at the edge of receding snow banks. First reported for Alaska by Gjaerevoll¹⁴ with which he included a photograph and a distribution map. Hultén⁷ has recently reported an additional interior and an arctic collection. There is also a fifth station of *S. umbellata*: Alaska Range, Yerrick Ck., *Spetzman 808* CAN. *Aconitum delphinifolium* DC. 980. *Anemone parviflora* Michx. 1031. *Anemone richardsonii* Hook. 1032. *Ranunculus hyperboreus* Rottb. 1048. *Ranunculus nivalis* L. 728, 1033, 1034. *Ranunculus pygmaeus* Wahlenb. 717; 1047 det. A. E. Porsild.

Papaver alaskanum Hult. 1023.

Known also in Alaska from the Aleutians, the west coast,¹⁴ and the Arctic Slope,¹⁵ and from northern Yukon.¹¹

Papaver keelii Pors. 1024.

Known from the Mackenzie Mountains, Northwest Territories, this species has been recently reported from central Yukon⁹ and the Arctic Slope.¹⁵ This record from the Wrangell Mountains is less significant, however, if one follows Gjaerevoll¹⁴ and includes *P. keelii* in *P. macounii*.

Corydalis pauciflora (Steph.) Pers. 1003.*Aphragmus eschscholtzianus* Andr. 1041.

This species is previously known from several locations in the Aleutian Islands and the Alaska Peninsula, from one station on the Seward Peninsula, and one in the St. Elias Mountains, Yukon.¹³ I have recently found more material along the Steele Glacier, St. Elias Mountains, probably not far from the other Yukon locality. The Wrangell Mountains' population is at Chitstone Pass, c. 6000 ft., in moist sites. The St. Elias Mountains population is at c. 7000 ft. and limited to fine gravel that is well irrigated by meltwater. Flowering specimens superficially resemble young *Eutrema edwardsii* or *Cardamine bellidifolia* with which it is associated. Hultén¹⁶ has provided a photograph of specimens from the Aleutian Islands.

Arabis lyrata L. ssp. *kamchatica* (Fisch.) Hult. 726.*Cardamine bellidifolia* L. 1037.*Draba crassifolia* Grah. 724, 1054.*Draba fladnizensis* Wulfen 1061a.*Draba lactea* Adams 1052, 1053.*Draba longipes* Raup 725, 1057, 1059.*Draba nivalis* Lilj. 1060.*Draba oblongata* R. Br. 1056, 1058.

det. A. E. Porsild.

The plants in this collection are loosely tufted with branching bases, dense, soft pubescence, and pubescent, elliptic siliques. An otherwise arctic species⁶ it differs in this case by having an elongating inflorescence. A photograph of this species is given by Porsild.¹⁷ Hultén¹³ predicted that this species would be found in Alaska, but I know of no published records. This collection is a significant extension of its range to the south.

Draba praealta Greene 731.

This species is little known in Alaska. For a discussion and distribution map of this misunderstood species see Porsild.^{9,11}

Eutrema edwardsii R. Br. 1035.*Parrya nudicaulis* (L.) Regel 971.*Chrysoplenium wrightii* Franch. & Sav. 1022.*Parnassia kotzebuei* Cham. & Schlecht. 710.*Saxifraga adscendens* L. ssp. *oregonensis* (Raf.) Bacigalupi 683, 1064.

Known from a few widely separated localities in Alaska.⁹

Saxifraga bronchialis L. ssp. *funstonii* (Small) Hult. 1038.*Saxifraga caespitosa* L. ssp. *monticola* (Small) Pors. 720.*Saxifraga cernua* L. 995.*Saxifraga davurica* Willd. ssp. *grandipetala* (Engler & Irmsh.) Hult. 707.*Saxifraga flagellaris* Willd. ssp. *flagellaris* Pors. 1007.

This collection is composed of one, two, and three flowered plants, with free sepals, large, deep yellow petals, and a superior ovary. However, the plants do possess some purple-headed, stalked glands on the sepals, one of the criteria by which Porsild¹⁸ distinguishes ssp. *platysepala*. The same is true for material from the arctic coast.¹⁹ Hultén²⁰ views ssp. *flagellaris* as restricted to the Caucasus, and under his treatment this collection is ssp. *setigera*.

Saxifraga hieracifolia Waldst. & Kit. 703, 1008.*Saxifraga punctata* L. 1039.

Capsules are cleft 40% or greater, leaves glabrous or sparsely pubescent, especially on the abaxial surface. Following the treatment of Calder and Savile,²¹ this taxon is ssp. *porsildiana*, which Porsild⁹ considers a synonym of ssp. *insularis*.

Saxifraga rivularis L. ssp. *flexuosa* (Sternb.) Gjaerevoll 1055.

Gjaerevoll¹⁴ has provided a diagnosis and drawings for distinguishing ssp. *flexuosa* from typical *rivularis*. He also noted the similarity of this taxon to *S. debilis* from Colorado. Weber²² recently discussed this problem and indicated that they can be distinguished on the basis of hypanthium shape and the nature of pubescence on the pedicels.

Saxifraga serpyllifolia Pursh 713.*Saxifraga tenuis* (Wahlenb.) Sm. 1040.*Saxifraga tricuspida* Rottb. 974.*Dryas alaskensis* Pors. (*D. octopetala* ssp. *alaskensis*) 696, 1006.*Dryas octopetala* L. 1005a, 1005b.

1005a has leaves bearing "octopetala scales"²³ with occasional stipitate, capitate glands on the leaf midveins and petioles. The upper surface of a few leaves bears sessile, viscid glands.

1005b also possesses *octopetala* scales, but with sessile and short-stipitate, capitate glands on leaf midveins and petioles. The upper leaf surfaces are very viscid with sessile glands. Of great interest is the occurrence of *octopetala* scales mixed with stipitate, capitate purple glands on the hypanthium and sepals. This variation has been described previously only from an eastern Asian specimen,²³ but has been noted on several herbarium specimens of North American

material.

The taxonomic importance of these variations is as yet not clear.

Potentilla hypatica Malte (*P. emarginata*) 715.

Potentilla uniflora Ledeb. (*P. ledebouriana*) 716.

Astragalus alpinus L. 1050.

Astragalus nutzotinensis Rousseau 711.

Astragalus umbellatus Bunge 1011.

Lupinus arcticus Wats. 1009.

Oxytropis huddelsonii Pors. 712.

Oxytropis scammaniana Hult. 1051.

See Porsild⁹ and Gjaerevoll¹⁴ for maps of the total known range.

Shepherdia canadensis (L.) Nutt. 695.

Epilobium latifolium L. 699, 1000.

Pyrola grandiflora Rad. 1036.

Arctostaphylos rubra (Rehd. & Wils.) Fern. 698.

Cassiope tetragona (L.) D. Don. 708.

Vaccinium uliginosum L. 988.

Vaccinium vitis-idaea L. ssp. *minus* (Lodd.) Hult. 700, 1020.

Dodecatheon frigidum Cham. & Schlecht. 690, 1004.

Douglasia gormanii Constance 722.

Polemonium acutiflorum Willd. ex L. 976, 982.

Polemonium boreale Adams 727.

Myosotis alpestris Schmidt ssp. *asiatica* Vestergr. 999.

Castilleja yukonis Pennell 1025
det. A. E. Porsild.

Considered an endemic of the upper Yukon Valley by Porsild,¹¹ I can find no previously published records of this species for Alaska.

Pedicularis capitata Adams 730.

Pedicularis langsdorffii Fisch. ex Steven 693, 1017.

Pedicularis sudetica Willd. ssp. *interior* Hult. 704, 991, 997.

Valeriana capitata Pall. ex Link 730.

Antennaria monocephala DC. 687.

Arnica lessingii Greene 1016.

Artemisia arctica Less. 1012.

Artemisia tilesii Ledeb. 984.

Crepis nana Richards. 1001.

Erigeron humilis Grah. (*E. unalaschkensis*) 709.

Petasites frigidus (L.) Fries 1015.

Saussurea viscida Hult. var. *yukonensis* (Pors.) Hult. (*S. angustifolia* var. *yukonensis*) 1014.

Senecio atropurpureus (Ledeb.) Fedtsch. var. *ulmeri* (Steffen) Pors. 692.

Senecio resedifolius Less. 706, 1021.

Taraxacum alaskanum Rydb. 1045.

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International Meeting of Polar Bear Scientists

Concern for the future welfare of the polar bear throughout the Arctic brought together a small group of leading scientists from several nations at Morges, Switzerland,

during the last three days of January 1968. The meeting was arranged by the International Union for Conservation of Nature and Natural Resources (IUCN), which had earlier accepted responsibility for acting as the co-ordinating agency between those Arctic nations which first met at Fairbanks, Alaska, in September 1965 to exchange information regarding polar bear conservation problems. Invited to attend the Morges meeting were scientists from Canada, Denmark, Norway, the Soviet Union, and the United States.

The polar bear is one of the species listed in the IUCN *Red Data Book* on the world's rare and endangered animals. IUCN considered it highly important that polar bear specialists should meet at this time to review present research activities, to discuss research needs and priorities, and to consider how best to achieve more effective scientific collaboration on a continuing basis. While IUCN is aware that many organizations and individuals are deeply interested in the conservation of this circumpolar species, it was decided that the most effective results would be achieved by inviting only a limited number of scientists active in polar bear research to participate in a closed working session, as distinct from a conference.

The meeting was a valuable experiment in international co-operation, and it proved to be highly successful. A wide variety of scientific data was freely exchanged, and agreement was reached on a co-ordinated research plan. A far-reaching outcome was the formation of a permanent international committee of scientists engaged in polar bear research. This "Polar Bear Group" will function under the auspices of the IUCN. Dr. S. M. Uspensky of the Soviet Union was unanimously elected its first Chairman.

The scientists recognized that more knowledge concerning distribution and abundance of polar bears was required, and agreed on methods and scientific techniques to obtain this information. A tagging and marking program is already in operation in various parts of the Arctic as a means of assisting the study of migratory movements, habits, and requirements. It was revealed, however, that closer co-ordination among the nations involved was needed in order to increase the effectiveness of this line of research.

Other important topics discussed included: techniques for bear censusing by means of both aerial and surface survey methods; bear productivity and survival; taxonomic studies to determine if local races exist; techniques