

THE IDENTITY OF *CAREX MISANDROIDES* FERN. WITH NOTES ON THE NORTH AMERICAN *FRIGIDAE*^{1, 2}

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DESCRIBED in 1915 (6) from specimens collected in Newfoundland, *Carex misandroides* Fern., was discovered 12 years later at one single station in the Gaspé Peninsula (9). When describing it, the late Dr. Fernald believed the plant to be related to *C. misandra* R. Br., which explains the choice of the name. He wrote:

"Simulating *C. misandra* R. Br. of the Arctic, a species in which the terminal spike is staminate at base only, the scales and perigynia narrower, the latter prolonged into a slender distinctly serrate beak, the stigmas commonly 3, and the leaves broader and flat. Only one knoll of *C. misandroides* was observed during a hurried trip across the tableland of Table Mountain and the material collected shows scarcely any individuals which are clearly duplicates, so great is the diversity in length of the culms and peduncles. In one individual a tall culm (1 dm. high) bears an umbel with a nearly sessile staminate spike and 4 pistillate spikes on peduncles from 2 mm. to 3.5 cm. long; others have long slender peduncles arising from near the base of the plant, one of them bearing sessile staminate and pistillate spikes, and one extreme individual has the staminate spike essentially sessile at the base of the plant, with the long-peduncled pistillate spikes over-topping it."

A more recent description and illustration have been made available through the latest edition of Gray's Manual (8).

Meanwhile, Fernald realized the affinity of his species to western ones such as *C. petricosa* or *C. Franklinii*, for, in 1925, he wrote (7):

The section *Frigidae* of the great genus *Carex* has two specially notable Rocky Mountain species, *Carex petricosa* Dewey

and *C. Franklinii* Boott, both excessively rare plants, the two together thus far known from only three or four stations in Alberta and British Columbia. On Table Mountain on Port à Port Bay and on the adjacent St. George Peninsula in western Newfoundland and on the high cliffs above Lac Pleureuse in Gaspé County, Quebec, occurs a third species of the *Frigidae*, *C. misandroides* Fernald (map 16), in some of its variations closely simulating *C. Franklinii*, in others as similar to *C. petricosa*, yet differing from them both in fundamental characters of the fruit.

In 1943, Dutilly & Lepage found the plant on dolomitic cornices in the central islands of Lake Mistassini (5). Dr. Fernald, seeing the material, wanted at first to describe the Mistassini material as a new species; and on some labels one may find written the name *Carex mistassinica* Fern. A little later, in 1945, on one of his trips to Lake Mistassini, Jacques Rousseau made an ample collection of the plant in the same locality as Dutilly & Lepage. The material exhibiting identical variations in the spike-arrangements as he had observed, in 1915, on the Newfoundland plant, Fernald dropped the idea of a new species. Again in 1945, Dutilly & Lepage on another of their trips through subarctic Québec, added a new locality for the hitherto localized sedge: Larch River, about 57° lat. N., in much the same type of habitat. More recently, in July 1948, Rouleau, discovered a new locality for the species in Newfoundland.

I had always suspected, especially after having myself collected the plant with Rouleau, at Anse Pleureuse, in Gaspé, late in August 1948, the species to be very close to the rare *Carex Franklinii* Boott of the Rocky Mountains (3, 4).

Boivin, in a revision of the Canadian representatives of the FERRUGINEAE, in 1948

¹ Mémoires du Jardin Botanique de Montréal, no 29.
² Received for publication July 4, 1951.

(2), expressed the same view, without elaborating the point any further.

I recently had the opportunity to see an interesting set of some 40 sheets of *C. Franklinii*, *C. petricosa* and *C. misandroides*, from the National Herbarium in Ottawa, as well as 12 sheets from the Gray Herbarium, including isotypes of *C. Franklinii* and the type of *C. petricosa*, from Dewey's herbarium, kindly placed at my disposal respectively by Mr. A. E. Porsild and Dr. R. C. Rollins, and a photograph of the type of *C. Franklinii* made at Kew in 1888, by Dr. L. H. Bailey, which Miss Ethel Zoë Bailey has courteously sent me. Moreover, I have had access to all specimens of *C. misandroides*, which have been collected in Quebec and which are preserved either in the Marie-Victorin Herbarium, or the Herbarium of the Montreal Botanical Garden. After close comparison, I have reached the conclusion that *C. Franklinii* and *C. misandroides* intergrade in their mutual variations.

The descriptions of the two species, taken mainly from Mackenzie (13, 14) and Fernald (6, 8) and modified whenever the material at hand necessitates it, are compared in Table I.

Concerning the disposal of the flowers in the uppermost part of the spike, Holm (11) with abundant material collected by James M. Macoun, in 1919, at or near the place along the Athabaska Trail, where Drummond first discovered *C. Franklinii* made the following observations:

Terminal spike: mostly androgynous, very seldom purely staminate.

Uppermost lateral spike: staminate or androgynous, very seldom purely staminate.

Second lateral spike: pistillate, seldom androgynous or staminate.

With material of *C. misandroides* (10 herbarium sheets from Lake Mistassini, 3 from Newfoundland, 4 from Gaspé and 1 from Larch River), I reached the same conclusions. Rousseau's material collected at the end of July, is smaller, has narrower leaves, while the Dutilly & Lepage collection, from the same area, made in August, is more robust. In the Larch River material, the terminal spike is staminate (with one female flower at the base, in one specimen), and the upper lateral one pistillate.

We must then admit that the intermixing of the androgynous and the pistillate in the terminal group of spikes is in this subsection of no taxonomic value. Boivin described (2)

C. Franklinii var. *nicholsonis* with the diagnosis "differt spica apicali floribus et masculis et foemineis intermixis," from Nicholson Island, in the Northwest Territories, a phase which Boott had already covered in his description: "spica terminalis ovata apice conspicue mascula, ad ejus basin 1-3 arcte sessiles lineares tote masculae vel flosculis foemineis paucis basi instructae..." Furthermore, the plant appears to be but a luxuriant *C. petricosa* Dewey.

Rousseau's material also shows many pistillate spikes from the base borne on the tip of long capillary peduncles. This character likewise is of no taxonomic value, as I have before me specimens of *C. membranacea* Hooker (from Alaska), *C. petricosa* Dewey (from the Rocky Mountains), *C. stylosa* C.A. Meyer (from the Aleutian Islands) and *C. Bigelowii* Torr. ex Schwein. (from Ungava) all exhibiting the same peculiarity.

As to the number of styles, Boott in Hooker's *Flora boreali-americana* (3) illustrates a specimen with two styles while in *Illustrations of the genus Carex* (4), he shows a female flower with three. His description reads "stigmatibus — 3 vel 2". Fernald's more recent description of *C. misandroides* (8) makes the following allowance: "style branches 2 (rarely 3)". In opposition to Mackenzie's statement that the achene is triangular, it should be observed that in *C. Franklinii* or in *C. misandroides*, the achene is lenticular when there are 2 stigmas, and trigonous when there are 3, since the number of stigmas commands the number of ovules as well.

Mackenzie (13) and Boivin (2) based their keys on the number of styles, a character of no value whatever in this group, as shown immediately above.

So, in these two treatments, *C. misandroides* does not appear with *C. Franklinii* and *C. petricosa*, where it rightly belongs, but is set at the end, by itself. In his description of *C. Franklinii*, Mackenzie states "stigmas 3", which is not in full harmony with established fact.

The author's conclusion is that *C. misandroides* Fern. is identical to *C. Franklinii* Boott and could, at the most, be treated as a geographical variety. Consequently, this rare and supposedly local Rocky Mountain species is actually a transcanadian one. Presumably, some day, some very closely related, if not identical, species from eastern Asia will appear and thereby add another element to a type of distribution with which we are now

Table 2. — Comparison of *Carex misandroides* Fern. and *C. Franklinii* Boott

	<i>Carex misandroides</i> Fern.	<i>Carex Franklinii</i> Boott
Vegetative characters:	Loosely cespitose, the rootstocks slender, elongate, descending obliquely.	Loosely cespitose, the rootstocks slender, elongate, slenderly long-stoloniferous.
Leaves:	Leaves with well-developed blades, 4-8 to a fertile culm, clustered above the base, not septate-nodulose, the blades yellowish-green, stiff-involute, 5-10 cm. long, 1-1.5 mm. wide, long-attenuate, little roughened, as long or shorter than the culms, those of the previous years conspicuous.	Leaves with well-developed blades, 4-8 to a fertile culm, clustered above the base, not septate-nodulose, the blades light green, stiffish, usually 20-30 cm. long, 1-3 mm. wide, channelled above, much roughened toward the attenuate apex, usually shorter than the culm, those of the previous years conspicuous.
Terminal spikes:	Terminal 1-4 spikes aggregated, androgynous or staminate.	Terminal 3-4 spikes, aggregated androgynous or staminate.
Lateral spikes:	Lateral spikes 1-4, sometimes androgynous, the uppermost sessile or short-peduncled, the others on long capillary peduncles, the lower 1-2 on arcuate spreading peduncles, the lowest frequently basal or nearly so, the spikes ovoid or oblong-ovoid.	Lateral spikes 2 or 3, not approximate, the uppermost at least androgynous, erect and short-peduncled, the lower strongly separate, drooping on a slender, slightly roughened peduncle 2-4 times its own length, the spikes oblong.
Perigynia:	Perigynia 15-30, appressed-ascending in several to many rows, oblong-lanceolate, 5-6 mm. long, 1.75 mm. wide, strongly flattened, not inflated, minutely asperulous on nerves, ciliate on margins, obscurely and slenderly several-nerved, tapering at base and short-stipitate, tapering at apex, scarcely beaked.	Perigynia 20-40 appressed in several rows, oblong-ovate 4.5-6 mm. long, 2-2.5 mm. wide, strongly flattened not inflated, minutely roughened, ciliate on margins, finely many-nerved, rounded at base and short-stipitate, tapering and minutely beaked at apex, the beak 0.25 mm. long.
Scales:	Scales oblong-ovate, thin, closely-appressed, minutely roughened, shining, about the width of but exceeded by the perigynia, obtusish to short-rough-awned, purplish-black with narrow white-hyaline apex and yellowish mid-vein conspicuous to tip.	Scales closely-appressed, oblong-ovate, short-rough-awned to obtusish, thin, minutely roughened, light-chestnut or reddish-brown with yellowish midrib sharply defined to the tip and white hyaline margins, about the width of but exceeded by perigynia.
Stigmas:	Stigmas 2 (rarely 3), slender, blackish. Plate I, fig. 1 and 4.	Stigmas 3 (rarely 2), slender, blackish. Plate I, fig. 3 and 5.

familiar: transcanadian species transgressing into eastern Asia. According to Holm (loc. cit.), *C. cruenta* Nees, from the Himalayas, comes very close to *C. Franklinii*.

C. petricosa Dewey, in some of its extremes, is another species, very difficult at times to distinguish from *C. Franklinii* Boott. As many botanists have recently been confusing the two, for the present revision, I took the opportunity to borrow from the Gray Herbarium and the National Herbarium, all the specimens preserved there, in addition to the critical material from Alaska collected respectively by Reverend Ernest Lepage (Rimouski), and the late Louis H. Jordal (University of Michigan).

C. petricosa was collected also by Drummond in the same area as *C. Franklinii* (Summit of the Rocky Mts, Drummond 283, lat. about 59°), and its description has been based on a very young specimen, as Bailey (1) has pointed out, and which the author has been able to judge for himself. The type is in the Gray Herbarium, with photographs of it in the National Herbarium, Ottawa, and in the Herbarium of the Montreal Botanical Garden (plate II, fig. 1). It has been very erratically and poorly interpreted as may be seen from an examination of collections under that name in many herbaria.

In *Carex petricosa* as well as in *C. Franklinii*, the terminal group of spikes represent the same combinations of staminate and androgynous ones when intermixed. Holm (1) has likewise studied the former species. In both, the perigynia are slightly hairy with the scales roughened along the midvein. There is such variation in the arrangement of the spikes and the flowers, that very few reliable characters remain. One is the shape of the lateral spikes (usually nearly as wide as long). Another is the length of the perigynia: lanceolate, 1.5-1.75 mm. wide, tapering at the apex, in *C. petricosa* Dewey; oblong-ovate, 2-2.5 mm. wide, abruptly minutely beaked in *C. Franklinii* Boott. Stamen size, very seldom used to determine sedges, may be relied upon here. They are relatively very long (2-2.25 mm.) in *C. petricosa*, much shorter in *C. Franklinii* (circa 1 mm.). Because of the great variation in the disposition of the terminal spikes from one specimen to another, I cannot agree with Kükenthal's (12) placing them in different subsections under the FRIGIDAE.

C. petricosa Dewey is more restricted in its range, being limited to Alberta, Yukon and Alaska.

There is also *Carex distichiflora* Boivin, a species admittedly close to *C. Franklinii* Boott, in fact too close. It comes under one of the arrangements of flowers and spikes already noted by Holm.

One of the main difficulties, in working the FRIGIDAE is the great difference within the same species between mature and over-ripe material. Only one closely familiar with the species in the field is able to determine correctly specimens collected at the end of a season, when the material appears all greyish and with the scales or the perigynia partly fallen off.

With the material at hand, a new key has been built and the precise localities for each species given: the present clarification adds a most interesting Asiatic species to the flora of Alaska and necessitates the description of two new species of the *Carex tristis* M.B. group, one from Alaska, the other from the Northwest Territories, all three having been referred to *C. petricosa* with which, as one shall see below, they have very little in common. The results are summarized in the accompanying key.

1. CAREX ATROFUSCA Schkuhr, Riedgr. 1: 106, tab. Y, fig. 82. 1801; Kükenthal, Pflanz. 4 (20): 553. 1909; Lindman, Sv. Fanerogamfl. 152. 1926; Kreczetowicz, in Komarov, Fl. USSR, III: 282. 1935; Mackenzie, N. Am. Fl. 18 (6): 313. 1935; N. Amer. Cariceae, tab. 364. 1940; Hiitonen, Suomen Kasvio, 163. 1933; Polunin, Nat. Mus. Canada, 92: 124. 1940; Duman, Cath. Univ. Amer. Biol. Ser. 36: 61. 1941; Hultén, Fl. Alaska and Yukon, II: 373. 1941; Atlas Vasc. Pl. NW. Eur. fig. 398. 1950; Lid, Norsk Fl. 154. 1944. — *C. ustulata* Wahlenb., Vet. Akad. Nya H. Stockholm 24: 156. 1803; Schweinitz and Torrey, Ann. Lyc. Nat. Hist. N.Y. 1: 349. 1824; Kunth, Enum. Cyper., 462. 1837; Andersson, Cyp. Scand. 37 tab. 6, f. 68. 1849; Meinshausen, Acta Horti Petr. 18 (3): 356. 1901.

Arctic-alpine and circumpolar. Throughout arctic Canada.

1a. *C. ATROFUSCA* var. *DECOLORATA* Porsild, Sargentia 4: 20. 1943. — f. *decolorata* (Porsild) Boivin, Nat. Can. 75: 208, 1948; *C. stilbophaea* V. Krecz., Fl. USSR, III: 605. 1935.

Known in North America only from Great Bear Lake (NWT), and in Asia, from Altai, Sajon and Siberia.

1b. *C. ATROFUSCA* var. *major* (Boeckl.) Raymond, n. comb. — *C. ustulata* var. *major* Boeckl., Linnaea 41: 260. 1877. — *C. coriophora* Fisch. et Meyer, ex Kunth, Enum. pl.



Plate I. Fig. 1. *Carex misandroides* Fern. from Lake Mistassini. — Fig. 2. Type of *Carex Franklinii* Boott in Kew Garden Herbarium. — Fig. 3. *Carex Franklinii* Boott from the type region. — Fig. 4. Detail of fig. 1. — Fig. 5. Detail of fig. 2.



Plate II. Fig. 1. Type of *Carex petricosa* Dewey in Gray Herbarium. Fig. 2. *Carex petricosa* Dewey from the type region. — Fig. 3. *Carex petricosa* Dewey from Nordegg (Alta). — Fig. 4. *Carex petricosa* Dewey from Jasper National Park (Alta).

Key to the Canadian FRIGIDAE Fries³

1. One (occasionally 2) terminal spike, staminate or gynecandrous; 3 stigmas, about half the length of the perigynia; arctic-alpine species.
 2. Lateral spikes ovoid or short-oblong, round-truncate at base; perigynia 4-5 mm. long, 1.75-2 mm. wide; loosely cespitose with short stolons; leaves not recurved; reaching 78° 52' N. in Ellesmere Land.
 3. Usually 1.5-3 dm. high.
 4. Perigynia and scale purplish-black.
 1. *C. atrofusca* Schk.
 4. Perigynia and scale purplish-black at base, cinnamon-coloured at tip.
 - 1a. *C. atrofusca* Schk.
var. *decolorata* Porsild.
 3. Taller (reaching 6 dm.); Alaska.
 - 1b. *C. atrofusca* Schk.
var. *major* (Boeckl.) Raymond
 2. Lateral spikes linear-oblong.
 4. Leaves very short, all curled, in dense mats; lateral spikes about 1 cm. long; circumpolar and limited to arctic regions reaching 83° N. in Greenland.
 5. Perigynia brownish.
 2. *C. misandra* R. Br.
 5. Perigynia pale cinnamon.
 - 2a. *C. misandra* R. Br. f. *flavida* Fern.
 4. Leaves not curled in dense mats; lateral and terminal spikes 1.5-2.3 cm. long, all drooping on capillary pedicels 5-6 mm. long; northeastern Asia and westernmost Alaska (Nome).
 3. *C. stenocarpa* Turcz.
1. A group of terminal spikes, the uppermost sessile, the remainder on peduncles which increase in length towards the base so as to give the group of terminal spikes a pyramidal shape; ultimate spike androgynous, seldom purely staminate, the uppermost lateral staminate or androgynous, the second lateral pistillate, seldom androgynous or staminate; pistillate scales ciliate on the back; 2 or 3 stigmas, nearly as long as the perigynia; mostly alpine species.
 2. Lateral spikes linear-elliptic, 3-4 mm. wide, 8-25 mm. long loosely-flowered and often with empty scales at base and male flowers at top.
 3. Plants reaching 30 cm. in length; lateral spikes 8-12 mm. long; leaves 1 mm. wide, strongly curved reaching about one third of the plant; Great Bear Lake region.
 4. *C. magnursina* Raymond
 3. Plants reaching 60 cm. in length; lateral spikes 20-25 mm. long, linear-elliptic; leaves 2 mm. wide, not curled, reaching more than half the size of the culms; terminal spikes digitately grouped; vicinity of Nome, Alaska.
 5. *C. Lepageana* Raymond
 2. Lateral spikes ovoid, 6-9 mm. wide, 8-15 mm. long; anthers 2-2.5 mm. long.
 3. Lateral spikes nearly as broad as long; perigynia 1.5-1.75 mm. wide, dark brown.
 4. Plants relatively small (10-30 cm.); lateral spikes on relatively short (circa 2 cm.) peduncles, more or less erect; Rocky Mountains, Yukon and Alaska.
 6. *C. petricosa* Dewey
 4. Plants tall (circa 40 cm.); lateral spikes strongly drooping on longer and more slender peduncles; Yukon and Brooks Range in Alaska.
 - 6a. *C. petricosa* Dewey var. *Edwardsii* Boivin
 3. Lateral spikes much longer than broad; perigynia 2-2.5 mm. wide, yellowish-brown.

³ To which should be added the phyllopodic *Carex ablata* Bailey (from B.C. to Montana, Wyoming, Utah and California).

4. Leaves 1-3 mm. wide; plants usually tall (reaching 90 cm.); no basogynous spikes; Alberta and Yukon.
..... 7. *C. Franklinii* Boott
4. Leaves narrower; plants usually smaller; basogynous spikes frequent; Ungava, Gaspé and Newfoundland; Alaska.
..... 7a. *C. Franklinii* Boott
var. *misandroides* (Fern.) Raymond

II: 463. 1847. — *C. ustulata* Boott, Ill. Carex I: 70-71, tab. 193. 1858. — *C. atrofusca* var. *nortoniana* Boivin, loc. cit.

Known only from the Bering Sea and the Bering Straits districts in Alaska, and central and northwestern Asia (Altai, Dahuria, Siberia). This tall phase was well illustrated and discussed by Boott, a century ago.

2. CAREX MISANDRA R. Br., in Parry Voy. App. 283. 1823; Schweinitz and Torrey, Ann. Lyc. Nat. Hist. N.Y. 1: 325. 1824; Kunth, Enum. Cyper. 435. 1837; Kreczetowicz, in Komarov, Fl. USSR, III: 92, tab. 18, fig. 1. 1935; Mackenzie, N. Am. Fl. 18 (6): 312. 1935; Polunin, Nat. Mus. Canada, 92: 125. 1940; Duman, Cath. Univ. Amer. Biol. Ser. 36: 65. 1941; Hultén, Fl. Alaska and Yukon, II: 373. 1941 (probably at the exclusion of the Nome specimens cited); Atlas Vasc. Pl. NW. Eur. fig. 397. 1950; Lid, Norsk Fl. 141. 1944. — *C. fuliginosa* Schk. Riedgr. I: 91. 1801 (as to the arctic plant only); Andersson, Cyp. Scand. 26, tab. 7, f. 90. 1849; Kunze, Suppl. Riedgr. 57. 1840-50, in part.; Boott, Illus. II. 77, tab. 212. 1860, in part.; Meinshausen, Acta Horti Petr. 18 (3): 358. 1901, in part.; Lindman, Sv. Fanerogamfl. 152. 1926; Hiitonen, Suomen Kasvio, 163. 1933. — *C. fuliginosa* var. *misandra* O.F. Lang, Linnaea 24: 597. 1851; Kükenthal, Pflanzenr. 4 (20): 557. 1909. — *C. frigida* var. B. Trev. in Ledeb. Fl. Ross. 4: 294. 1853.

Throughout arctic Europe, Asia and North America⁴), from Alaska to Greenland.

2a. f. FLAVIDA Fernald, Rhodora 36: 91. 1934; Polunin, loc. cit.

Northwest Greenland, southern Ellesmere and southern Baffin.

3. *C. STENOCARPA* Turcz. ex Besser, Flora 18. Beibl. 1: 27. 1834 (nomen); Kreczetowicz, in Komarov Fl. USSR, III. 291, 607 (descr.), tab. 18, fig. 2. 1935. — *C. tristis* Turcz., Bull. Soc. Nat. Mosc. 28: 349. 1855; Fl. baic-dah. II (2): 234. 1856; C. A. Meyer, in Ledeb., Fl. Alt. 4: 228. 1833; Trev. in Ledeb. Fl. Ross. 4: 294. 1853, quoad pl. asiat.; Meinsh., Acta Horti Petr. 18 (3): 358. 1901,

excl. pl. caucas.; V. Krecz., in Fl. transb. II: 131, non Marschall von Bieberstein, Fl. taur-cauc. 3: 615. 1819. — *C. tristis* var. *asiatica* Litw., Trav. Mus. Bot. St. Petersb. 7: 94. 1910. — *C. sempervirens* var. Boott, III. Carex IV, 569, 1867 (quoad pl. asiat.) — *C. sempervirens* ssp. *tristis* Kükenthal, Pflanzenr. 4 (20): 569. 1909; Journ. Russ. Bot. 3-6: 155. 1911. — *C. sempervirens* ssp. *tristis* var. *asiatica* B. Fedtsch., Acta Horti Petrop. 38 (1): 217: 1924. — *C. frigida* Regel, Acta Horti Petrop. 7: 569. 1880, non Bellardi ex Allioni in Fl. Pedem. — *C. fuliginosa* Kükenthal, l.l.c.c. 556, 151, quoad pl. Lessing. ex Sibiria. — *C. fuliginosa* ssp. *pronella* Printz, Veg. Siber. Mongol. Front. 157, tab. 5, fig. 2 et 3. 1931.

ALASKA: Dry slope of Cape Nome. Aug. 7, 1948. Ernest Lepage 23820 (L). — Dry slope of Anvill Hill, Nome. Aug. 9, 1948. Ernest Lepage 23900 (L, NH). Plate III, fig. 1.

ASIA: Asia Media, mountains of Altai and Sajan, Siberia and Mongolia (Kreczetowicz, loc. cit.).

Father Lepage's remarkable find adds still another to an already imposing list of Asiatic species which transgress into Alaska.

4. *C. MAGNURSINA* Raymond, n. sp. — Planta 20-30 cm. alta, stolonibus brevibus dense vestitis foliis reductis scabris acutis basi amplexantibus; foliis mortuis numerosis curvatis; foliis omnibus basilaribus 9-15 cm. longis 1-1.5 mm. latis curvatis scabris; caulibus fructiferis gracilibus; spica terminali tam mascula, tam cum 1-2 floribus foemineis basilaribus, tam cum 1-2-3 spiculis foemineis brevibus, imis sessilibus; spicis lateralibus 5-12 mm longis, 3-4 mm. latis, laxis basi rarifloribus, pedunculatis; pedunculis tenuibus scabribus 8-20 mm. longis nutantibus; perigyniis lanceolatis 3.5 mm. longis .75 mm. latis, flavo-virescentibus demum apice cinnamomeis, enerviis, stipitatis, cum margine setuloso et rostro breve bidentato; squamis late ovatis, brunneis cum carina pallidiore sub-aequilongis aut paulo brevioribus perigyniis; akeniis 1.5 mm. longis, 0.9 mm. latis, breve stipitatis trigonis; stigmatibus tribus, 3 mm. longis.

⁴ The plant from Colorado belongs to the very close alpine *C. fuliginosa* Schk. Mackenzie's plate in N. Am. Cariceae, tab. 363 (1940) represents *C. fuliginosa* not *C. misandra*.

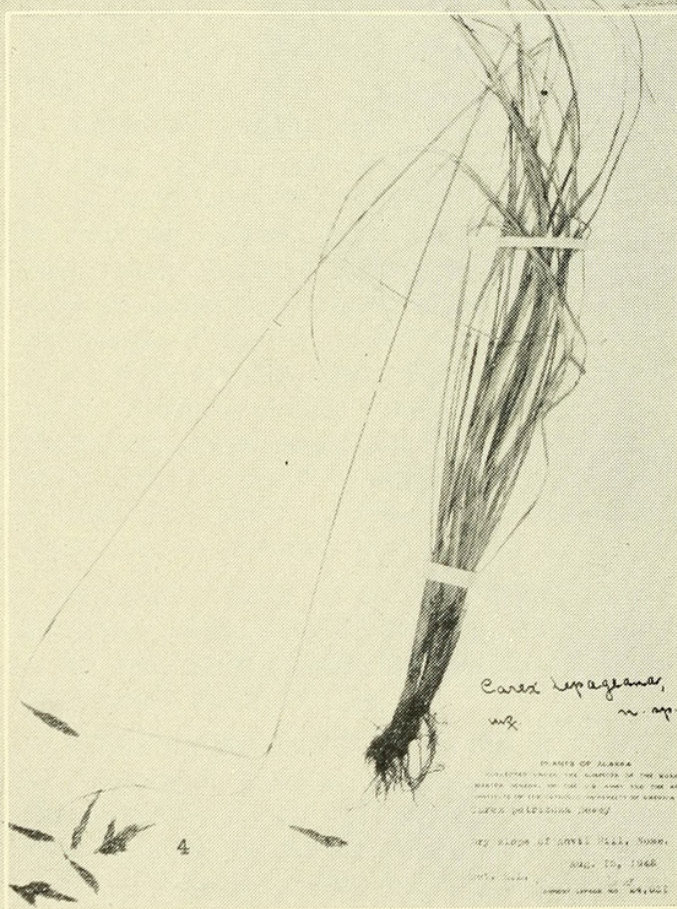
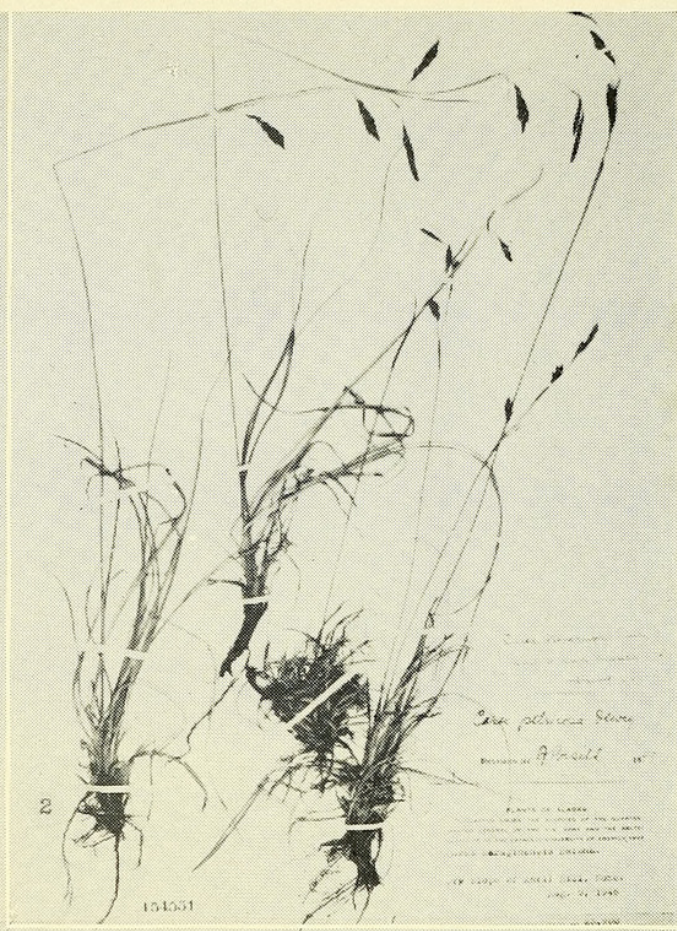


Plate III. Fig. 1. Type collection of *Carex petricosa* var. *Edwardsii* Boivin from Yukon. — Fig. 2. First North American collection of *Carex stenocarpa* Turcz. from Nome (Alaska). — Fig. 3. Type collection of *Carex magnursina* Raymond from Great Bear Lake (NWT). — Fig. 4. Type collection of *Carex Lepageana* Raymond from Nome (Alaska).

CANADA NORTHWEST TERRITORIES:

Great Bear Lake Region. In boggy valley near rapids of the Harrison River, eastern end of McTavish Arm. 30 July 1948. *Steere, Lowrey, Phillips, Shacklette & Kucyniak* 3228. (TYPE in the Herbarium of the Montreal Botanical Garden). Plate III, fig. 3.

Affinis *C. Gorodkovio* V. Krecz. sed differt foliis angustioribus et dispositione spicularum terminalium.

On first sight, *Carex magnursina* looks like some strong and robust specimen of *Carex capillaris*. But there the resemblance ends since both species do not belong to the same section.

5. **C. LEPAGEANA** Raymond, n. sp. — Planta circa 70 cm. longa, sine stolonibus (?) in specimine unico; foliis 30-35 cm. longis 1-2 mm. latis, caerulea-viridibus, numerosis, mortuis evidentibus; spiculis terminalibus tribus digitate dispositis, terminali mascula, basi foeminea, 15-20 mm. longa, basilaribus paulo brevioribus; spiculis lateralibus 20 mm. longis, 3-4 mm. latis, basi et apice attenuatis, laxifloribus, nutantibus; pedunculis 20-30 mm. longis, capillaribus; bractea ima 9 cm. longa, foliis simili, cum vagina 20-25 mm. longa, eburnea; utriculis 5 mm. longis, 1-1.25 mm. latis, fusiformibus, basi viridescentibus, apice brunneis, minute hispidulis; squamis 4-4.5 mm. longis, 1.5-2 mm. latis, brunneis, hispidis, margine nervo medioque hyalino, brevioribus sed latoribus utriculis. Akeniis trigonis 2 mm. longis, 1 mm. latis, puncticulatis, basi stipitatis; stigmatibus (an semper?) tribus.

ALASKA: Dry slopes of Anvil Hill, Nome. Aug. 15, 1948. *Ernest Lepage* 24031 (TYPE in the Herbarium of the Montreal Botanical Garden). Plate III, fig. 4.

C. stenocarpae affinis, sed spiculis terminalibus digitate dispositis, majora statura, foliis longioribus, squamis hispidulis valde differt. A. *C. Gorodkovio* V. Krecz. cui consanguinea magnitudine, spicularum terminalium dispositione valde differt.

6. **C. PETRICOSA** Dewey, Am. Journ. Sci. 29: 246. pl. W, f. 70. 1836; Bailey, L. H., Proc. Amer. Acad. Sci. 22: 92. 1886; Holm, Amer. Journ. Sci. IV. 26: 488-491, fig. 21-24. 1908; Kükenthal, Pflanzenr. 4 (20): 570. 1909; Mackenzie, N. Am. Fl. 18 (5): 311. 1935; N. Amer. Cariceae, tab. 361. 1940; Porsild, Sargentia 4: 19-20. 1943, in minima parte, excl. numer. 4676, 4887, 6647, 6648; Raup, Sargentia 6: 135. 1947; Boivin, Nat. Can. 75: 207. 1948. — *C. Franklinii* Boott var. *nicholsonis* Boivin, loc. cit.

ALBERTA: Summits of Rocky Mountains. *Drummond* 283. Herb. Hook. (GH). Photographs in NH and JB. — **BANFF NATIONAL PARK.** Banff on the Peak. Alt. 8000 feet. *Macoun* 7425 (GH, NH); *Samson* 25498 (NH). — Rundle Mountain, 6000 feet alt. *Samson* (GH). — Vicinity of Sunshine Ski Lodge, south of Healy Creek: forested lower slopes and rocky, alpine summits between 7200 and 9300 feet elev. *Porsild & Breitung* 13358 (NH). — Vicinity of Athabasca Glacier: moraines and alpine meadows, elev. 6500-7000 feet. *Porsild & Breitung* 14492 (NH). — Headwaters of N. Saskatchewan River: Ridge between Mt. Athabasca and Saskatchewan Glacier, near mile 114 on Banff-Jasper highway, elev. 7000-8000 feet. *Porsild & Breitung* 14541 (NH). — Upper North Saskatchewan River; alpine slopes of Mt. Saskatchewan, common in alpine tundra. *Porsild & Breitung* 16053 (NH). — **JASPER NATIONAL PARK.** Moraines along the side of Athabasca Glacier near Columbia Icefields. *Porsild & Breitung* 16330 (NH). — Athabasca Glacier, Columbia Icefield, elev. 6525 feet. *Scamman* 2734 (GH). Moose Mt. Elbow River, Alt. 6700 ft. *Macoun* 25533 (NH). — Nordegg, Mt. Coliseum. Alt. 4500-6500 feet. *Malte & Watson* 1479 (GH, NH).

YUKON: CANOL RD.: Mackenzie Range. Bolstead Creek. Mile 111 East. Pump Station no. 4. 4420 feet. High alpine valley. *Porsild & Breitung* 11830 (NH). — Rose-Lapie R. Pass: East slope of granite-schist mountain west of mile 118; alpine screes and rocky chimneys. Forming small colonies on dry gravelly slope, 5000 feet. *Porsild & Breitung* 10113 (NH). — Arctic Coast: Liverpool Bay, Nicholson Island about 70° N., 129° W. Edge of summer-dry tundra pool. A. E. & R. T. *Porsild* 2840 (NH). (Type of *C. Franklinii* Boott var. *nicholsonis* Boivin).

ALASKA: Edge of a cliff. Toglat River. McKinley Park. *Lepage* 25510 (L.).

6a. var. **EDWARDSII** Boivin, Nat. Can. 75: 207. 1948. Plate III, fig. 1.

MACKENZIE DISTRICT: Lone Mt.: lower N. Nahanni R. 6 miles above confluence with Mackenzie R.; steep wooded slopes and cliffs from base to summit, 2500 feet. *Porsild* 16625 (NH). — Lone Mt. near the confluence of the North Nahanni R. and the Mackenzie. *Wynne-Edwards* 8438 (NH). TYPE. — North peak of Nahanni Mt., near the confluence of North Nahanni R. and the Mackenzie; elevation 2700 feet. *Wynne-Edwards* 8439 (NH). CANOL RD.: Mountain Range west of Head of Bold-

stead Creek, 6 m. northwest of Pump Station No. 4. Mile 111 East. *Wynne-Edwards* 8251 (NH).

ALASKA: BROOKS RANGE. Loose clumps in clayey open ground. Lowlands near Arctic Village. *Louis H. Jordal* 3608 (MICH; JB).

7. *C. FRANKLINII* Boott, in Hooker, Fl. bor.-am. II: 217, tab. 218. 1839; Illus. *Carex* II: 77, tab. 211. 1860; Bailey, L. H., Proc. Amer. Acad. Sci. 22: 93. 1886; Kükenthal, Pflanzenr. 4 (20): 542. 1909; Holm, Amer. Journ. Sci. 49: 195-200, fig. 1-4. 1920; Mackenzie, N. Am. Fl. 18 (5): 311. 1935; N. Amer. Cariceae, tab. 362. 1940; Boivin, Nat. Can. 75: 206. 1948. — *C. distichiflora* Boivin, loc. cit.

ALBERTA: BANFF NATIONAL PARK. Rocky Mountains. *Drummond* 293. Isotypes from Herb. Hook. and Herb. Dewey in GH. Type in Kew. Photographs at the herbarium of the Bailey Hortorium, at the Gray Herbarium and in the Herb. of the Montreal Botanical Garden (Plate I, fig. 2). — North Saskatchewan River: flood plains and dry river banks near junction with Howse R. *Porsild & Breitung* 16083 (NH). — Upper drainage of N. Saskatchewan R.: valley of Mistaya R., between Saskatchewan crossing and Water-fowl Lakes. elev. 4500-7000 feet. Common on river flat. *Porsild & Breitung* 14672 (NH), 14673 (NH), 14674 (NH), 14676 (NH). — Jasper. *Malte* 123959 (NH), 123960 (NH), 94208 (NH) — Jasper Park, Right bank of Athabaska Riv. about $\frac{3}{4}$ mile above bridge. *J. M. Macoun* 97623 (NH). — Along north side of Athabaska River. Across the river. *J. M. Macoun* 97625. — Along the Athabaska River. Near Buffalo Prairie. Alt. 3600 ft. *J. M. Macoun* 97624 (NH, GH). — Along the Athabaska River at discharge of Beauvert Lake. Alt. 3300 feet. *J. M. Macoun* 97621 (NH). — Raised alluvial bank (same loc. as 97621). *J. M. Macoun* 97622 (NH).

YUKON: CANOL RD.: Rose-Lapie R. Pass. Southwest slope of granite mountain west of mile 116. Alpine slopes from road to below summit. Elev. 4000-6000 feet. *Porsild & Breitung* 10054 (NH).

MACKENZIE DIST. MACKENZIE RANGE. Sekwi R., mile 174 E. Pump Station 5, elev. 3625 feet. *Porsild & Breitung* 11848 (NH). Type of *C. distichiflora* Boivin.

7a. var. *misandroides* (Fernald), Raymond, n. comb. — *C. misandroides* Fernald, Rhodora 17: 158. 1915; Gray's Manual, 8th ed. 352, fig. 673. 1950; Mackenzie, N. Am. Fl. 18 (6): 317. 1935; N. Amer. Cariceae, tab. 370. 1940; Boi-

vin, Nat. Can. 75: 207. 1948; Dutilly & Lepage, Contrib. Arct. Inst. Cath. Univ. Amer. Washington 1 F: 89, fig. 9. 1948; Scoggan, Nat. Mus. Canada, 115: 136. 1950. — *C. mistassinica* Fernald, in sched. (GH).

ALASKA: Brooks Range, Battles River, 20 m. NE of Wiseman. *Jordal* 2271 (JB).

NEWFOUNDLAND: Table Mountain, Port à Port Bay. *Fernald & St. John* 10801 (GH). — Green Gardens, Cape St. George. Dry limestone barrens. *Mackenzie & Griscom* 11010 (GH, photograph in NH). — Humber District. Goose Arm, William Wheeler Point (east of): dry limestone ledges at the summit of the talus. *Rouleau* 184 (MV).

UNGAVA: Lac Mistassini et îles du centre. *Dutilly & Lepage* 11556; *Rousseau* 1895, 1866, 1821. — Rivière aux Mélézes, au 56° N., 70° W. *Dutilly & Lepage* 14589 (MV, NH). — Riv. Koksoak, Lat. 57° 42'. *Dutilly, Lepage & Duman* 28128 (JB).

GASPE: Lac Pleureuse. East shore. *Kelsey & Jordan* 48 (GH, NH); *Scoggan* 1786 (NH); *Raymond & Rouleau* 485 (JB).

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BIBLIOGRAPHY

1. Bailey, L. H. A preliminary synopsis of North American Carices, Proc. of the Amer. Acad. Arts and Sci., 22: 92-93. 1886.
2. Boivin, Bernard. Etudes caricologiques: *Carices Ferrugineae*. Le Naturaliste Canadien, 75: 204-208. 1948.
3. Boott, Fr. in Hooker. Flora boreali-americana, 2: 217. Tab. 218. 1839.
4. Boott, Fr. Illustrations of the genus *Carex*, 2: 77. Tab. 211. 1860.
5. Dutilly, A. et Lepage, E. Coup d'oeil sur la flore subarctique du Québec de la baie James au lac Mistassini. Contrib. Arctic

- Inst. Catholic Univ. Amer. Washington, 1 F.: 89. fig. 9. 1948.
6. Fernald, M. L. A new *Carex* from Newfoundland. *Rhodora*, 17: 158-159. 1915.
 7. Fernald, M. L. Persistence of plants in unglaciated areas of boreal America. *Mem. Gray Herb.* II: 252 (map 16). 1925.
 8. Fernald, M. L. *Gray's Manual*, 8th ed., 352. fig. 673. 1950.
 9. Fernald, M. L., and Weatherby, C. A. Some new plants from the Gaspé Peninsula. *Rhodora*, 33: 231-240. 1931.
 10. Holm, Theo. Remarks on the structure and affinities of some of Dewey's *Carices*: *Carex petricosa*. *Amer. Journ. Sci.* IV. 26: 488-491. fig. 21-24. 1908.
 11. Holm, Theo. Notes on *Carex Franklinii* Boott, and *C. spectabilis* Dew. *Amer. Journ. Sci.*, 49: 195-200. fig. 1-4. 1920.
 12. Kükenthal, Georg. *Cyperaceae-Caricoideae* *Das Pflanzenreich*, 4 (20): 542: 570, 1909.
 13. Mackenzie, K. K. *Carex*, in *North American Flora*, 18 (5): 310-313. 1935.
 14. Mackenzie, K. K. *North American Cariceae*, 2: tab. 362, 370. 1940.
 15. Porsild, A. E. Materials for a flora of the continental Northwest Territories of Canada. *Sargentia*, 4: 19-20. 1943.

NOTES ON THE FLORA OF CHESTERFIELD INLET, KEEWATIN DISTRICT, N.W.T.^{1, 2}

D. B. O. SAVILE and J. A. CALDER

ONE OF THE AUTHORS (D.B.O.S.) spent the summer of 1950 at Chesterfield Inlet (63°21'N 90° 42'W), Keewatin District, on the northwest coast of Hudson Bay, engaged in botanical work under the auspices of the Defence Research Board, Canada Department of National Defence. Polunin (1940) notes that a number of botanists have collected at Chesterfield, and lists a total of nearly 160 species, varieties, forms, presumptive hybrids, etc., from the locality.

The purpose of this paper is to present a number of additions to the flora recorded for this station and to discuss the status of a few plants already noted from it. All collections listed below were made within about 8 miles of the settlement, and nearly all within about 4 miles. No mention will be made of plants that have clearly been recorded from Chesterfield by Polunin under names other than those applied to the present collections, but a few will be included for which there is an element of doubt.

Discounting plants possibly reported under other names, and including entities described as new, the present report adds 20 species, varieties or forms to the known flora of Chesterfield Inlet; 13 of these are unrecorded in Polunin's district 10; and 9 are not reported by Polunin from the Canadian eastern arctic as defined by him.

Numbers cited without name are those of D.B.O. Savile and C. T. Watts. All specimens are in the herbarium of the Division of Botany

and Plant Pathology, Science Service, Canada Department of Agriculture, Ottawa.

Festuca brachyphylla Schultes f. *flavida* Polunin

This yellow form, reported by Polunin only from Lake Harbour and Sugluk, was mixed with the typical purple form in one colony (1550).

Calamagrostis lapponica (Wahl.) Hartm.

Plants from Chesterfield (1582) exactly match a specimen from Frobisher Bay (*Calder* 2155) identified by Père Louis-Marie as *C. lapponica* var.? Dr. W. G. Dore notes that both these collections differ from Scandinavian specimens of *C. lapponica* in having culms smooth or, at most, puberulent with minute ascending-appressed hairs on and just below the lowest node of the panicle, rather than scabrous; and in having shorter callus hairs. This is possibly the plant reported by Polunin under *C. deschampsoides* Trin.

Eriophorum brachyantherum Trautv.

A few plants were found in three locations (1229, 1325, 1347) in habitats varying from bog to moist slope. Not recorded by Polunin, but this Division has specimens from Coral Harbour (Cody), Ross Bay (Cody) and Repulse Bay (Bruggemann).

Eriophorum russeolum Fries var. *leucothrix* (Blomgr.) Hultén

This plant proved to be moderately common (1109, 1277, 1437). It has probably passed as *E. chamissonis* C. A. Meyer f. *albidum* (Nylander) Fern. and, as such, may have been collected at Chesterfield.

¹ Contribution No. 1119 from the Division of Botany and Plant Pathology, Science Service, Department of Agriculture, Ottawa, Canada.

² Received for publication August 16, 1951.



Raymond, Marcel. 1952. "The identity of *Carex misandroides* Fern, with notes on the North American Frigidae." *The Canadian field-naturalist* 66(4), 95–103.
<https://doi.org/10.5962/p.341418>.

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