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Notes on Grasses Collected in Alaska and Adjacent Canada

By ROBERT G. BROWN

In the summer of 1946 a trip was made up the Alaska Highway by automobile. At this time the author undertook to make a collection and study of the grasses growing along the route. The following paper is an annotated list of these grasses. They were identified by the author and checked by Dr. J. P. Anderson, Botany Department, Iowa State College, Ames, Iowa. The author has not attempted to make a complete survey of the vast territory included in the title. It is hoped to continue the collection of grasses of this region for a later and more extensive compilation.

It is interesting to note that the American and Canadian Governments are both interested in finding hay and pasture grasses for this north country. It is known that small grains can be grown here in large enough quantities to feed cattle through the long winters, but, as yet, insufficient hay is being grown for domestic need, and shipping rates make the cost of hay brought in from outside prohibitive. Extensive work is being done by the three experimental stations already established at Palmer, Alaska, in the Matanuska Valley, at Fairbanks by the University of Alaska, and at Mile 1019 near Haines Junction in Canadian Yukon Territory. The Territory of Alaska has an area of approximately one-fifth that of the United States. The major portion of the land lies between sixty degrees north latitude and the Arctic Circle, in the same relative position as the Scandinavian countries. A very small portion of the territory is penetrated by highways. The terrain, because of its mountains and muskeg, makes the building of roads and railroads difficult. Until adequate land transportation facilities can be constructed, an extensive agricultural program cannot be carried out.

Collecting work was started at the Liard River crossing at Mile 496, Alaska Highway, British Columbia, Canada. It was an interesting point at which to begin because of the flora around the edges of the hot springs located there. Three *Muhlenbergias* were collected from the lower springs area. *Muhlenbergia cuspidata* (Torr.) Rydb., *Muhlenbergia foliosa* (Roem. & Schult.) Trin., and *Muhlenbergia racemosa* (Michx.) BSP. are all rare grasses in this region and were found growing only at the edge of the warm pools. It is believed that this is a new locality report for *M. cuspidata* and

M. foliosa. *M. racemosa* has been reported for British Columbia in Hitchcock's MANUAL OF THE GRASSES OF THE UNITED STATES.

Two plane trips were taken. The first was to Juneau where several days were spent collecting in the vicinity of Mt. Juneau and Mt. Roberts, and along the beaches of Lynn Canal. The second trip by plane was to McKinley Park. While walking along the railroad tracks towards Fairbanks, plants of *Elymus canadensis* L. were found growing in the ballast beside the tracks. This grass was also found growing at Mile 52 along the Glenn Highway. It is rare to find this plant so far north. *Avena hookeri* Scribn., a rare grass, was picked up by Dr. Anderson in the dry gravelly soil of the Duke River crossing at Mile 1098. *Oryzopsis pungens* (Torr.) Hitchc. was found in the gravel in a timbered area at Watson Lake, Yukon Territory. It is believed that these are new locality reports for the latter two grasses.

Specimens of all grasses mentioned in this paper are deposited in the private herbarium of Dr. J. P. Anderson.

Many thanks are due to Dr. Anderson for the use of his herbarium and for his assistance in identification of specimens. Thanks are also owing to Mrs. Maxine Williams, Juneau, Alaska, for the use of one of her photographs. To Dr. A. G. Vestal, Botany Department, University of Illinois, and to Dr. Henry S. Conard, Botany Department, University of Iowa, appreciation is expressed for suggestions in the preparation of this paper.

AGROPYRON CRISTATUM (L.) Beauv. Crested wheat-grass
Planted in the town of White Horse, Yukon Territory. This grass is not common. Drought resistant. Makes fine hay and pasture.

AGROPYRON REPENS (L.) Beauv.* Quackgrass
Introduced in other grass seeds. Not common as yet. Specimen collected at Gulkana Roadhouse in planted meadow.

AGROPYRON SMITHII Rydb.* Western wheat-grass
Introduced in other grass seed from the United States. More common than *A. repens*. Makes fine early pasture. Becomes tough later in the season. Used for hay in some parts of the United States.

AGROPYRON SUBSECUNDUM (Link) Hitchc. Bearded wheat-grass
Common native grass in central Alaska. Collection was made at White Horse, Yukon Territory, Canada. Observed frequently. Is a bunch grass that may have possibilities as a hay grass.

AGROPYRON TRACHYCAULUM (Link) Hitchc.* Slender wheat-grass
Common in central and northern Alaska. Two collections were made, one at Mile 1136, the other at Mile 988, Alaska Highway. At Mile 1136, the specimen was taken from altitude of 3,000 feet.

* These grasses are found in Iowa as well as in the Arctic.

- AGROSTIS ALBA* L.* Redtop
Planted airstrip in flat meadow across the road from Gulkana Roadhouse. This grass has real agricultural possibilities for Alaska.
- AGROSTIS SCABRA* Willd. Ticklegrass
Very common along roadsides. Weedy grass of little value.
- ARCTAGROSTIS LATIFOLIA* (R. Br.) Griseb. Arctagrostis
This species is common in the arctic region.
- AVENA HOOKERI* Scribn. Spike oats
This was found at Duke River Crossing, Alaska Highway, Mile 1098, in dry gravelly soil. This is the first report of this grass from Yukon Territory, Canada.
- ALOPECURUS AEQUALIS* Sobol.* Short-awned foxtail
Common in wet soil in central Alaska and circumboreal in distribution. Collected at Birch Lake, Alaska.
- BECKMANNIA SYZIGACHNE* (Steud.) Fern. Slough-grass
Common in mud or water. Specimen taken, however, was on the upland beside the Rainey cabin on the Experimental Farm at the University of Alaska, Fairbanks.
- BROMUS CILIATUS* L.* Fringed brome
Common in central Alaska.
- BROMUS INERMIS* Leyss.* Smooth brome
This grass has been introduced as a hay and pasture grass and is now established in some localities of central Alaska. Specimen was taken from McIntosh Trading Post, Yukon Territory, Canada. It has real possibilities as a hay and pasture grass, especially if used with a legume to prevent sod-binding.
- BROMUS PUMPELLIANUS VAR. VILLOSISSIMUS* Hult.
Common throughout area of Yukon Territory and Central Alaska. Collected at Liard River, Alaska Highway, B. C., and White Horse, Yukon Territory.
- CALAMAGROSTIS CANADENSIS* (Michx.) Beauv.* Bluejoint
Common.
- CALAMAGROSTIS INEXPANSA* A. Gray.* Northern reed-grass
Marshes and meadows. Common in Central Alaska along roadsides in muskeg.
- CALAMAGROSTIS NEGLECTA* (Ehrh.) Gaertn. Narrow reed-grass
Collected at Mile 988, Alaska Highway, Yukon Territory, Canada.
- CALAMAGROSTIS PURPURESCENS* R. Br. Purple reed-grass
Common throughout Alaska. Collected in open prairie at Mile 970 on the Alaska Highway.
- CINNA LATIFOLIA* (Trev.) Griseb. Slender reed-grass
Collected at Liard River Hot Springs, B. C., Canada; in the Alaskan Mountain Range and Pacific districts of Alaska.
- DESCHAMPSIA CAESPITOSA* (L.) Beauv. Tufted hair-grass
Common species of circumboreal distribution. Collected at Mile 937, Alaska Highway.

- ELYMUS CANADENSIS* L.* Canada rye-grass
 Rare. Collected at Mt. McKinley Park along the railroad tracks; also along the roadside of Glenn Highway at Mile 52 in very dry soil. This grass has agricultural possibilities as a hay grass.
- ELYMUS INNOVATUS* Beal. Downy rye-grass
 Grassy flats, central Alaska. Common. Collection made at Tok Junction, Alaska.
- ELYMUS MACOUNII* Vasey Macoun rye-grass
 Common in central Alaska and Canada. Collections made at Mile 937, Alaska Highway; Watson Lake, Yukon Territory, Canada; the Liard River Hot Springs, B. C., Canada.
- ELYMUS MOLLIS* Trin. Beach rye-grass
 Collections made on the ocean beach north of Juneau, Alaska, and along the river flats. Common along the beach. Circumboreal.
- FESTUCA ALTAICA* Trin. Rough fescue
 Common throughout Alaska. Found at low altitude, dry soil, woodland areas. Collection made at Watson Lake, Yukon Territory.
- FESTUCA BRACHYPHYLLA* Schult. Alpine fescue
 Collected at high altitude at Mile 1136, Alaska Highway, in viviparous and common forms; Mile 207, Richardson Highway at high altitude; at Watson Lake, Yukon Territory, in common forms only. Common throughout Alaska at high altitude.
- FESTUCA ELATIOR* L.* Meadow fescue
 Introduced at several points in Alaska. Collection made at Mile 1367, Alaska Highway.
- FESTUCA RUBRA* L.* Red fescue
 Common throughout Alaska.
- GLYCERIA BOREALIS* (Nash) Batch. Northern manna-grass
 Common in central Alaska. Collection made at Mile 1391, Alaska Highway, in a pond.
- GLYCERIA GRANDIS* S. Wats.* American manna-grass
 Common in central Alaska in edge of ponds and lakes. Collection made at Northway Lake, Alaska.
- GLYCERIA STRIATO* (Lam.) Hitchc. ssp. *STRICTA* (Scribn.) Hult. Fowl manna-grass
 Common in central Alaska.
- HIEROCHLOE ALPINA* (Swartz) Roem. & Schult. Alpine holy-grass
 Common at high altitude throughout Alaska. Collection made at high altitude along Richardson Highway at Mile 207, and Glenn Highway at Mile 180.
- HIEROCHLOE ODORATA* (L.) Beauv.* Holy grass; Sweet-grass
 Common throughout central Alaska in open prairie. Collected at Mile 970 on the Alaska Highway.
- HIEROCHLOE PAUCIFLORA* R. Br. Arctic holy-grass
 Common throughout central Alaska.

HORDEUM BRACHYANTHERUM Nevski. Meadow barley
Common along coastal regions of Alaska. Collections made at Mt. McKinley National Park and Eklutina Lake. A weed.

HORDEUM CAESPITOSUM Scribn. Bobtail barley
Common along coastal region. Collection made at Juneau.

HORDEUM JUBATUM L.* Squirrel-tail barley
Common in all of southern Alaska in dry soil at low altitude. Collection made at Mile 937, Alaska Highway. A weed.

MUHLENBERGIA CUSPIDATA (Torr.) Rydb.* Plains muhly
This is the first report from this vicinity. Collected in the edge of the Liard River Hot Springs, B. C., Canada, near Mile 988, Alaska Highway. Very rare. A wiry grass, of no agricultural value.

MUHLENBERGIA FOLIOSA (Roem. & Schult.) Trin. Muhly
This is believed to be the first report for this grass from British Columbia. It is reported from Quebec in Hitchcock's *MANUAL OF THE GRASSES OF THE UNITED STATES*. Collected at Liard River Hot Springs, B. C., Canada, Mile 988, Alaska Highway, growing in the hot springs. Very rare. Wiry. Of no value as a forage grass.

MUHLENBERGIA RACEMOSA (Michx.) BSP.* Marsh muhly
This is the farthest north that this grass has been reported. It is reported from British Columbia, Canada, in Hitchcock's *MANUAL OF THE GRASSES OF THE UNITED STATES*. Collection was made at Mile 988, Alaska Highway, in the hot springs. Very rare. Wiry.

ORYZOPSIS PUNGENS (Torr.) Hitchc. Rice-grass
This is the first report of this grass from Yukon Territory, Canada. Collection was made in woods at Watson Lake on very dry, gravelly soil. Very rare.

POA ALPINA L. Alpine bluegrass
Common at high altitude. Collections made at McIntosh Trading Post, Yukon Territory, Canada.

POA ARCTICA R. Br. Arctic bluegrass
Both common and viviparous forms collected at high altitude at Mile 1136, Alaska Highway, and again at Eagle Summit on the Steese Highway (also at high altitude). Common.

POA COMPRESSA L.* Canada bluegrass
Common along roadside in central and eastern Alaska. Dry, gravelly soil. Collections made at Mile 988, Alaska Highway.

POA GLAUCA Vahl. Glaucous spear-grass
Very common all through Alaska.

POA HISPIDULA Vasey Hispid bluegrass
Southeastern Alaska at high altitude. Collection at Mile 1136, Alaska Highway.

POA LEPTOCOMA Trin. Bog bluegrass
Boggy places in southeastern Alaska. Collection made at Eagle Summit on Steese Highway (high altitude, hanging bog).

- POA NEVADENSIS* Vasey Nevada bluegrass
 Rare. Reported as from Yukon Territory by Hitchcock. Collection made at Mile 988, Yukon Territory, Alaska Highway.
- POA PRATENSIS* L.* Kentucky bluegrass
 Common everywhere. Circumboreal.
- POA PRATENSIS* var. *ALPIGENA* E. Fries
 Common. Circumboreal in distribution.
- POA SANDBERGII* Vasey Sandberg bluegrass
 Rare. Collected at McIntosh Trading Post, Yukon Territory, Canada.
- POA STENANTHA* Trin. Narrow-flowered bluegrass
 Common at high altitude. Collections made at Mile 1136, Alaska Highway. Viviparous forms collected.
- PUCCINELLIA BOREALIS* Swallen Northern alkali-grass
 Collections at Miles 937 and 988, Alaska Highway.
- PUCCINELLIA PAUPERCUA* (Hohn.) Fern. & Weatherby.
 Arctic alkali-grass
 Common throughout Alaska.
- PHALARIS ARUNDINACEA* L.* Reed canary-grass
 Common in central Alaska in wet soil. Collections made at Mile 988, Alaska Highway, in open wet woods. This grass has great possibilities as an agricultural grass.
- STIPA COMATA* Trin. Needle-and-thread-grass
 Rare. Collection made at bridge across Miles Canyon in Yukon Territory, Canada, near White Horse.
- TRisetum SPICATUM* (L.) Richt. Downy oat-grass
 Common. Collection made at Mile 207, Richardson Highway; Mile 1136, Alaska Highway, at high altitude; and at Lake Teslin, Yukon Territory, Canada.

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