

TWO NEW THALICTRA FROM WESTERN CANADA<sup>1, 2</sup>

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**T**HALICTRUM *Turneri* sp. n. subsectionis *Incurvatorum*. Planta 5-11. dm. glabra. Folium basilare unum vel deest, caulinarum 2-4 in planta, inflorescentiae petiolo brevi 0.5-3.0 cm. Foliolae 1.5-4.0 cm. lat., summae trilobatae, lobis grosse dentatis, dentibus rotundis 2-3 in lobo. Inflorescentia (1)-2-3-(4) dm. long. et 0.4-1.0 dm. lat. elongata angusta, (1)-3-5(8)-folia foliis 1-4 ternatis, ramis adpressis elongatis basis et mediis nudis. Pedunculi elongati (1)-2-3-(4) cm. ascendentes paullum incurvati (2)-3-5-(8) in nodo. Tepala foemineae ovata 1-2 mm. Stigma ca. 2 mm. Carpella matura incurvata costata, stipite semi-millimetralli ventro 4.0-4.5 mm. long., 1.5-2.0 mm. lat., late lanceolata. Tepala maris 3.0-3.5 mm. Filamenta 4.5 mm. Antherae 3.4-4.0 mm. acumine submillimetralli. Floret junio. Crescit in sylvis *Populi tremuloidei* apud Fort Saskatchewan in Alberta quo legit G. H. Turner. Typus 4974 (CAN), paratypi 4988 (CAN, DAO), 4875 (CAN, DAO), 4884 (DAO), 4945 (CAN, DAO), 4891 (CAN, DAO), omnes eodem a. D. 1946 lecti.

MANITOBA: A. H. R. Buller, Assiniboine Park, Winnipeg, June 18, 1918 (CAN); J. Hessel, Manitoba Agricultural College, June 27, 1931 (CAN).

SASKATCHEWAN: W. Spreadborough 839, Indian Head (CAN); J. Macoun 12 316, Prince Albert (CAN); J. Macoun 10055, Wood Mt., Medicine Lodge (CAN); J. Macoun 2953, Cypress Hills (CAN); J. Macoun 2952, Crane Lake (CAN); R. C. Russell, Pike Lake, woods, June 8, 1934 (DAO); J. Fletcher, Regina, July 7, 1904 (DAO); W. Shevkenek, Hungry Hollow, open woods, June 3, 1939 (DAO).

ALBERTA: J. Macoun 2954, Medicine Hat, Seven Persons Coulee (CAN); W.

Spreadborough 19210, Crossing of Pembina River (CAN); H. M. Raup 2441, Pine Lake District (CAN); H. M. Raup 2435a, Waterways (CAN); N. B. Sanson, Midnapore (CAN); H. M. Raup 2437, Peace Point (CAN).

NORTH WEST TERRITORIES: C. H. Crickmay 47, Liard River between Nahanni Butte and Simpson (CAN).

BRITISH COLUMBIA: Raup & Abbe 3607, vicinity of Hudson Hope (CAN).

The specimens from the James Bay area heretofore referred *T. confine* Fern. might perhaps be better placed with *T. Turneri* although this material still remains somewhat puzzling.

This new species is named after Dr. G. H. Turner, an amateur botanist who has acquired an unequalled field knowledge of the flora of the neighborhood of Edmonton. This species is easily distinguished from *Thalictrum venulosum* Trel. — a short plant, usually 2 to 5 dm. high, with small thick leaflets and growing in the open — by its stature, its elongated inflorescence with appressed branches, its unusually long internodes and peduncles, its longer filaments, its larger and thinner leaflets, and its narrower and longer fruit. Its foliage is somewhat similar to that of *T. occidentale* Gray var. *palousense* St. John, but the latter is nearly always puberulent, its inflorescence is exserted and usually simple or with one or two short branches at the base, its divaricated pedicels are inserted in 2's or 3's and, of course, the fruit is much different from that of *T. Turneri*.

To the aforementioned collections may be added the following numbers, all collected in 1947 near Fort Saskatchewan by Dr. Turner himself: 5508, 5515, 5534, 5535, 5540, 5546, 5551, 5557, 5558, 5560, 5599, 5603, 5664,

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5668, 5716, 5719, 5719a, 5729, 5730, 5732, 5746, 5747, 5761, 5770, 5795, 5800, 5825, 5848, 5892. These numerous and interesting collections are the result of a suggestion to Dr. Turner that *T. Turneri* should be carefully studied in the field to ascertain whether it was a distinct entity or a mere ecologically induced variation of *T. venulosum* Trel., a species normally growing in open places.

And indeed the copious annotations on the labels record for *T. Turneri* such habitats as: edge of woods, river flats near wooded area, aspen woods, poplar woods, among roses and other small shrubs at edge of chokecherry thicket, ground from which poplar wood was cut in 1946 and the ground broken roadside a few feet from aspen woods, wooded river flats, edge of pond in shade of poplars, open roadside formerly wooded, ditch (formerly wooded), shade of mixed poplar and spruce trees, etc. Despite this variety of habitats, the characters of *T. Turneri* seem to remain constant. All *T. venulosum* specimens are recorded as having been collected in open places, prairies, etc., never in woods.

This extensive series of *T. Turneri* also shows that its flowering season around Fort Saskatchewan ranges from May 30th to July 3rd, while the accompanying sheets of *T. venulosum* from the same area indicate that the latter species starts flowering two weeks earlier.

The recognition of *T. Turneri* as a distinct species clarifies the status of two entities I had previously called var. *columbianum* and var. *Greeneanum* of *T. confine*. With the transfer to *T. Turneri* of a few puzzling specimens previously placed with var. *columbianum*, it now seems more appropriate to name as follows the two aforementioned varieties:

**THALICTRUM FISSUM** Greene, Pittonia 4:233-4. 1901.

Syn.: *T. columbianum* Rydberg, Bull. Torr. Club 39:320. 1912.

*T. confine* Trel. var. *columbianum* (Rydberg) Boivin, Rhodora 46:442-3. 1944

*T. occidentale* Gray var. *columbianum* (Rydberg) St. John, Fl. South. Wash. Adj. Id. 156. 1937.

**THALICTRUM FISSUM** Greene var.

**Greeneanum** stat. n.

Syn.: *T. confine* Fernald var. *Greeneanum* Boivin, Rhodora 46:442. 1944.

**THALICTRUM BREITUNGII** sp. n. subsectionis *Laminariorum*, sed affinis et *Thalictrum Fendleri* Engelman et *T. occidentale* Gray var. *palousensi* St. John.

Planta glabra 30-70 cm. Frons sicut *Thalictri occidentalis* var. *palousensis* nisi foliolis maris modo lobis angustioribus et sinis profundioribus. Inflorescentia maris 3-15 dm. long., si parva racemosa sed si amplior paniculata. Inflorescentia foemineae 15-30 cm. angustissime paniculata ramis valde ascendentibus. Pedunculi maris (1.0)-1.5-(2.0) cm. ascendentes, postea anthesi paulum recurvati, 1-2-(3) in nodo. Pedunculi foeminae (0.5)-1.0-(1.5) cm. ascendentes incurvati, (1)-2-3-(4) in nodo. Tepala maris ca 3 mm. long. ovata, purpurea, summa erosa. Tepala foemineae ca 2 mm., elliptica. Filamenta 4-5 mm. purpurea. Antherae 2-4 mm., luteae, acumine millimetrally vel brevior. Ovaria glabra. Stigma ca 2 mm. aciculare. Carpella matura nunquam reflexa sed valde compressa ut crassitudo a dimidiis latitudinis recedit, ventro 4 mm. long., 2.5 mm. lat., ovato, nervo dorsali convexiore quam ventrali. Floret junio julioque. Habitat in Alaska et Yukon.

YUKON: A. E. Porsild & A. J. Breitung 10-896, Canol Road, Rose-Lapie River Pass, mile 105, schist mountain east of lake. Elev. 4000-6000', 1944 (CAN typus et 9 isotypi distribuendi); C. H. D. Clarke, Haines Road, mile 85, 1946 (CAN).

ALASKA: J. P. Anderson 5631, Hyder, July 5, 1939 (CAN).

All the aforementioned specimens are at the National Herbarium of Canada in Ottawa. This species is clearly intermediate between the sections *Laminaria* and *Compressa*. It is related to both *Thalictrum Fendleri* and the variety *palousense* of *T. occidentale*. Specimens cited above are the only ones collected up to now in Yukon and Alaska for the subgenus *Lecoyerium*.

This new species may be separated from *T. Fendleri* Engelman by its purple filaments, the lack of pubescence and stipellules, and by its fruit more convex dorsally than ventrally. From the numerous varieties of *T. occidentale* Gray, it is distinguishable because of its very short stigmas, its much



more deeply lobed leaflets, the lobes being narrower and usually acute, and especially because of its shorter peduncles and its flattened ascending fruit.

This new species is named after August Julius Breitung, a young amateur botanist of outstanding ability who accompanied A.

E. Porsild to the Yukon in 1944 and is now on the staff of the Division of Botany and Plant Pathology, Ottawa.

#### Herbarium abbreviations

CAN... Victoria Memorial Museum (National Herbarium), Ottawa.

DAO... Department of Agriculture, Ottawa.

## KEY TO CANADIAN SPECIES OF THALICTRA

**I**N ANSWER to many requests, I am proposing this new artificial key to the Canadian species and varieties of the genus *Thalictrum*. The Canadian distributions are also indicated.

- a. Inflorescence simple of alternating pedicels. Stem leaves none, or rarely solitary. Flowers perfect, tepals 5, stigmas triangular, included. QUEBEC (Gaspé and Saguenay) and YUKON ..... *T. alpinum* L. var. *typicum* Boivin
- aa. Inflorescence compound or, if simple, with most pedicels in 2's or 3's. Stem leafy.
  - b. All the pedicels subtended by a small but compound leaf-like bracts. Flowers perfect, tepals 5, stigmas included.
    - c. Ovaries and fruits straw coloured to very light green. SASKATCHEWAN, ALBERTA, BRITISH COLUMBIA and YUKON ..... *T. sparsiflorum* Turcz. var. *Richardsonii* (Gray) Boivin
    - cc. Ovaries and fruits of a deeper green colour than the leaves. ONTARIO ..... *T. sparsiflorum* Turcz. var. *viridius* Boivin
  - bb. Most or all of the pedicels bractless or in the axis of minute simple bracts. Flowers dioecious or polygamous, tepals 4 or rarely more, stigmas exserted.
- d. Leaflets (0)-3-(5) lobed, the lobes entire Filaments white.
  - e. Underside of leaves densely covered with capitate glands. ONTARIO and perhaps QUEBEC (Percé) ..... *T. revolutum* D.C.
- ee. Underside of leaves glabrous or covered with flexuous hairs, hairs not capitate.
  - f. Inflorescence narrowly pyramidal and acute at tip. Anthers 1.8-3.2 mm. long. oblong-lanceolate. Filaments weak
    - g. Leaves coriaceous, at least the upper one pubescent under. Anthers 1.8-2.2 mm. Stigma 2-3 mm. Receptacle at the centre of the head of fruits, some of the fruits being reflexed. ONTARIO, MANITOBA, SASKATCHEWAN, ALBERTA ..... *T. dasycarpum* Fischer & Lall.
    - gg. Leaves membranaceous often glabrous and usually larger. Anthers 2.3-3.2 mm. Stigma 2.5-5.0 mm. Receptacle at the base of the head of the usually lanceolate fruits. BRITISH COLUMBIA, ALBERTA ..... *T. dasycarpum* Fischer & Lall. var. *hypoglaucum* (Rydberg) Boivin
  - ff. Inflorescence broadly pyramidal or subcorymbose, always rounded at tip. Anthers ovate-oblong to oblong, less than 1.5 mm. long. Filament rigid and conspicuously clavate. Receptacle at the base of the head of fruits.
    - h. Inflorescence paniculate. Peduncles thin. Filaments 3.5 to 5.0 mm. long. Anthers about 1.0 mm. long. Stigma 0.5-2.0 mm. Carpels ovate to lanceolate. NOVA SCOTIA, PRINCE EDWARD ISLAND, NEW BRUNSWICK, QUEBEC, ONTARIO ..... *T. polygamum* Muhl.



hh. Inflorescence subcorymbose. Peduncles thick. Filaments 5.0-8.0 mm. Anthers ca 1.2 mm. Stigma 1.5-3.5 mm. Carpels usually oblanceolate. NOVA SCOTIA, PRINCE EDWARD ISLAND, NEW BRUNSWICK, QUEBEC, ONTARIO ..... *T. polygamum* Muhl. var. *hebecarpum* Fernald

dd. Leaflets with 3-5 most of the lobes being crenate. Filaments coloured, usually more or less purplish, but often yellow.

i. Stem leaf 1 or none. Inflorescence leaves numerous, the lower one with a petiole 2-8 cm. long. lant glabrous. QUEBEC, ONTARIO ..... *T. dioicum* L.

ii. Steam with 1 or more leaves, lower inflorescence leaf sessile or with a short petiole less than 3 cm. long.

j. Peduncles all of nearly the same size, the longest less than twice the length of the shortest. Filaments of the anthers 5 mm. long. or more. Stigma 3 mm. long. or more.

k. Inflorescence (5)-10-(20) cm. long. Fruit strongly reflexed with body ovate and 4-7 mm. long. ALBERTA, BRITISH COLUMBIA .....

.....*T. occidentale* Gray var. *palousense* St. John

kk. Inflorescence 20-50 cm. long. Fruit with body lanceolate. BRITISH COLUMBIA ..... *T. occidentale* Gray var. *Macounii* Boivin

jj. Peduncles varying greatly in size, the longest being at least twice as long as the shortest. Filaments of the anthers 5 mm. long. or less, stigma less than 3 mm. long. (except in *T. confine*).

l. Stigma (2.0)-2.5-4.0-(5.0) mm. long.

m. Fruit not compressed, ovoid. NEW BRUNSWICK, QUEBEC, ONTARIO ..... *T. confine* Fernald

mm. Fruit slightly compressed, oblong to broadly lanceolate. BRITISH COLUMBIA ..... *T. fissum* Greene

ll. Stigma very rarely more than 2 mm. long.

n. Peduncles elongate, averaging 2-3 cm., and about 3 to 5 per node. Fruit not compressed but 4.0-4.5 mm. long and slightly incurved at the tip. MANITOBA, SASKATCHEWAN, ALBERTA, BRITISH COLUMBIA ..... *T. Turneri* Boivin

nn. Peduncles averaging less than 2 cm. in length and generally 2 per node.

o. Fruit much compressed, at least twice broader than thick. YUKON ..... *T. Breitungii* Boivin

oo. Fruit not compressed. QUEBEC, ONTARIO, MANITOBA, SASKATCHEWAN, ALBERTA, BRITISH COLUMBIA .... *T. venulosum* Trelease





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