

Salix raupii, Raup's Willow, New to the Flora of Alberta and the Northwest Territories

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Salix raupii Argus, previously known only from British Columbia, has been discovered in Alberta and the Northwest Territories. Its description has been amplified and the way it may be recognized from similar *Salix* species is discussed.

Key Words: *Salix raupii*, Raup's Willow, taxonomy, phylogeography, Alberta, Northwest Territories.

Salix raupii is a little known western Canadian endemic described in 1974 on the basis of five specimens from British Columbia (Argus 1974). Since that time it has been found in Alberta and the Northwest Territories and at a new locality in British Columbia (Figure 1). The purpose of this paper is to report these new finds, to amplify the description of *S. raupii*, and to discuss how it can be distinguished from similar *Salix* in the floras of Alberta (Moss 1983), Alaska and Yukon (Hultén 1968; Viereck and Little 1972; Argus 1973; Welsh 1974), and the continental Northwest Territories (Porsild and Cody 1980). It is hoped that by calling this species to the attention of western botanists and by making it easier to identify using existing keys, its distribution and taxonomy will become more fully known.

Raup's Willow, *Salix raupii* Argus (1974): Amplified Description

Shrubs 1.2-1.8 m tall; branches greyish-brown, epidermis on 3-year-old shoots prominently exfoliating; branchlets glabrous, glossy and chestnut brown. Leaves elliptical or narrowly so, rarely somewhat obovate, the largest mature leaves 3.2-5.8 cm long, 1.2-1.9 cm wide, and 2-3.3 times as long as wide, apex obtuse or acute; base rounded to acute; margins lacking prominent teeth, if present then glandular-crenate (the lowermost leaves sometimes glandular-serrulate), and slightly revolute; immature leaves glabrous and greenish, sometimes ciliate; lower side of mature leaves plane and prominently glaucous; petioles 5-9 mm long, yellowish and glabrous; stipules linear to narrowly elliptical, 1-3 mm long. Aments coetaneous. Staminate aments 2.5-3.5 cm long, on flowering branchlets 0.8-1.2 cm long; stamens two, filaments glabrous, about 0.5-0.8 mm long; dry anthers 0.4-0.7 mm long; nectaries two, abaxial and adaxial, each with one to three lobes about 0.8 mm long; bracts elliptical, apex rounded, 1.6-2.5 mm long, pale lemon-yellow to bicolored and then pink or brownish at apex, glabrous on outer side, sometimes sparsely sericeous on inner side. Pistillate aments 2-3.5 cm long, flowering branchlets 0.5-1.8 cm long; pistils greenish-brown, glabrous or with two

longitudinal bands of short, fine hairs, capsules 4.4-8 mm long, ovules 12-14; styles 0.6-0.8 mm long, stigmas 0.4 mm long; stipes 0.4-1.2 mm long, pubescent; nectaries one, adaxial, simple or two-forked, 0.6-0.8 mm long, equalling or slightly longer than stipes.

New records for *Salix raupii*

ALBERTA:

1. Nose Mt. north flank of mountain just south of trail leading to the headwaters of Muddy Creek, 54°30'N, 119°32'W (approximate). John Corbin

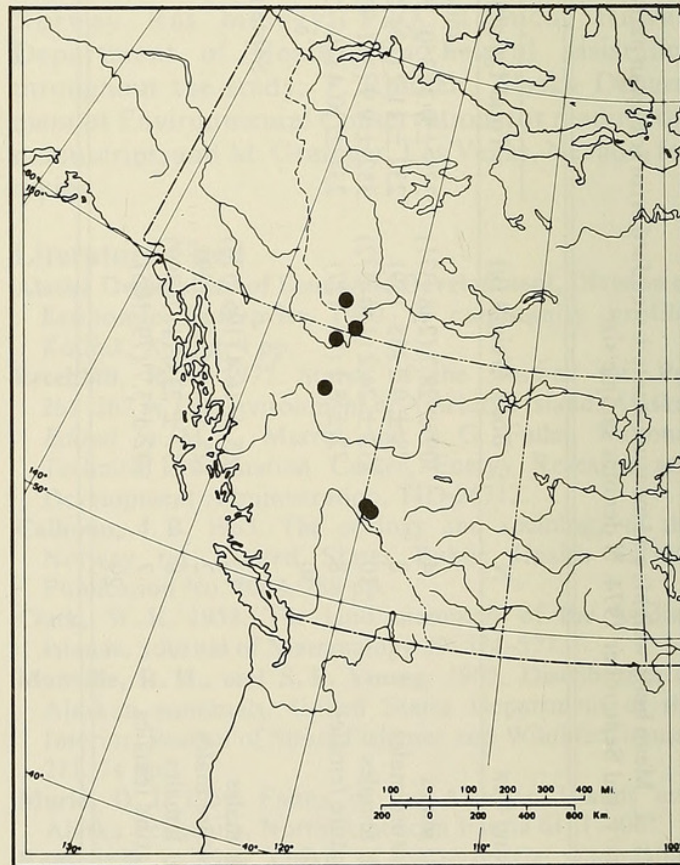


FIGURE 1. Known distribution of Raup's Willow, *Salix raupii*.

TABLE 1. Comparison of the morphology of *Salix raupii* with similar species.

Characters	<i>S. raupii</i>	<i>S. farriæ</i>	<i>S. barclayi</i>	<i>S. pedicellaris</i>	<i>S. glauca</i>
Branchlet pubescence	glabrous	glabrous or sparsely pubescent	villous	glabrous	pubescent to villous
Leaf shape	elliptic to narrowly so	elliptic to elliptic-obovate	elliptic to obovate	oblong	obovate to elliptic
Leaf apex	obtuse or acute	acute	acute to acuminate	acute to rounded	acute to obtuse
Leaf pubescence (beneath)	glabrous	glabrous	glabrous or sparsely pubescent	glabrous	villous to glabrescent
Leaf pubescence (above)	glabrous	glabrate with ferruginous hairs on midrib	glabrescent with white hairs on midrib	glabrous and glaucous	glabrescent to villous
Leaf margin	entire or glandular-crenate	entire or glandular-serrulate	distinctly glandular-serrulate	entire	entire
Stipule length (mm)	1-3	up to 4	1.5-5 (20)	1-1.5	1-7(17)
Floral bract colour	lemon yellow or bicolour	brown to tawny	light to dark brown or bicolour	tawny	tawny or light brown
Floral bract pubescence	glabrous	sparsely lanate to glabrate	pubescent	glabrous	pubescent
Capsule length (mm)	4.4-8	4-5	5-6.5	5.5-6.5	3-8
Capsule pubescence	glabrous or with 2 longitudinal bands	glabrous	glabrous	glabrous	pubescent to glabrescent
Stipe length (mm)	0.4-1.2	0.8-1.5	0.4-1.4	2.1-3.2	0.25-2
Nectary length	equal or longer than stipe	< 0.5 × stipe	0.5 × stipe	0.2-0.5 × stipe	0.4-2 × stipe
Style length (mm)	0.6-0.8	0.4-1.2	0.6-1.6	0.1-0.2	0.5-1
Stigma length (mm)	ca 0.4	0.2-0.3	0.4-0.6	ca. 0.2	0.5-1

491. 25 August 1982. CAN. (Acronyms follow Boivin 1980.)

2. Kakwa Falls, approximately 400 yds upstream from falls on north side of river, 54°05'N, 119°40'W (approximate). *John Corbin & Peter van Eck* 10283. 8 August 1978. UAC.

NORTHWEST TERRITORIES:

3. South Nahanni River, 5 miles from confluence of Flat River, 61°30'N, 125°16'W. *S.S. Talbot* T5055-7. 26 July 1975. CAN.
4. Fisherman Lake, 60°20'N, 123°48'W. *Sheila M. Lamont* FL149. 22 June 1973. CAN.

BRITISH COLUMBIA (additional record):

5. Fern Lake, near and around outlet at east end of lake, 57°45'N, 124°47'W. *Erich Haber & George W. Argus* 10667. 5 August 1977. CAN.

Habitat

Salix raupii occupies a variety of habitats. In British Columbia and the Northwest Territories it is known from thickets in moist, open *Picea glauca*, *Populus tremuloides* woods on gravel floodplains, or in *P. tremuloides*, *P. balsamifera* woods. In the Northwest Territories it also occurs in *Picea mariana* treed bogs. In Alberta it has been collected in lush mountain meadows and in *Salix* fens where it is associated with other *Salix*.

Recognition

In this section I will compare *S. raupii* with species that it keys out with in the floras of western Canada and Alaska. Table 1 should be consulted for contrasting characteristics.

In my treatment of *Salix* for the Flora of Alberta (Moss 1983), specimens of *S. raupii* with prominent stipules key out with *S. barclayi* and *S. farriarum*; *S. raupii* is not easily distinguished from some extreme variants of these species. It may be distinguished from *S. barclayi* by its glabrous branchlets, moderately sized stipules and its entire or very indistinctly toothed leaves. Lacking these characteristics, its glabrous floral bracts and nectaries equalling or exceeding the stipes are diagnostic. It is similar in some respects to *S. farriarum* but it lacks the ferruginous hairs on the leaves of that species and it tends to have longer capsules, paler bracts, and longer nectaries relative to stipe length than *S. farriarum*.

Specimens of *S. raupii* with small stipules or lacking stipules key out with *S. farriarum* (distinguished as above) and *S. pedicellaris*. *S. raupii* is easily separated from *S. pedicellaris* by its leaf shape, the lack of glaucousness on its upper leaf surface, its longer styles and stigmas, and other characteristics in Table 1.

In floras of Alaska and the Yukon (Viereck and Little 1972; Argus 1973; Welsh 1974) stipulate plants of *S. raupii* key out with *S. barclayi* from which *S. raupii* is readily distinguished by its entire, glabrous leaves as described above. It also keys out with *S. barclayi* in Hultén's flora (1968). Plants lacking stipules key out with *S. hookeriana*, but it is not likely to be confused with this plant of coastal southeastern Alaska, which is a small tree or tall shrub with villous-lanate branchlets and pubescent leaves.

In the flora of the continental Northwest Territories (Porsild and Cody 1980) *S. raupii* keys out with the "*S. fuscescens* group", which includes *S. pedicellaris*, and with *S. barclayi*, *S. farriarum*, *S. myrtillofolia*, and *S. commutata*. It may be distinguished from the first three species as described above. From *S. myrtillofolia* and *S. commutata* it is easily distinguished by leaves that are glaucous beneath; the leaves of the latter species are also tomentose on both sides.

Taxonomic Relationships

The relationships of *S. raupii* are no less equivocal today than when the species was first described (Argus 1974). At that time I discussed its relationship with the *S. glauca* complex and the possibility that it may be a hybrid involving that species. I have since observed well-formed pollen grains in the staminate flowers of two specimens, suggesting that they are not hybrids. Further collections of this species, especially population samples and chromosome number data, may help resolve this question.

Literature Cited

- Argus, G. W. 1973. The genus *Salix* in Alaska and the Yukon. National Museum of Natural Sciences Publications in Botany, Number 2.
- Argus, G. W. 1974. A new species of *Salix* from northern British Columbia. *Canadian Journal of Botany* 52: 1303-1304.
- Boivin, B. 1980. Survey of Canadian herbaria. *Provanchea* 10, Université Laval, Québec. 187 pp.
- Hultén, E. 1968. Flora of Alaska and neighboring territories. Stanford University Press, Stanford, California.
- Moss, E. H. 1983. Flora of Alberta, revised by J. G. Packer. University of Toronto Press, Toronto, Ontario.
- Porsild, A. E., and W. J. Cody. 1980. Vascular plants of the continental Northwest Territories. National Museums of Canada, Ottawa.
- Viereck, L. A., and E. L. Little, Jr. 1972. Alaska trees and shrubs. U.S.D.A., Agricultural Handbook. 410 pp.
- Welsh, S. L. 1974. Anderson's flora of Alaska and adjacent parts of Canada. Brigham Young University Press, Provo, Utah.

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