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Hunt Institute was dedicated in 1961 as the Rachel McMasters Miller Hunt Botanical Library, an international center for bibliographical research and service in the interests of botany and horticulture, as well as a center for the study of all aspects of the history of the plant sciences. By 1971 the Library's activities had so diversified that the name was changed to Hunt Institute for Botanical Documentation. Growth in collections and research projects led to the establishment of four programmatic departments: Archives, Art, Bibliography and the Library.

Memoranda by W. A. Archer, June, 1964.

Ball, Carleton R. Willows of Alaska.

Oct. 21, 1944, preliminary draft sent to J. P. Anderson.

Oct. 25, received by Anderson.

Draft returned with a few annotations by Anderson, but no letter found.

Prepared for the Flora of Alaska and adjacent parts of Canada.

Iowa State Col. Jour. Sci. 1943 - 1959. Issued in 9 parts.

The flora was published without treatment of *Salix* because Ball never completed his studies, apparently due to difficulties with the species of section *Glaucæ*. (See correspondence).

## WILLOWS OF ALASKA: Manuscript for Mr. J. P. Anderson, 1944

| No.  | Species and varieties                   | Manuscript Spec. Chk'd (x), Listed |       |     |     |       |
|------|-----------------------------------------|------------------------------------|-------|-----|-----|-------|
|      |                                         | Final                              | Rough | CRB | USN | Lists |
| 1.   | <i>S. lasiandra</i> Benth               | x                                  | x     | x   | x   |       |
| 1a.  | var. <i>lancifolia</i> (Anderss.) Bebb  | x                                  | x     | x   | x   |       |
| 2.   | <i>S. interior</i> Rowlee               | x                                  | x     | x   | x   |       |
| 2a.  | var. <i>pedicellata</i> (Anderss.) Ball | x                                  | x     | x   | x   |       |
| 3.   | <i>S. melanopsis</i> Nuttall            | x                                  | x     | x   | x   |       |
| 4.   | <i>S. myrtillifolia</i> Andersson       | x                                  | x     | x   | x   |       |
| 5.   | <i>S. pyrifolia</i> Andersson           | x                                  | x     | x   | x   |       |
| 6.   | <i>S. Walpolei</i> (Cov. & Ball) Ball   | x                                  | x     | x   | x   |       |
| 7.   | <i>S. Barclayi</i> Andersson            | x                                  | x     | x   | x   |       |
| 7a.  | var. <i>angustifolia</i> Andersson      | x                                  | x     | x   | x   |       |
| 7b.  | var. <i>hebecarpa</i> Andersson         | x                                  | x     | x   | x   |       |
| 7c.  | var. <i>rotundifolia</i> Andersson      | x                                  | x     | x   | x   |       |
| 8.   | <i>S. Chamissonis</i> Andersson         | x                                  | x     | x   | x   |       |
| 9.   | <i>S. commutata</i> Bebb                | x                                  | x     | x   | x   |       |
| 9a.  | var. <i>denudata</i> Bebb               | x                                  | x     | x   | x   |       |
| 9b.  | var. <i>puberula</i> Bebb               | x                                  | x     | x   | x   |       |
| 10.  | <i>S. pseudomonticola</i> Ball          | x                                  | x     | x   | x   |       |
| 11.  | <i>S. alaxensis</i> (Andersson) Coville | x                                  | x     | x   | x   |       |
| 11a. | var. <i>longistylis</i> (Rydb.) Schn.   | x                                  | x     | x   | x   |       |
| 12.  | <i>S. amplifolia</i> Coville            | x                                  | x     | x   | x   |       |
| 13.  | <i>S. Barrattiana</i> Hooker            | x                                  | x     | x   | x   |       |
| 13a. | var. <i>angustifolia</i> Andersson      | x                                  | x     | x   | x   |       |
| 14.  | <i>S. Richardsonii</i> Hooker           | x                                  | x     | x   | x   |       |
| 15.  | <i>S. fuscescens</i> Andersson          | x                                  | x     | x   | x   | x     |
| 15b. | var. <i>reducta</i> Ball                | x                                  | x     | x   | x   | x     |
| 16.  | <i>S. rotundifolia</i> Trautvetter      | x                                  | x     | x   | x   | x     |
|      | forma <i>pilosiuscula</i> Schneider     | x                                  | x     | x   | x   | x     |
| 17.  | <i>S. phlebophylla</i> Andersson        | x                                  | x     | x   | x   | x     |
| 18.  | <i>S. polaris</i> W                     |                                    | x     | x   | x   | x     |
| 19.  | <i>S. Satchelliana</i> Ball             | x                                  | x     | x   | x   | x     |
| 20.  | <i>S. reticulata</i> L                  | x                                  | x     | x   | x   | x     |
| 20a. | var. <i>gigantifolia</i> Ball           | x                                  | x     | x   | x   | x     |
| 20b. | var. <i>subrotunda</i> Seringe          | x                                  | x     | x   | x   | x     |

These are carbon  
copies of the descriptions  
of Alaska willows for  
the mss. preparing for

Dr. J. T. Anderson  
Asst. Prof. Ia. State College  
Ames, Ia

Carbon copy is home.

Alaska - Yukon Willows  
for Dr. J. P. Andersson.

Carbon copy of just 6 species.

See note on ribbon copy

To add range extensions from 1949-50 collections

To study material for possible additional

Digitized by Hunt Institute for Botanical Documentation

61. *S. myrtilloides* var. *brachypoda* Torr.

77 *S. macrostema* (Hook.) Benth.

78 *S. pseudocordata* (And.) Prick.

1. *SALIX LASIANDRA* BENTHAM

Pacific Willow.

*S. lasiandra* Benth., Pl. Hartweg. 335, 1857;-- Macoun, Cat. Canad. Pl. 1 (3): 449, 1886; 2 (5): 358, 1890;-- Schneider in Journ. Arn. Arb. 1: 14-17, 1919 (extensive bibliography and discussion); 3: 63, 92, 98, 109, 1921;-- Bell in Canad. Field-Nat. 40: 146-47, 1926.

A shrub or small tree (in our area), <sup>about</sup> probably 2-5 m. high; twigs/chestnut-<sup>and bud scales</sup> reddish, shining, glabrous; stipules 2-10 mm. long, semicordate or subulate, glandular-serrulate; petioles glandular on top at outer end; blades narrowly to <sup>apex</sup> broadly lanceolate, 5-15 cm. long, 1.5-3 cm. wide, (much larger on vigorous shoots), acutish to rounded at base, short- to long-acuminate at apex, closely glandular-serrulate, shining above, glaucous beneath, glabrous throughout. Aments stout, ~~woody~~ coetaneous, leafy-pedunculate, 3-8 cm. long, 1-1.5 cm. wide, the pistillate becoming 4-10 cm. by ~~length~~ 1.5-2 cm. in fruit; flower scales lanceolate to elliptical-ovate, crose or somewhat toothed at apex, yellow, thinly crinkly-pilose, deciduous; stamens 3-5 or 7, filaments pubescent below; capsules lanceolate, 5.5-7 mm. long, yellowish-brown, glabrous; pedicels 1.5-2 mm. long, glabrous; styles short, about 0.5 mm. long, stigmas short, notched or bifid.

The Pacific Willow occurs along streams, at relatively low elevations, northward from Southern California and north-central New Mexico to central Saskatchewan, Lake Athabaska, <sup>Seward area or</sup> and the Yukon Valley in Yukon Terr. and Alaska. It is abundant southward, becomes gradually less common northward, and is rare in our area. In Br. Col., it has been collected near the mouth of the Stikine R., northeast of Wrangell. In Yukon Terr. it occurs in the Dawson area. In Alaska, it has been found only on the headwaters of the Chilkat R. <sup>and on Kuskow Bay</sup> in the northern "Panhandle", and on the lower Yukon River below Holy Cross. The following variety is much more widely distributed in the far Northwest.

*var. lanceifolia*

only there in 1891.  
Alaska 1891.

LANCIFOLIA

1a. S. lasiandra var. lancifolia (Andersson) Bebb

S. lancifolia Andersson, in Svensk. Vet.-Akad. Handl. 6:34, pl. 2, fig. 23,  
[Monog. Salicum), 1867.

S. lasiandra var. lancifolia (Andersson) Bebb, in Brewer & Watson Bot. Calif.  
2:84, 1880 (preprinted as the "Willows of California", with same pagination, July  
10, 1879); Macoun, Schneider, and Bell as cited for the species).

This variety differs from the species in having the younger twigs, and usu-  
ally the bud scales and petioles also, more or less densely pubescent. Sometimes  
the lower part of the midrib is pubescent also.

Variety lancifolia has essentially the same range as the species but is ~~x~~  
more common in the far north. It has not been reported from northwestern B.C.  
and the adjacent "Panhandle" of Alaska but has been collected at Matanuska, Curry,  
Salcha Slough, Fairbanks, Nenana, and at Blackburn and Holy Cross on the Yukon R.  
in Yukon Terr. It has been found at Ogilvie and in the Dawson-Klondike area.

Hulten recognizes the variety only as occurring  
in Alaska and Yukon

Also Wiseman, acc. to Hulten

2. S. interior Rowlee.

Sandbar Willow.

*Flore Alaska*

S. longifolia Muhl., not Lamarck.

Clumpy shrub, 1-4 m. high (in our area); branchlets and bud scales reddish-brown, usually glabrous; stipules none; leaves linear or linear-elliptical, 5-12 or 16 cm. long, 5-12 mm. wide, acute at apex, narrowed at base to the almost obsolete petiole, remotely and irregularly denticulate with slender teeth, often thinly villous when young, glabrous in age, green on both sides, paler beneath; aments coetaneous to ~~mm~~ mostly serotinous, 2-8 cm. long, slender, lax, 1-3 together, terminating slender, leafy,

seasonal shoots 3-10 cm. long; scales linear-lanceolate to linear-oblongate, acutish, thinly villous, yellow, deciduous; stamens 2, filaments free, pubescent below; capsules narrowly conic, 7-9 mm. long, glabrous (ovaries often thinly villous); pedicels 0.7-1.5 mm. long; styles almost or quite obsolete, stigmas short, divided; gland 1, filiform, shorter than pedicels.

A southern<sup>N</sup> species, east of the Rocky Mts., from the mouth of the Mississippi R. to Va., Del., N.B. and Que. and northward, west of Hudson Bay, to Ont. Man., and Mack, west to B.C. and Alaska. Yukon Terr. (common in Dawson area); B.C., No. (Upper Liard R. at Yukon<sup>O</sup> boundary, Stikine R.); Alaska: ~~Western~~ Central-Eastern (Alaska Range above ~~Paxon~~ Paxson, Porcupine R. 45 mi. above mouth, Fairbanks, Ft. Gibbon, Hot Springs, Tanana); West-Central (Galena, Nulato~~X~~, both on Yukon R.).

2 a. var. pedicellata (Anderss.) Ball.

S. linearifolia Rydb.

Differs from the species chiefly in narrower leaves, 2-5 or 6 mm. wide, 5-10 or 13 cm. long; ovaries mostly glabrous; pedicels as in the species.

Common in the western, drier, part of the species range. Yukon (Ogilvie and the Dawson area); Alaska, Yukon-Tanana Valleys (Circle, Nenana, Tanana, between Rampart and Tanana).

X 2a. *Salix interior* var. *PEDICELLATA* (Andersson) Ball

*Salix interior* var. *pedicellata* (Andersson) ball, in Canad. Field-Nat. 40:175, 1926. *S. linearifolia* Rydberg, in Britton Man. Pl. No. St. & Can. 316, 1901. *S. longifolia* var. *pedicellata* Andersson, in Kon. VET Svensk. Vet.-Akad. Handl. 6: 55 (Monog. *Salicum*), 1967; Schneider in Bot. Gaz. 67:341-342, 344-345, 1919. *S. rubra* Richardson, in Franklin, Narr. Journey Polar Sea, Appendix, 752, 1823 (~~nomen nudum~~ nomen nudum), non Hudson.

Variety *pedicellata* differs from the species chiefly in its narrower leaves. Blades linear, 2-5 or 6 mm. wide, 5-10 cm. long, or ~~prolonged to 13 cm.~~ up to 13 cm. on vigorous shoots; ovaries mostly glabrous; pedicels as in the species.

The variety has the same general range as the species but is much more common in the drier Great Plains area than farther east. In ~~the~~ our area, it seems to be confined to the Yukon Valley from Ogilvie and the Dawson area in Yukon Terr. to Circle, between Rampart and Tanana, and at Tanana, in Alaska.

It has not been reported from northern B.C. or southern Alaska.

7  
S. S. melanopsis Nuttall.

*Flora Alaska*  
Dusky Willow.

Dark-green shrub or small tree, 2-5 m. high; glabrous throughout (except scales); branchlets and bud scales brown to blackish, often shining; stipules small, lanceolate or broader, toothed; leaves linear-oblong to linear-elliptical, 4-6 or 8 cm. long, 6-15 mm. wide, acute at both ends, scarcely petioled, subentire to remotely denticulate (often spinulose), dark green above, paler to glaucous beneath; aments coarsenous to serotinous, 3-5 cm. long, 5-8 mm. wide, 1-3 together terminating leafy seasonal branchlets 2-5 cm. long; scales oblong to obovate, sometimes erose at apex, thinly pilose to glabrate, yellowish-brown, often striate with 3-5 veins, deciduous; stamens 2, filaments free, hairy below; capsules ovate-lanceolate, 4-5 mm. long, sessile or subsessile; styles wanting; stigmas short, divided.

On bars, beds, and banks of streams, often rocky, from southern Calif. to Utah and northward in the mountains to Jasper Park, Alta., and N.W. B.C. (Stikine R., 70 miles from its mouth).

4. SALIX MYRTILLIFOLIA Andersson

Flora Alaska

Myrtle-leaved Willow

Salix myrtillifolia Andersson, in Oefv. Kon. Vet.-Akad. Förh. 15:132, 1858 (Nord-Amerika Pilarter); in Proc. Amer. Acad. Arts. & Sci. 4:74, 1858 (simultaneous American publication, entitled Salix Boreali-Americanae), and in a reprint of this, differently paged, p. 28, 1858.

Salix novae-angliae, subsp. 3. S. myrtillifolia Andersson, in Sven. Kon. Vet.-Akad. Handl. 6:162, 1867 (Monog. Salicum).

Salix novae-angliae var. myrtillifolia Andersson, in DC. Prodr. 16(2):253, 1868.

slender  
Low, often somewhat depressed, shrub, 0.3-1 m. or more high, the brownish branchlets more or less pubescent, ascending or suberect, and, with the bud-scales, and occasionally pruinose; ~~petioles short, axillary, long~~ stipules small, or wanting; leaves elliptic-oval, oval, or obovate-oval, mostly with rounded base, 2-4 or 4.5 cm. long, 1-2.5 cm. wide, apex rounded to abruptly acute, margin finely and evenly crenate-serrulate, the reticulate venation often raised, especially beneath, green on both sides, but ~~more~~ paler below, often drying dark, glabrous, 7-10 mm. wide,  
Aments coetaneous, 1-3 cm. long, on leafy-bracted peduncles 3-15 mm. long; stamens 2, filaments glabrous, free; capsules lanceolate, 4.5-6.5 or ? mm. long, glabrous, brown; pedicels 1-1.5 mm. long, glabrous; styles 0.5-0.8 or 1 mm. long, usually entire, stigmas short, usually entire; flower scales lanceolate-oblong, acute, brown to blackish, glabrate outside, thinly pilose inside with crinkly hairs. white?

In swampy ground and on river and lake margins. Occasional from Newfoundland more Mackenzie, to Manitoba and common in Sask., Alta., northern B.C., Yukon Terr., and eastern Alaska, to Kenai Peninsula, Mt. McKinley Nat. Park, Nenana and the Yukon R. in vicinity of Rampart. June-July in our area.

From Newfoundland to southeastern B.C., northwestward to the Mackenzie ~~Basin~~ Basin, Yukon, and Alaska as far west as Kenai Peninsula, Nenana, and the Yukon R. in the vicinity of Rampart. Occasional east of Sask., commoner westward and ~~more~~ northward.

*Hultén in addition lists var. pseudo-myrtillifolia (Cronq.) Ball. from Cent. Pacific coast, Alaska Range & upper Yukon districts.*

S.

SALIX PYRIFOLIA ANDERSSON

Flora Alaska

*S. pyrifolia* Andersson, in Svensk. Vet.-Akad. Handl. 6:162, pl. 8, fig. 93, 1867 (*Monog. Salicum*).

*S. cordata balsamifera* (Barr.) Hooker, Fl. Bor.-Am. 2:149. 1839 (*S. balsamifera* Barratt as synonym).

*S. basamifera* Barratt, Bebb in Bot. Gaz. 4:190. 1879.

Shrub, 1-5 m. high; branchlets slender, dark red, glabrous, shining; petioles slender, 8-18 mm. long; ~~stipules wanting, or small~~ stipules wanting, or ~~small~~ small, 1-2 mm. long, and mostly quickly deciduous; leaves broadly lanceolate or oblong-oval to oval or ovate, commonly 4-10 cm. long, 2-4 cm. wide, cordate or rounded at the mostly oblique base, acute or abruptly acuminate at apex, glandular-crenate-serrate, finely but prominently net-veined, somewhat rugose, and glaucous beneath, deep green above, glabrous (often silvery pilose with deciduous hairs while unfolding),. Aments coetaneous, on leafy-bracted peduncles 2-8 mm. (staminate) or 1-3 cm. (pistillate) long; staminate aments 3-5 cm. long; stamens 2, filaments glabrous, free; pistillate aments 3-7 cm. long, becoming lax and 2 cm. wide in fruit; capsules rostrate from a lanceolate base, 7-9 mm. long, glabrous, greenish; pedicel ~~slender~~ slender, 2.5-3.5 mm. long, glabrous; styles very short, 0.3-0.5 mm. long, divided; stigmas short; flower scales oblong, 2-2.5 mm. long, tawny or reddish, densely white-villous at opening.

Occuring in wet ground, from river banks and ~~wet~~ damp thickets to wet spruce woods, swampy ground, and peat bogs. It has an extensive east-west distribution in the Life Zones,

north of lat. 44° N. from Nova Scotia to New York, lat. 45° N. from Wisc. to Minn., and about 5° N. in western Canada, extending northward to about 56° N in eastern Labrador, about 59° N. in Sask. and Alta. and to 64° N in the Klondyke Valley of Yukon Terr.

Russ. Rapids,

Flora Alaska *Anderson annotated*

6. SALIX WALPOLEII (Coville & Ball) Ball. Walpole Willow.

*Salix Walpoleii* (Coville & Ball) Ball, in Madrono 6(7):230-232, 1942.

*Salix Farrae* var. *Walpoleii* Coville & Ball, in Bot. Gaz. 71:435-436, 1921.

Low shrub, 0.5-2.5 m. high; branchlets short, stoutish, divaricate, (and the bud scales and petioles) mostly dark brown, the seasonal to 2-year/ more or less densely pubescent or puberulent, often becoming glabrate; stipules <sup>2-6 or</sup> 1-8 mm. long, lanceolate to ovate; petioles slender, 2-10 mm. long; blades elliptic-oblongate, broadly elliptic, <sup>acute at apex, acute or apical point rounded at base</sup> or obovate-oval to obovate, 4-8 cm. long, 2-3.5 cm. wide, entire or rather the outer half shallowly and ~~rather~~ remotely crenulate, thin, glabrous, green above, glaucous beneath, sparsely reticulate with slender veins on both surfaces at maturity. Aments <sup>5-6</sup> coetaneous, 2-5 cm. long, 1 cm. wide, on short (0.5-2-cm.), leafy peduncles, pistillate aments to 6 x 1.5 cm. in fruit, rather lax; stamens 2, filaments glabrous, free; flower scales oblanceolate, 0.8-1 mm. long, pale brown, glabrate outside, thinly pilose inside; ✓ capsules narrowly lanceolate, 5-7 mm. long, greenish-brown, glabrous; pedicels 0.5-1 or rarely 1.5 mm. long, glabrous; styles only <sup>5-0.4</sup> 0.2-0.3 mm. long, stigmas short, notched; gland cylindrical, capitate, 0.6 mm. long.

*Salix Walpoleii* is a species mostly of alluvial stream margins, flowering and fruiting from mid-June throughout July. In Alaska it seems to be confined to an east-west belt between Lat. 63° and 67° N. This is comprised in Yukon River drainage, Seward Peninsula, and the Kobuk River of Kotzebue Sound drainage. Collections have been made in Mt. McKinley Natl. Park; at Cantwell, Paxson's, and Rapids along the upper reaches of streams flowing northward into the Tanana River; in the mountains along the Steeple Highway northeast of Fairbanks; on the Dall and Alaskuk (Alatna?) Rivers north of the Yukon; at Kaltag on the lower Yukon, at ~~xxxx~~ several points in Seward Peninsula; and on the Kobuk River east of Kotzebue Sound. It has been collected also in Mackenzie, <sup>+ Pelee Creek,</sup> at Aklavik and Richards Id., in the Mackenzie Delta between 68° and 70° N. Lat. The collection at Paxson's was thought to be from the headwaters of the Gulkana, flowing southward to the Copper River.

*Hullin this as rep. of S. Laxar*

## 7. SALIX BARCLAYI ANDERSSON

*Salix Alaska*

Salix Barclayi Andersson, in Oefv. Vet.-Akad. Forhandl. 15:125. 1858; in Proc. Amer. Acad. Arts & Sci. 4:66, 1858 (preprinted in Sal. Bor. Am. 20, 1858).

Shrub 1-3 or 4 m. high (in Alaska); branchlets stoutish, yellowish in spring, becoming darker, drying blackish, rough-hairy to glabrate; bud scales similar; stipules mid-sized, 3-15 mm. long, semicordate to ovate, acute or long-acute, glandular serrate; blades narrowly oblanceolate (var. *angustifolia*), ~~to~~ broadly oblanceolate or elliptical to obovate, or oval (var. *rotundifolia*), 4-9 or 10 cm. long, 2-3.5 cm. wide, narrowed to rounded or the largest subcordate at base, acute or abruptly acuminate at apex, glandular-crenate-serrulate or sometimes subentire, dark green and usually more or less tomentose above, especially on the veins, often becoming glabrate, glaucescent to glaucous and glabrous beneath, Aments stoutish, pedunculate, appearing with or slightly before the leaves, on leafy-bracted peduncles 1-2 or 3 cm. long; staminate aments 2-4 or 6 cm. long, 1.5 cm. wide, dense; stamens 2, filaments free, glabrous; flower scales linear-lanceolate to lanceolate, acute, 2-3.5 mm. long, brown to fuscous-black, drying black, densely clothed within and more or less so on the outside with long white or gray, straight or somewhat crinkly hairs; pistillate aments 3-6 or 1-1.5 cm. wide; 8 (rarely 10) cm. long; capsules lanceolate-rostrate, 5-8 or 9 mm. long, glabrous (see var. *hebecarpa*), greenish or rufescent; pedicel stoutish, 0.5-1 mm. long, tomentose when young to glabrous; styles 1-1.5 or 2 mm. long, entire or occasionally somewhat divided; stigmas 0.3-0.5 mm. long, entire or divided.

Abundant ~~from Alaska~~ along streams from the northwestern U.S. ~~to~~ across Alta. (Whitehorse and Moosehide) and B.C. to the upper Yukon Basin and the Alaska coast westward to Kenai Peninsula and northward into the Alaska Range and the Tanana drainage. It is fairly common down the Alaska Peninsula to Unalaska Island but only occasional in the Yukon Valley (Blackburn and Kwiguk Slough), and the Seward Peninsula (Nome).

*barclayi*

7a. Var. angustifolia Andersson.

*Flora Alaska*

Narrow-leaved Barclay Willow

Salix Barclayi angustifolia Andersson in Svensk. Vet.-Akad. Handl. 6 (Monog. Sal.):165, 1867; in ~~ME~~ DC. Prod. 16 (2):255, 1868;; Schneider in Jour. Arnold Arb. 1:150-151, 1920 (discussion).

Variety angustifolia differs from the species in branchlets usually more slender and glabrous to only thinly tomentose; stipules small or wanting; leafblades smaller, narrowly lanceolate to elliptic-lanceolate, 3.5-5 cm. long, 1-1.7 cm. wide, acute or short-acuminate at apex, narrowed at base or the apical somewhat rounded; aments and capsules as in the species.

This variety occurs sparingly from the Cascade Mts. of Washington (Mt. Rainier) northward to northern B.C. (Lake Atlin), southwestern Yukon (Lake Kluane), southern Alaska (Juneau, Copper R., Valdez, <sup>Matanuska,</sup> and between Lakes Skilak and Tustumena), and central Alaska (Slana area, Delta R., and Blackburn).

7b. Var. hebecarpa Andersson.

Hairy-capsuled Barclay Willow

Salix Barclayi \*hebecarpa Andersson in Svensk. Vet.-Akad. Handl. 6 (Monog.

Sal.):165, 1867;- discussed by Schneider in Jour. Arnold Arb. 1:151-152, 1920; 3:73, 1921.

Differs from the species in having the capsules thinly puberulent or pubescent. Care must be taken not to classify somewhat molded specimens as representing this variety.

Variety hebecarpa occurs sparingly with the species from the Cascade Mtns. (Mt. Rainier) of Washn. and B.C. and the Rocky Mtns. of Alas. to southern Alaska (Akutan Pass north of Unalaska, Kadiak Island, and Willow Creek 75 mi. no. of Anchorage).

*Hulten recognizes a Salix hebecarpa Fern. (Rhodora 26 (1924) p. 123.*

*barclayi*

*Flora Alaska*

7c. Var. retundifolia Andersson . Wide-leafed Barclay Willow.

Salix Barclayi retundifolia Andersson in Kon. Svensk. Vet.-Akad. Handl. 6 (Monog. Sal.):164, 1867; in DC. Prodr. 16(2):254-55, 1868;- discussed by Schneider in Jour. Arnold Arb. 1:150-151, 1920.

Variety retundifolia differs from the species chiefly in the leaf-blades, which are not rotund but may be described as oval or obovate-oval, or subovate on vigorous shoots, 3-5 cm. long by 2-3.5 cm. wide, rounded to cordate at base, rounded but usually apiculate, sometimes plicately so, at apex (sometimes short-acute on vigorous shoots). The type specimen was from Kadiak Island.

from

This broad-leafed variety is found sparingly in southern B.C. and west-central Alta. northwestward, becoming common in northwest B.C. (mountain of Texas Creek 20 miles north of Hyder, Alaska) and in adjacent Alaska, and abundant in southern central Alaska from Unalaska north to Kadiak Island, Kenai Peninsula, Valdez, and the Talkeetna Mtns.

Salix Chamissonis Andersson, in DC. Prod. 16 (2):290. 1868.

Prostrate and trailing or slightly ascending shrub, 1-3 dm. high; branchlets x yellowish to brown, glabrous; stipules on vigorous shoots only, 3-7 mm. long, linear-oblongate, acute; petioles slender, 5-13 mm. long; blades mostly obovate, occasionally narrowly so, and rarely suborbiculate, 1.5-5.5 or rarely 7 cm. long, 1-2.5 or rarely 4 cm. wide, cuneate or somewhat broader at base, mostly obtuse and usually broadly rounded at apex, minutely glandular-serrulate throughout, delicately net-veined at maturity (as in *S. myrtillofolia*), dark green and somewhat shining above, glaucescent to usually glaucous beneath, glabrous after unfolding. Aments few, cespitose, leafy-pedunculate, spreading or erect; peduncles 1-2 cm. long, the small leaves often deciduous; flower scales oblong to oblong-obovate or ovate, 1.5-2 mm. long, mostly rounded at apex, black, hirsute on both surfaces with straight white hairs; staminate aments 2-4 cm. long, oval; stamens 2, filaments free, glabrous; pistillate aments 2-5 cm. long, becoming 3-8 or rarely 9 cm. long ~~in fruit~~ and 1.5 cm. wide in fruit; capsules 5-6 mm. long, sessile or subsessile, densely to thinly pubescent with short, gray hairs; styles 1-1.2 mm. long, entire; stigmas 0.3-0.7 mm. long, ~~entire~~ entire to divided; gland ventral.

This unique member of Section *Communitatae* seems to be confined to Alaska and adjacent Siberia, where the type was collected at St. Lawrence Bay. It is abundant on the south coast of Seward Peninsula, and occurs on St. Lawrence Island. Eastward, it has been collected once near Lake Iliamna on the base of the Alaska Peninsula, possibly once on Kadiak Id., once at Mendenhall near Juneau, and twice on the Steece Highway between Fairbanks and Circle City, once at 12-Mile Roadhouse above Fairbanks and once at 12-Mile Summit, 87 miles from Fairbanks. Doubtless it will be found at other eastern points.

dupl in Alaska 1st & 2nd

Salix commutata Bebb, in Bot. Gaz. 13:110, 1888; † Schneider in Journ. Arnold Arb. 1:160-163, 1920; ibid. 3:74, 97, 101, 103, 1921.

Low sprangly shrub 1.5 or 2 m. high (in the arctic area); branchlets stoutish, brownish to black, densely tomentose to glabrate; stipules broadly lanceolate to ovate, acute, 4-8 or 12 mm. long; petioles 3-12 mm. long, stout, pubescent; leafblades oblong-lanceolate or elliptic to broadly oblanceolate or obovate-oval, 3-7 or 8 cm. long, 1.5-3 or 4 cm. wide; narrowed to rounded or somewhat cordate at base, acute or abruptly cuspidate at apex, subentire or minutely glandular-serrulate, especially toward the base, dull green, obscurely reticulate, and usually thinly to densely villous-tomentose on both surfaces or the lower on fruiting branches becoming glabrate (see var. denudata).

Aments coetaneous, leafy-pedunculate, ~~XXXX~~ 1.5-3.5 cm. long, 8-10 mm. wide, the pistillate 4-5 mm. long in fruit; peduncles 1-3 cm. long and bearing 3-6 small and often glabrate leaves; flower scales obovate or narrower, obtuse, about 2 mm. long, brown, covered on both sides with long gray twisted hairs; stamens 2, filaments 5-7 mm. long, glabrous, free; capsules ovate-lanceolate, greenish, glabrous (see also var. puberula); pedicels 1-1.5 or 2 mm. long, usually pubescent but sometimes glabrate to glabrous; styles 1-1.5 mm. long, entire; stigmas entire; gland 1, 0.5-0.8 mm. long.

S. commutata occurs in cold wet mountain soils or cold coastal situations from northern Wye. and northern Calif. northwestward in the mountains. It apparently is lacking in central B.C. but reappears more commonly in northwestern B.C., (Texas Creek mountains 20 mi. nw. of Hyder and from White Pass to Lake Bennett and Lake Atlin. From Yukon it is known only in the vicinity of Summit and Middle Lakes.

In southeastern Alaska it occurs sparingly (Chilkat R., Glacier Bay, Yakutat Bay, Haines, Copper R. opp. Childs Glacier, Selcha Slough, Cordova, Kodiak Island, and Kukak Bay).

tributary of the Tanana

*commutata*  
9a. Variety denudata Bebb

*Floia Alaska*

Salix commutata denudata Bebb in Bot. Gaz. 13:111, 1888; - Schneider in Journ. Arnold Arb. 1:161-162, 1920; 3:74, 1921.

Differs from the species in leafblades glabrate or nearly glabrous, especially beneath, the lower often becoming entirely glabrous but the apical (younger) usually gray-tomentose, margins usually more strongly (or visibly) glandular-serulate, although sometimes subentire; scales more thinly hairy, especially outside.

Variety denudata has much the same range as the species but in our area is confined to the Coast (Glacier and Yakutat Bays, Copper R. opp. Childs Glacier, Cerdeva, Tunnel, Thompson Pass, and Alaska Peninsula at Chignik Lake and Kukak Bay).

9b. Variety puberula Bebb

Salix commutata var. puberula Bebb, in Bot. Gaz. 13:111, 1888; - Schneider

in Journ. Arnold Arb. 1:162-163, 1920; 3:74, 1921.

Variety puberula differs from the species in having thinly pubescent capsules, which develop from rather densely pubescent ovaries. This variety is comparable to S. Barclayi var. hebecarpa and is a transition toward S. Eastwoodiae Ckll. (S. californica Bebb), in which the capsules normally are densely white-to gray-tomentose. Bebb's description reads: "Capsules thinly puberulous. Transition to S. californica". Some of the material referred to this variety by Schneider and others actually belongs to S. Eastwoodiae.

Var. puberula occurs sparingly in Oreg., Wash., and southern B.C. In Alaska it has been found only once, near the cemetery at Kodiak

10. Selix pseudomonticola Ball False Mountain Willow.

Selix pseudomonticola Ball, in Standley (Fl. Glacier Natl. Park) in Contrib. U. S. Natl. Herb. 22:321, 1921; - Schneider in Journ. Arnold Arb. IX 3:73-74, 1921.

S. Barclayi And. (in part) and S. monticola Bebb (in part) as understood by E. Schneider and by some American authors, at different times and places.

Shrub 1-3 m. high in Alaska-Yukon or to 4.5 m. high southward; branchlets divaricate, brown, glabrous or the younger somewhat pubescent and yellowish; stipules ovate to semi-cordate, 0.5-1 or even 2 cm. long on vigorous shoots, sharply acute, serrate, glabrous; petioles 5-10 or even 20 mm. long, glabrous; leafblades elliptical-ovate, broadly oblong-ovate, or mostly narrowly to broadly ovate when mature, (mostly obovate before full expansion), 4-7 or 10 cm. long, 1.7-3.5 or 5 cm. wide, rounded to mostly subcordate or cordate at base, acute to rather abruptly <sup>crenate-</sup> short-acuminate, or plicately so, at apex, rather coarsely glandular/serrate averaging 4-6 or 8 teeth per. cm., vigorous blades often with a large tooth or small lobe on either side of the base, green above, glaucous beneath, glabrous or the midrib somewhat pubescent above. Aments coetaneous, sessile or subsessile, naked or bracted at base; staminate 2.5-3 cm. long, about 1.4 cm. wide; pistillate 3-8 or rarely 10-12 cm. long and 1.5-2 cm. wide in fruit, somewhat lax; flower scales oblong-oval or broadly oblanceolate, about 1.5 mm. long, brown, densely villous within, less so and some times glabrate toward apex without; stamens 2, filaments 6-7 mm. long, free, glabrous; capsule lanceolate, 6-8 mm. long in fruit, greenish to brown, glabrous; pedicels 1-1.5 or rarely 2 mm. long, glabrous; styles 0.8-1.3 mm. long entire, stigmas shorter, notched.

S. pseudomonticola occurs on stream banks and in swampy places in the Rocky Mountains of so. Colo. and the Black Hills of So. Dak. up the Rocky Mtns. of B.C. and Alta. and the plains of Alta. and Sask. In our area, it is found in nw. B.C. at White Pass and in Yukon down the Yukon Valley from Cowley to Dawson and at ~~White~~ Mayo, far to the east of Dawson. In Alaska it has been found at Ketchikan, in the Copper R. drainage (Chitina Lakes, Gakona, Paxson), in the Susitna Valley (Talkeetna), in the Tanana drainage (Salcha Slough, Piledriver, Steese Highway, Nenana), and ~~in~~ on the Yukon ~~Valley~~ River (Circle, Ft. Yukon).

Willows Alaska

11. Salix alaxensis (Andersson) Coville Felt-leaf Willow

Salix alaxensis (Andersson) Coville, in Proc. Washn. Acad. Sci. 2:280-282, 1900; 3:311-314, 346, pl. 34, 1901; - Schneider in Jour. Arnold Arb. 1:213, 223-225, 1920; 3:75, 95, 106, 112, 1921.

S. speciosa Hooker & Arnott, Botany Beechey Voyage 120, 1832; not Host, 1828.

S. speciosa alaxensis Andersson, in DC. Prodr. 16 (2):275, 1868.

Low shrub to small tree 2-9 m. high; branchlets stout, mostly divaricate, brown to black, 2-year and 1-year more or less gray-tomentose, the seasonal white hirsute; bud scales 9-12 mm. long, tomentose; stipules linear to linear-lanceolate, 0.5-2 cm. long; petioles 0.7-1.5 cm. long, tomentose; leaf blades narrowly to broadly elliptical-ob lanceolate, 5-9 or 12 cm. long, 2-4 or 5 cm. wide, usually tapering or subcuneate at base, acute or acutish and often obliquely plicate-apiculate at apex, margins entire and usually somewhat revolute or occasionally remotely glandular-denticulate, dull green and mostly glabrate above, felted with a thick, whitish tomentum beneath. Anthers precocious, sessile or subsessile, scarcely

bracted at base, the staminate 3-4 cm. long, 1.2-1.5 cm. wide, the pistillate 4-7 cm. long in flower, becoming 8-10 or 11 cm. long in fruit, and 1.5-1.8 cm. wide rather dense; flower scales elliptical-ob lanceolate, acutish to obtusish, blackish, 2.5-3 mm. long, densely hirsute, especially inside, with straight white hairs 3-4 mm. long; stamens 2, filaments long, free, glabrous; capsules lanceolate, sessile, 6.5-3 mm. long, gray-tomentose; styles 1.5-2 mm. long, slender, usually entire; stigmas linear, 1-1.5 mm. long, entire or notched, or occasionally divided.

S. alaxensis is a plant of the Far Northwest. It occurs sparingly from Jasper Park in the Rocky Mtns. of east-central Alta. northeastward to Lake Athabaska and across Mackenzie to the Arctic islands and northwestward/across B.C., Yukon, and Alaska. It ranges westward to Unalaska, the Nushigak area, and Nome and northward to Kotzebue Sound, and the upper Koyukuk and John River Valleys, and the Yukon Valley.

11a. S. alaxensis var. longistylis (Rydb.) Schneider

Salix longistylis Rydberg in Bull. N.Y. Bot. Garden 2:183, 1901; not S. longistylis Gandoger, Fl. Europ. 21:96, 1890.

S. alaxensis var. longistylis (Rydb.) Schneider in Journ. Arnold Arb. 1:213, 225-226, 1920; *ibid.* 3:75, 109, 1921.

Differs from the species in having several organs larger; maximum height 15 m. or 50 ft., and trunk diameter of 3 dm.; branchlets longer, more slender, straight, ascending, glabrous or glabrate, the seasonal shoots sometimes sparsely pilose, yellowish to reddish to purplish to fuscous, the 2-year and 1-year usually densely pruinose; the larger (sprout) leaves up to 11-12 by 4.5-5.5 cm. and 13-15 by 6-6.5 cm.; largest pistillate aments up to 12-13 cm. long with peduncles up to 1 cm. long and bearing 1-2 small leaves up to 1-2 cm. long; stigmas up to 1.8 mm. long.

This variety has much the same range as the species but is much more common eastward and almost replaces the species in Yukon where it occurs as far north as the Black River, a tributary of the Porcupine in NE. Alaska. In southern Alaska it extends as far west as Kodiak Island and Iliamna Lake; in central Alaska to Kokrines and Ruby on the Yukon, and in northern Alaska to the Kobuk River Valley.

12. Salix amplifolia Coville

*Willows Alaska*

Broad-leaf Willow

Salix amplifolia Coville in Proc. Washn. Acad. Sci. 2:282-283, 286, pl. 15, 1900; ibid. 3:314, 348, pl. 35, 1901. Schneider in Journ. Arnold Arb. 1:212, 218-219, 1920; ibid. 3:74, 94, ibid. 97, 103, 114, 1921.

Shrub or small tree to 7.5 m. high and 3 dm. in diameter; branchlets stout, yellowish brown to dark brown, the seasonal densely white-hirsute, 1-year, 2-year, and sometimes 3-year more or less hirsute to becoming glabrate; bud scales ovate, 10-14 mm. long, colored and clothed as the branchlets; stipules none; petioles 5-15 mm. long, hairy; leaf blades oval or ~~lanceolate~~ obovate-oval to broadly obovate, rarely suborbicular, the apical rarely ovate with cordate base, 5-6 or 7 cm. long, 1.5-4 cm. wide on specimens not fully developed (probably much larger at full maturity and on vigorous shoots), rounded or somewhat acutish at base, usually broadly rounded to somewhat acutish at apex, usually entire or somewhat remotely glandular-crenulate, yellowish green above, glaucescent (and probably glaucous when fully developed) beneath, the unfolding blades usually long-villous with straight white, quickly deciduous, hairs beneath, soft villous above with shorter hairs ~~fairly persistent on midrib and larger veins~~.

Aments costaneous, stout, leafy-pedunculate; peduncles 1-2 cm. long and bearing 2-4 small leaves, the pistillate becoming 2-5 cm. long in fruit; staminate aments 3-4 cm. long, 1.6-2 cm. wide; stamens 2, filaments 8-9 mm. long, free, glabrous; pistillate aments 3-5 cm. long, becoming 5-8 or 10 cm. long, 2 cm. wide, and spreading, in fruit; flower scales lanceolate, oblong-lanceolate, or oblanceolate, 2.5-4 mm. long, acute to obtuse, brown to black, long-villous; ovaries densely to thinly pubescent to glabrous, capsules lanceolate from an ovoid base, 7-9 mm. long, brown, glabrous; pedicels stout, 1-1.5 mm. long, pubescent; styles 2-3 mm. long, entire, stigmas 0.6-1 mm. long, usually divided; gland 1 mm. long.

This little-known species was found by the Harriman Alaska Expedition of 1899 only on the sand dunes around the shores of Yakutat Bay, about Lat. 60° N and Long. 140° W. In 1931, it was found by the Sutchells on the Copper River opposite Child's Glacier. It has not been found elsewhere and probably represents a surviving remnant of a species once more widely distributed but now facing extinction. It belongs to Section Chrysantheae with S. alaxensis, S. Barrattiana, and S. Richardsonii, in which its nearest relative probably is S. Hookeriana, a sand-dune species confined to the Pacific Coast from K SW. B.C. to NW. California.

13. Salix Barrattiana Hooker

Flora Alaska

Salix Barrattiana Hooker (in part), Fl. Bor.-Am. 2:146, pl. 181, 1839;-  
Schneider in Journ. Arnold Arb. LX 1:213, 216-217, 1920; *ibid.* 3:74, 95, 104,  
111, 1921.

This species itself has not yet been found with certainty in the Alaska-Yukon area. Some of the immature specimens assigned to the variety angustifolia, however, show developments which may indicate that they really ~~represent~~ represent the species. Later collections of more fully developed material may prove this. Also, if the species is omitted, the variety will require a complete detailed description. For both reasons, it seems best to describe the species fully and distinguish the variety briefly.

Low alpine shrub 0.5-2 m. high (in our area); branchlets short, stout, the younger leafy, yellowish, and densely to thinly villous-tomentose, the 2-year and 3-year brown and rusty tomentose with dead hairs, to glabrate and rarely shining; bud scales broadly oval to ovate, obtuse, 3-8 mm. long, colored and clothed as the young branchlets; leaf blades crowded on young branchlets, stipules obliquely lanceolate to semi-cordate, 2-8 mm. long, acute, mostly glabrate, subsistent for a second year, margins and sometimes the inner surface also densely set with yellow glands secreting a balsamic fluid coloring paper yellow; petioles 5-10 or 15 mm. long, yellowish, hairy; leaf blades crowded on the seasonal and 1-year branchlets, broadly elliptic-oblong to ovate-oval, or broadly ovate, 3-7 or 8.5 cm. long, 1.5-3 or 4 cm. wide, thickish, densely to thinly villous-tomentose beneath, usually densely so on the midribs and primary veins above, sometimes glabrescent and then yellowish-green above (the younger often silvery pilose on both surfaces), margins entire but more or less closely beset with glands as described for the stipules, especially toward the base

Aments precocious, borne on old wood, stout, sessile, often crowded; staminate aments 2-5 cm. long, about 1.6 cm. wide, stamens 2, filaments long, free, glabrous; pistillate aments 2-6 cm. long in anthesis, becoming 3-8 or even 10 cm. long and 2 cm. wide in fruit; flower scales lingulate or narrowly oblanceolate (broader while expanding), 2.5-3.5 mm. long, acutish, dark brown to black, densely long hairy; capsules lanceolate, 6-7 mm. long, white-tomentose, pedicel very short, 0.3-0.4 mm. long, pubescent; styles 1.5-2 mm. long, entire, glabrous, stigmas 0.6-0.8 mm. long, notched to mostly divided; gland short, stoutish.

S. Barrattiana occurs commonly in the Rocky Mtns. from Glacier National Park  
Rockies and  
in NW. Montana northward to Jasper Park, Alta., and less commonly in the Selkirk  
of SE. Brit. Columbia. Northwestward it is rare. It has been reported from the  
Chilkat area of B.C.-Alaska, and from the headwaters of the Chitina River, north of  
Mt. St. Elias, but these reports have not been verified.

Two of the immature specimens (Mexico 2019, Satchell's 176) from Mt. McKinley  
Nat'l. Park, assigned to variety angustifolia because of narrow leaves, show a sus-  
picious broadening of the later developing leaves and really may represent the  
species.

13a. S. Barrattiana var. angustifolia Andersson

Salix Barrattiana var. angustifolia Andersson in DC. Prodr. 16(2):274  
(not 247 as cited by Rowlee), 1868.

S. Albertana Rowlee in Bull. Torr. Bot. Club 34:157, 1907.

Variety angustifolia differs from the species only in the elliptic-lanceolate leafblades 3-9 or occasionally 12 cm. long, 1.2-2.5 or rarely 4 cm. wide, tapering fairly equally to the acute base and apex, or the apical sub lanceolate and broader and blunter at base. This natural broadening of the apical leaves makes very difficult the separation of the species and variety when represented by immature specimens, as noted under the species.

The variety occurs sparingly in the northern half of the range of the species, and thence northwestward. In Alaska, it is fairly common in Mt. McKinley Natl. Park. It has just been found at Eureka Roadhouse, between the lower Tanana and the Yukon, by Dr. J. P. Anderson, and has been collected once at Wiseman, on the headwaters of the Koyukuk River in the Endicott Mtns., at about Lat. 67° 30' N. and long. 150 W.

14. Salix Richardsonii Hooker

Richardson Willow

Salix Richardsonii Hooker, Fl.-Bor.-Am. 2:147, pl. 182, 1839; - Schneider in Journ. Arnold Arb. 1:212, 213, 214-215, 1920; ibid. 3:74, 95, 102, 112, 1921.

Erect or spreading shrub, 0.5-2.5 m. high; branchlets short, stout, brownish to black, occasionally yellowish, densely to thinly hirsute; bud scales large, ovate, 6-8 mm. long, hirsute; stipules large, prominent, linear-lanceolate to semi-ovate, 1-2.5 cm. long, acuminate, serrulate to dentate, glaucous beneath, usually persistent and conspicuous in the second season; Leaves broad but variable in shape; petioles 5-8 mm. long, pilose; blades elliptical to broadly elliptical and acute at both ends or the lower obtuse at the apex, or rhomboidic-elliptical to rhomboidic-ovate and acute at apex and rounded at base, 3-8 cm. long, 1.5-4.5 cm. wide, the abruptly acute apex often oblique and plicate, subentire to irregularly glandular-crenate, bright green above, glaucous beneath, glabrous throughout but long-hirsute beneath while unfolding, strongly veined.

Inflorescences precocious, sessile on 1- and 2-year branchlets, stout, oval to narrowly oblong; staminate 3-4 cm. long by 2 cm. wide, stamens 2, filaments long, free, glabrous; pistillate 3-4 mm. long at anthesis, becoming 5-8 or 9 cm. long in fruit; flower scales lanceolate to elliptical-ovate, acute, 1.5-2.5 mm. long, black, densely long-hirsute; capsules lanceolate, 6-8 or 9 mm. long, subsessile or the lowermost pedicels up to 1 mm. long, glabrous (the ovaries occasionally thinly pilose; styles stoutish, 1.5-2 mm. long, entire, stigmas about 1 mm. long, usually divided).

*S. Richardsonii* occurs across Arctic Alaska south to about Lat. 64° N. (Norton Sound and Mt. McKinley Natl. Park, and less commonly south to about Lat. 62° N. (Holy Cross, Talkeetna Mtns., and Copper River). East of the Copper R. it drops south-eastward as far as the White Pass area (Glacier) in the "Panhandle" of Alaska and eastward to the upper Yukon drainage (Lake Atlin) in Brit. Columbia. From Alaska it extends eastward across Yukon and Mackenzie.

15. Salix fuscescens Andersson

Flora Alaska

Salix fuscescens Andersson in Kon. Svensk. Vet.-Akad. Handlingar 6:97 (Monog. Sal.), 1867;— Schneider in Journ. Arnold Arb. 2:83-84, 1920; in ibid. 3:76, 94, 95, 100, and 108, 1921.

Prostrate to ascending shrub, sparingly-branched; branchlets stoutish, the older occasionally rooting, 7-15 or 20 cm. long, dark brown to blackish, shining, glabrous, the seasonal shoot sometimes light brown; stipules none; petioles mostly 2-4, rarely 5-8, mm. long; leafblades cuneate-obovate, rhombic-obovate, or obovate-oval, rarely oblanceolate, 1-2.5 or 3.5 cm. long, or to 4.5 cm. on vigorous shoots, 6-15 or 18 mm. wide, narrowed or cuneate at base, obtuse or slightly retuse at apex, entire or usually minutely denticulate toward the base, rarely the larger shallowly glandular-crenulate toward the apex, becoming finely reticulate on both sides, green and shining above, glaucescent to glaucous beneath, glabrous.

Aments coetaneous, scattered, leafy-peduncled, 2-4.5 or 5.5 cm. long, 1.2-2 cm. wide, projecting well above the foliage, somewhat lax at base, peduncles 2-5 cm. long, glabrous, or puberulent toward the apex, bearing 2-4 or 6 small leaves; flower scales oblong-lanceolate, acute, 1.5-2 mm. long, thinly pilose, especially toward the margins; stamens 2, filaments capsules lanceolate-rostrate, 6-8 or 9 mm. long, glabrous, brown; pedicels stoutish, 1-1.5 or rarely 2.5 mm. long; styles about 0.2 mm. long, mostly entire; stigmas short, mostly divided; gland 1, slender, about 0.5 mm. long.

*S. fuscescens* is found mostly in the coastal tundra. It occurs inland at Fairbanks and on the adjacent Steese Highway (Sourdough Creek) and between the Alutka River and Walker Lake, in the headwaters of the Kobuk River in NW. Alaska. In the coastal area it ranges from the lower Susitna Valley (Eklutna) and Kenai Peninsula to Kodiak Id., the upper Alaska Peninsula, Shumagin Ids. (Nagai Id.), the Yukon Delta, Norton Sound, Seward Peninsula (Nome, Port Clarence), and the Puvuk Islands near St. Lawrence Island in Bering Sea.

Hultén classed this & its var. *reducta* as *S. arbutifolia* Pall. (Sil. Ross. 1:2 (1788)) p. 79

15. *Salix fuscescens* Andersson  
 150 mm. from valley.

15a. Salix fuscescens variety reducta Ball

*Flora Alaska*

Salix fuscescens var. reducta Ball in Proc. Natl. Acad. Sci. 21:183-184, 1935.

Differs from the species in reduced size of most organs; plant depauperate;  
as  
branchlets mostly less than 10 cm. long; leaves more crowded, petioles 1-2 mm. long, blades smaller, 8-12 or 15, or rarely 20, mm. long, 7-11 mm. wide, obovate-oval or rarely suborbicular, acute to rounded at base. Aments 1-2.5 or rarely 3.5 cm. long, 1 cm. wide; flower scales broader, oblanceolate-obovate; capsules 4-5 or rarely 6 mm. long, lanceolate but not rostrate; pedicels 1-1.5 mm. long; styles sometimes divided. Variety reducta bears a deceptive resemblance to small-leaved specimens of S. ovalifolia or its variety cyclophylla.

The variety has much the same range as the species but does not seem to be as common southward. Collections have been made in eastern and southern Alaska at Paxson, Isabella Pass on the Richardson Highway, and on Willow Creek, 75 miles north of Anchorage, and on Kodiak Island. In western Alaska it is found on Nunivak Id., Yukon Delta, Norton Sound, Seward Peninsula, and Wainwright on the Arctic coast, and on St. Mathew, St. Lawrence, and the Puvuk Islands in Bering Sea, as well as at Plover Bay in Siberia.

F. lora Alaska

16. Salix retundifolia Trautvetter

Round-leaved Willow

Salix leucocarpa (Chamisso) Coville, in Proc. Wash. Acad. Sci. 3: (301, 303), 338-340, 360, pl. 41, fig. 2, 1901.

Salix retundifolia Trautvetter in Nouv. Mem. Soc. Imp. Nat. Mosc. 2: 304, pl. 11 (De Salic. Frig. Kochii), 1832; -Schneider in Bot. Gaz. 67: 28, 39, 53, 1919; in Journ. Arnold Arb. 3: 67, 93, 100, 107, 1921.

Plant small, prostrate, creeping, stoloniferous, forming circular mats 10-30 cm. wide; branchlets numerous, slender, yellow to brown, glabrous; rising only 1-2 cm. above the surface; stipules none; leafblades tiny, broadly obovate, broadly oval, or orbicular, or the apical rarely ovate, commonly 5-10 mm. long by 4-8 mm. wide, sometimes oblate-orbicular and 4-6 mm. long by 6-8 mm. wide, rarely up to 11 by 10 mm., acute to rounded or rarely subretuse at base, rounded to mostly retuse at apex, entire, the midrib and widely-curving, parallel, and mostly unbranched lateral veins stout and prominent, both surfaces bright green, shining, glabrous, and punctate with minute white dots (pores), the old leaves persistent for 1-2 years and sometimes skeletonizing as in *S. phlebophylla*, but less completely.

Aments serotinous, pedunculate, erect, few- (4-10 or 15)-flowered; peduncles short, slender brownish, glabrous, 2-3 leaved; flower scales obovate or obovate-oval, about 1.5 mm. long, brown to blackish, thinly pilose throughout or glabrous outside; staminate aments 1-1.5 cm. long, often nearly concealed in the leafage; stamens 2, filaments glabrous, free; pistillate aments 1.5-2 cm. long, only faintly exerted from the foliage; capsules lanceolate, 4-7 mm. long, brown, glabrous (ovary also); pedicel short, stout, up to 0.5 mm. long, glabrous; styles 0.5-0.6 or rarely 0.8 mm. long, usually entire; stigmas about 0.5 mm. long, usually divided; glands usually 2 (fide Schneider), the ventral filiform-capitate, 1 mm. long.

*S. rotundifolia* contd.

*S. rotundifolia* has a considerable distribution in Alaska but probably occurs more widely and more abundantly than the collections indicate, because it easily is overlooked because of its small size. Collections have been recorded from the Steese Highway (Wagle Summit), ~~Mount McKinley National Park, Mt. McKinley, Mt. Hayes~~ Mt. Hayes area (north of Rapids), Natl. Park area (Healy, Sable Pass, Stony Pass), Copper R.-Prince William Sound (Faxon, Thompsons Pass, Columbia Glacier), Susitna Valley (Talkeetna Mts., Willow Creek, Matanuska Valley), Alaska Penin. (Fox Bay), Kodiak Id., Shumagin Ids., Aleutian Ids. (Akutan, Unalaska, Atka), Bering Sea (Univak, Prohilor, Hall-St. Matthew/ ~~and~~ Ids.), Seward Penin. (Port Clarence, Tin City), NW. Coast (Kivikina, Cape Lisburne, Icy Cape, Wainwright Inlet, and Barrow), and at Wiseman on the headwaters of the Koyukuk River and at Camden Bay on the NE Arctic Coast. It occurs also in Siberia.

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16a. *Forma pilosiuscula* Schneider

*Salix rotundifolia* Trautvetter, *forma pilosiuscula* Schneider in Bot. Gaz.

67:53, 1919.

This form differs from the species only in having the ovaries wholly or partly villous.

It has been collected on Seward Peninsula near the Teller Reindeer Station and on St. Lawrence Island at Gambell. <sup>also</sup> Schneider/ cites two specimens from Hall and St. Matthew Islands, deposited in the Missouri Botanical Garden herbarium but not seen by the writer.

1. Salix phlebophylla Andersson

Skeleton-leaf Willow

Salix retusa phlebophylla Andersson in Cefv. Kon. Vet.-Akad. Förhandl. 15:131, 1858 (and reprinted in Proc. Am. Acad. Arts & Sci. 4:72-73, 1858).

Salix phlebophylla Andersson in DC. Prodr. 16(2):290, 1868.

Salix paleoneura Rydberg in Bull. N.Y. Bot. Garden 1:267, 1899 (type from Point Barrow).

Shrub small, prostrate, creeping, stoloniferous, radiating mat-like from central stem; branchlets slender, yellow-brown, glabrous, sometimes seconding for a few ~~centim~~ cm.; stipules none; leafblades crowded, mostly oblanceolate to obovate, varying from elliptical through obovate-oblong to broadly spatulate, mostly 5-12 mm. long, 4-10 mm. wide, but up to 20 by 12-14 mm. on vigorous shoots, tapering at base to short petioles (1-2 or 3 mm.), mostly obtuse to rounded at apex but varying from abruptly short-acute and sometimes plicate to slightly or markedly retuse, entire, bright green, shining, white-punctate, and glabrous (sometimes white-hirsute while unfolding) on both surfaces, the midvein and parallel secondaries prominent, old leaves persistent for 1-3 years and slowly skeletonizing.

leafy-

Aments serotinous, pedunculate, erect, many (12-30)-flowered; peduncles slender, glabrate, bearing 2-4 normal leaves; staminate aments 1.5-2 cm. long, only partly exerted from the foliage; stamens 2, filaments free, glabrous; pistillate aments 2-2.5 or 3 cm. long, usually completely above the leaves; flower scales broadly oblanceolate-oval or obovate, rounded at apex, 1.4-2 mm. long, brown to blackish, thinly hirsute, especially inside, becoming glabrate to glabrous outside in age; ovaries more or less densely pilose, capsules lanceolate, 4-6 mm. long, becoming glabrate to glabrous, pedicels about 0.5 mm. or the lower to 1-1.5 mm. long, styles 0.6 or rarely 0.8 mm. long, usually entire, stigmas 0.4 mm. long, usually divided; glands 2 (Schneider), the <sup>ventral</sup> ~~basal~~ filiform-capitate, about 1 mm. long

Salix phlebophylla is a northern species, ranging from Shingle Point on the Arctic Coast of Yukon, and Demarcation Point in Alaska westward to Point Barrow and Siberia, and southward to Eagle Summit, Pexom on the upper Gulkana, Mt. McKinley Natl. Park, Takotna on the upper Kuskokwim River, Norton Sound and Seward Peninsula. Scattered southern extensions occur in the northern Alaska Penin. (Iliamna Bay, Katmai area, Fox Bay), Mitrofanova Id. farther south, and St. Paul Id. in the Pribilofs.

18. Salix polaris Wahlenberg

*Flora Alaska*

Salix polaris Wahlenberg, Fl. Lapp. 261. pl. 15, fig. 1, 1812; Schneifer in Bot. Gaz. 69:29, 38, 49-50, 1919; in IBRY Journ. Arnold Arb. 5:66, 96, 100, 107, 1921.

(Description based wholly on European specimens). Small ~~perpetually~~ creeping, prostrate or slightly ascending semi-herbaceous shrub (somewhat like S. ~~harr-~~  
bacca); branchlets short, yellowish, glabrous, bearing a few (2-3 or 4) leaves and usually a subterminal ament; stipules none; petioles 1-5 mm. long, glabrous; leafblades few, broadly elliptical, ovate, obovate, obovoid-oval, or sub-  
~~sometimes~~ orbicular to oblate-orbicular (subreniform), 0.7-2 cm. long, 0.5-1.5 or 2 cm. wide, acute to rounded or the broader retuse to subcordate at base, rounded to emarginate or retuse at apex, <sup>entire</sup> or some European specimens shallowly and remotely crenulate, <sup>often</sup> veins 5-8 or rarely 10 pairs, ~~markings~~ branching, and mature leaves often reticulate with raised veins, green on both sides, scarcely paler beneath, the more orbicular and strongly-veined (older) usually shining, glabrous.

Aments small, rather lax, inconspicuous, scarcely projecting beyond the leaves, 1-1.5 cm. long, few (6-10 or 12)-flowered, subterminal; the short bractless peduncles 5-10 mm. long, glabrous to thinly pubescent; flower scales oblanceolate to usually broadly obovate, rounded, truncate, or retuse at apex, blackish, glabrate to glabrous outside, thinly villous within; stamens 2, filaments glabrous, free; ovaries densely gray-pubescent, capsules lanceolate, 3-7 or 8 mm. long, thinly pubescent (by expansion or dehiscence?), sessile or on pedicels to 0.5 mm. long; styles 0.5-0.8 or 1 mm. long, mostly entire, stigmas shorter, often notched or divided; gland ventral, short.

A plant closely allied to the European S. polaris has been found sparingly in northern British Columbia, Yukon, and Alaska during the past 50 years and more. Sometimes it has been referred doubtfully to this species, sometimes mistaken for other species, and sometimes made the basis for a new species or variety.

A preliminary study of American material indicates that the typical European plant does not occur in Arctic America. Specimens with short and broadly obovate leaves are found (Ingenika River, Brit. Columbia; Herschel Id., Yukon; and Skagway, Happy River, Paxson, and Mt. McKinley Natl. Park, Alaska). But these do not have the broad-based suborbicular and oblate-orbicular, somewhat shining leaves so characteristic of European specimens, and they mostly have larger aments with 15-25 flowers. On the other hand, a few Alaska specimens with obovate, acute-based leaves have short, few-flowered aments like typical polaris.

It is by no means certain that all this material belongs to var. Selwynensis Reup. He did not describe his variety but merely recited certain differences between it and his understanding of true S. polaris. These were: "longer aments (pist. 0.7-2.7 cm., stam. 1-2 cm. long), often with 16-25 flowers" and "leaves more constantly ovate-elliptic or obovate rather than orbiculate". For the present, the writer is arranging the material under the variety, pending further studies.

The following description is based on the specimens studied.

Much of the material is juvenile, the leaves not having attained full size and the capsules being still in the ovary stage, with styles not fully elongated. With material scanty at best, this condition makes the problem of understanding this little-known species all the more difficult. Several sheets of juvenile specimens were found to S. ovalifolia Trautvetter instead of S. polaris, as shown by ~~the~~ glaucous lower leaf surfaces and a fine reticulation not found in American specimens of S. polaris or variety. The short styles of such juvenile specimens was corroborative but not complete proof because the style elongates with the development of the ament. It still is possible that juvenile specimens of other species are present but still unrecognized.

18a. Salix polaris var. selwynensis Raup

*Flora Alaska*

Salix polaris var. selwynensis Raup, in Contrib. Arnold Arb. XL 6:144-146, pl. 4, 1934.

Small, prostrate, creeping, semi-herbaceous plant (similar to S. herbacea), not forming mats; branches short, sparingly leafy (but leaves crowded at apex), yellowish-brown to brown, glabrous; leafblades broadly oblanceolate or elliptic-oblanceolate to obovate or broadly obovate-oval, 1 cm. x 5-6 mm, 1.5 c. x 7-10 or 12 mm, 2 x 1-1.3 cm., 2.5 x 1.2 cm., and 3 x 1.2-1.4 cm., mostly acute (sometimes cuneate) at base but the broader somewhat rounded, all obtuse or mostly rounded at apex, glabrous, green, and scarcely shining on both surfaces, <sup>entire,</sup> veins (depending on size of leaf); 3-7 or 10 pairs, well distributed along the midrib, but the lower pairs the most prominent, faintly reticulate; petioles 2-5 mm. long on smaller leaves, 5-8 or 10 mm. long on larger, slender yellowish brown, glabrous.

budscales ovate, olive-brown, glabrous; stipules none;

aments coctaneous-serotinous, leafy-pedunculate, subterminal, 1-2 or 2.5 mm. long, 8-10 mm. wide, 15-35-flowered, partly to fully exserted from foliage; peduncles 1-1.5 or rarely 2 cm. long, thinly hirsute, bearing 1-3 small but normal leaves; flower scales broadly oblanceolate to obovate, rounded to mostly retuse at apex, mm. long, thinly long-hirsute outside, more densely so inside, brown to blackish; stamens 2, filaments glabrous, free; capsules lanceolate to broadly so, 5-7 or 8 mm. long, sessile or the lowest on very short pedicels, gray-pubescent, becoming thinly so (by expansion and dehiscence ?), and finally sometimes glabrate at base ~~simultaneously~~ with age; styles 0.8-1.2 or 1.4 mm. entire or sometimes divided at apex, stigmas 0.4-0.6 mm. long, spreading, divided <sup>filiform,</sup> or notched; gland ventral, slender, 1-1.4 mm. long, slightly capitate.

This variety has been found sparingly in the southern part of our area. B.C.: Ingenika River and Mt. Monarch at Lake Atlin; Yukon: Lake Kluane to Don Jak River and Herschel Id. (far north); Alaska: Skagway, Paxson, Cantwell and Mt. McKinley Natl. Park, Happy River, Nome, Port Clarence and Imiruk Basin. Material supposed to belong here, from other localities, has not yet been seen by the writer.

F. C. C. Alaska

19. Salix Satchelliana Ball

Satchell Willow

Salix Satchelliana Ball in Univ. Calif. Publ. Bot. 17(14):410-412, pl. 72, Sept 7, 1934.

Salix eliana Floderus in Arkiv. Bot. (Stockholm) 27 (2):1-3, pl. 1, (Feby. 5 ?), 1935.

Prostrate or somewhat ascending, sparingly branched shrub; older branches glabrate and sometimes subglaucescent, younger white-hirsute, or late seasonal shoots glabrate; stipules none; petioles obsolete to 1-2 or 3 mm. long, broad, stout, subclasping; (as in some Longifolia and S. alaxensis var. obovalifolia Ball); leafblades 1.5-5 by 0.8-1.5 cm. or up to 5.5 by 1.8-2.2 cm., narrowly to broadly oblanceolate with cuneate base tapering imperceptibly into the short or almost obsolete petioles, lower and smaller blades sometimes elliptical-oblanceolate or obovate and less cuneate, narrow apical ones acute, the others rounded or more or less emarginate to retuse at apex, thick, ~~markedly~~ leathery, irregularly, and remotely to rather closely, shallowly to rather deeply glandular-crenate-serrulate, mostly plane, yellowish-green and glabrous above, paler, somewhat glaucescent, and glabrous in age beneath (more or less white-hirsute while unfolding and the hairs somewhat persistent on the veins).

Aments coetaneous, 1.5-2 cm. long, leafy-pedunculate; peduncles 1-2 cm. long and bearing 2-3 normal leaves; white-hirsute to finally glabrate or glabrous, flower scales very large, 3-4 or 4.5 mm. long, broadly oblanceolate, obovate, or obconic (often appearing oblong in pressed specimens because the margins become infolded around the stamens), rounded, truncate, or commonly retuse or bicuspidate at apex, finely striate with sometimes branching veins, glabrous, pale yellow or straw color; stamens 2, filaments little exceeding the scales, free, thinly pilose at base; capsules broadly lanceolate, <sup>to ovate</sup> 6-7 or 7.5 mm. long, bluntish at apex, subsessile, brown, glabrous; pedicel stout, 0.2 mm. long; styles stout, 0.2-0.3 mm. long, equalling the stigmas; gland 1, ventral, slender, capitate, 0.8-1 mm. long.

S. Satchelliana belongs<sup>st</sup> to Section Retusae with S. polaris, S. phlebophylla, and S. rotundifolia, and, of these, is nearest S. polaris. It is more closely related to S. retusa of Arctic Europe, and most closely to S. Kitaibeliana of the central Carpathian Mts. of Old Hungary. It is known from three small areas in Alaska-Yukon. In Mt. McKinley Natl. Park it has been found on river gravel near the foot of Copper Mtn., Thoroughfare Pass; on gravel at the snout of Muldrow Glacier opposite the ranger cabin, ~~near~~ base of Mt. Eielson, elev. about 3000 ft. (type locality), and in the gravelly bed of Toklat River. In the Matanuska Valle

it was found on gravel at Metamaska and on sand at Palmer. In NW. Yukon, east of Mt. St. Elias, it has been collected between Lake Klusne and the Don Jak River and ~~also~~ recently by Dr. Anderson at the south end of Lake Klusne.

20. Salix reticulata L.

Salix reticulata L.. Sp. Pl. 2:1018, 1753;- Schneider in Bot. Gaz. 67:30, 42, 44-45, 1919; in Journ. Arnold Arb. ~~XXXXXX~~ 3:66, 92, 99, 107, 1922.

Prostrate, creeping, few-leaved shrub; branches few, glabrous; stipules none; petioles slender, elongated, 1-2 or 3 cm. long, brown, glabrous; leafblades variable, elliptical, elliptic-oval, oval, or obovate, acute, <sup>un</sup>subacute, rounded, truncate, or rarely (and usually ~~unequally~~) subcordate at base, obtuse to mostly rounded at apex, 2-4.5 or 5.5 cm. long, 1-4 or 5 cm. wide, thick, firm, entire to shallowly and unevenly crenulate-denticulate, dark green and reticulate with depressed veins above, glaucous and rugose with stout elevated veins beneath, glabrous or sometimes long-hirsute beneath while expanding or rarely until fully grown.

Aments serotinous, pseudo-terminal, long-peduncled, narrowly cylindrical, 1.5-4 or 5 cm. long, - mm. wide, often remotely flowered toward the base; peduncles 1-2 or 2.5 cm. long, glabrous; flower scales broadly obovate, rounded or truncate at apex, yellowish- to reddish-purple, persistent, glabrous outside or thinly pilose at base, short-pilose inside; stamens 2, filaments short, free, more or less pubescent on the basal portion; anthers violet; capsule short, ovate, 3-4 or 4.5 mm. long, sessile or subsessile, silvery short-pubescent; styles very short or none; stigmas very short; gland

This circumpolar species has a very extensive Arctic-American range from West Greenland, Baffin Id. and Devon Id. to NW. Alaska, and south to northern Newfoundland, James Bay, Chesterfield Inlet, Great Bear Lake, and thence southwestward to NW. British Columbia (Lat. 55° N.) and westward across Alaska to Nunivak Id. In the Bering-Sea ~~IX~~ islands it mostly is replaced by var. subrotunda Seringe.

Almost universally present above timber line  
in most of Alaska and often also at lower  
elevations J.P.A.

*Flora Alaska*

20a. Salix reticulata var. gigantifolia Ball

Salix reticulata var. gigantifolia Ball, in Proc. Nat. Acad. Sci. 21:185-

186, 1935.

branches up to 10 cm. long;

Similar to the species but larger in every way: petioles mostly 2-4 or 4.5 cm. long; blades obovate oval to suborbicular, 4.5-6.5 or to 8 cm. long, 3.5-5 or 5.5 cm. wide, rounded to cordate at base, capsules 4-5 mm. long, subsessile or the pedicel up to  $\frac{1}{2}$  0.4 mm. long; styles and stigmas 0.2-0.4 mm. long.

This variety is known from Cape Jones Id., Hudson Bay, and from scattered points in Alaska. ~~MacKinnon~~ Southeast: Eagle Creek, Copper River, elev. 4500 ft.); Area of Mt. McKinley Natl. Park (Healy, Isabella Pass, Park); Kodiak Id.; Alaska Peninsula (several) (Katmai region, Kukak Bay); Shumagin Ids. (Unga Id.); Aleutian Ids. (Unalaska Id.); Seward Peninsula (Elim); Kotzebue Sound (Kotzebue); Northern (Wiseman). It has not yet been found on the Bering-Sea islands.

20b. Salix reticulata var. subrotunda Sieringe

Salix reticulata subrotunda Sieringe, Essai Bot. Saules Suisse 29, 1915 (referred to as a "variété"); - Schneider in Bot. Gaz. 37:45, 1919; in Journ. Arnold Arb. 3:66 (as forma), 1922.

Salix orbicularis Andersson (in part), in DC. Prodr. 16 (2):300, 1866.

Differs from the species only in leafblades oval-orbicular to orbicular, or sometimes slightly oblate-orbicular.

It occurs with the species, but less commonly, from northern British Columbia (Atlin), southwest Yukon (Lake Bennett), and mainland Alaska: "Panhandle" (Juneau (3000 ft.), White Pass, Chilkat River, Glacier Bay); Southeast (Kareka R.H., Copper River region, Glenn-Tok Hiway, Talkeetna Mtns., Orca, Prince William Id.); Central: (Rapids); Southwest (Tokotna, Kodiak Id., Chernofski, Shumagin Ids. (Popof), Aleutian Ids. (Unalaska Id.); ~~Kertina~~ Seward Peninsula (South coast, Nome, Port Clarence, Cape Vancouver, Kotzebuk); Northwest and North (Point Hope, Wiseman). In the islands of Bering Sea it almost completely replaces the species but is not reported from St. Lawrence Id. It occurs on Nunivak Id., Pribilof Ids. (St. Paul and St. George Ids.), <sup>and</sup> Hall-St. Matthew Ids.,

2. *P. tacamahacca* Mill.

Balsam Poplar

*P. balsamifera* auct. not L.

Medium to large tree; bark of the branches light brown or gray; leaves ovate to ovate-lanceolate, shining above, pale beneath, acute or acuminate at the apex, cuneate or rounded at the base, crenulate, 6-10 cm. long or up to 20 cm. on young sprouts; fruiting aments 5-12 cm. long; capsule 2-valved, short-pedicelled. Rarely hybridizes with *P. tremuloides*. Reports of *P. candicans* from Alaska are based on forms of this species with wide leaves and light-colored bark.

Mostly in the interior in our area, Bering Sea—Labr.—N. Y.—Wyo.—Ore. Fig. 360.

3. *P. tricocarpa* Torr. & Gray.

Black Cottonwood

Our largest deciduous tree; branches pubescent; leaves broadly ovate to ovate-lanceolate, finely crenate-serrate, acute or acuminate at apex, cordate to rounded at the base, 6-12 cm. long, pale beneath; aments 5-12 cm. long, or in fruit up to 20 cm. long; capsules 3-valved.

Lowlands of the Pacific coast in our area, Alaska—Ida.—Calif. Fig. 361.

2. *SALIX* (Tourn.) L.

The text for the genus *Salix*, the willows, was to have been prepared by Dr. Carleton R. Ball, who is recognized as the leading authority on American willows. Up to the time of handing in the manuscript for this part of the Flora of Alaska and adjacent parts of Canada his treatment of the genus had not been received. It is hoped that it can be published later as a supplement.

1. *MYRICACEAE* L. (Bayberry Family)

Monoecious or dioecious shrubs or trees; leaves alternate, simple, usually coriaceous; flowers without perianth, borne in the axils of the bracts in erect or ascending aments; ovary 1-celled with a straight ovule and subtended by 2-8 bractlets; fruit a small oblong drupe or nut, its exocarp often waxy.

*MYRICA* L.

Our species is a deciduous shrub 5-15 dm. tall; leaves resinous-dotted; staminate aments oblong or cylindric, expanding with or before the leaves; stamens 4-8, with short filaments; pistillate aments ovoid or subglobose; ovary subtended by 2-4 bractlets; fruit resinous. (Ancient name of the Tamarisk.)

*M. gale* L.

Sweet Gale.

Leaves oblanceolate, obtuse and toothed at the apex, cuneate at the subsessile base, more or less puberulent beneath, 2-6 mm. long, 5-20 mm. broad; aments in fruit 6-10 mm. long, about 4 mm. thick; nutlets waxy-coated, of about same length as the 2 persistent bractlets which clasp it on each side and are adnate to the base. The form in eastern Asia and

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