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5th Floor, Hunt Library  
Carnegie Mellon University  
4909 Frew Street  
Pittsburgh, PA 15213-3890  
Telephone: 412-268-2434  
Email: [huntinst@andrew.cmu.edu](mailto:huntinst@andrew.cmu.edu)  
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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.

Ball, Carleton R., Preliminary draft (Oct. 25, 1919) of *Salix* for  
Standley, P. C. - Flora of Glacier National Park, Contr. U.S. Nat. Herb.  
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WILLOWS of MONTANA

See Ball  
letter Oct 25 1919

Glacier National Park, P. G. Standley, 1919.

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WILLOWS OF MONTANA

Collected in Glacier National Park,

By Paul C. Standley, July to September, 1919.

det C.R. Bull

LUCIDAE

Salix lasiandra caudata (Nutt.) Sudworth.

①

16,865 fol. Boggy meadow; 6-8 ft. high; Aug. 1. Leaves very small, 5-7 cm. long, rigid, glabrous except pubescent petioles; young twigs pubescent.

17,906 ♀ Thicket along lake; abundant; very slender, 6-12 feet high. Aug. 22. Leaves small, 6-8 cm. long, very sparingly pubescent beneath; petioles and young twigs pubescent; capsules about 4 mm. long, pedicel 1 mm. long.

Salix serissima (Bailey) Fernald.

①

✓ 16,053 ♀ Open marsh; 3-4 feet high. July 20. The short leaves, about 1.5 by 5 cm., firm, very pale but not glaucous beneath, and the late-developing aments, 2.5 cm. long, with long thickwalled capsules, about 8 mm. long and becoming brownish, separate this from S. lasiandra Benth, the species of the Rocky Mountains.

NIGRAE

Salix amygdaloides Anderson.

# →

18,845 fol. Along river; 10 feet high. September 3-4. Normal except twigs quite reddish as though from south side of the shrub and hence much exposed to sun.

0 = no. of herb sheets

LONGIFOLIAE

Salix interior Rowlee

17,751 fol. Edge of Two Medicine Creek, slender shrub, 3-5 feet high. Aug. 16. Twig gray; leaves small, 4-5 or 6 cm. long, 3-6 mm. wide, linear-oblongate, remotely denticulate - or subspinulose, nearly glabrous.

Salix exigua tenerrima (Hend.) Schm.

15,160 fol. Shale slide; slender shrub. July 6, Leaves 8-10 cm. long, 3-5 mm. wide; denticulate to subspinulose, pale beneath, glabrate.

18,619 fol. Brushy slope; frequent; 5 feet high. Sept. 3-4. Leaves smaller and less sharply denticulate.

Salix melanopsis Nuttall. (2)

14,919 ♀ Along stream; shrub, July 5. Leaves subglaucous, cap. 4-5.

15,677 fol. Low thicket. July 14. Leaves small, green beneath.

✓ 15,685 ♀ 6 feet high. July 14. Leaves subglaucous and thinly pubescent beneath; subentire.

✓ 16,339 fol. Moist marshes; 2 feet high. July 25. Leaves very small, mostly entire, 4-5 cm. long, pubescence as in 18,275; twigs reddish.

17,131 ♀ Edge of lake, abundant, 6-10 feet high, Aug. 6-7. Leaves broad, green to subglaucous beneath.

17,741 fol. Creek bed; scarce; 3 feet high. Leaves subglaucous (becoming yellow with age)

17,794 ♀ Along creek; 6 feet high. Aug. 18. Leaves small, subglaucous beneath; twig much branched;

17,892 ♀ Moist places in deep woods, frequent; slender, 6-8 feet high. Aug. 22. Leaves frosty-pubescent on both sides, subglaucous beneath; old capsules brownish.

18,275 ♀ Edge of lake; common; 5-8 feet high. Aug. 27. Leaves as above, youngest densely tomentose beneath, as in some scouleriana.

18,658 fol. Shaded rocky slope; frequent; five feet high. September 3-4. Leaves very large on sprout, 1-1.2 by 7-9 cm. on seasonal twig, the younger densely gray-tomentose beneath, thinly so above.

18,676 ♀ In sand along river; frequent; 5 feet high. September 3-4. Leaves small, pubescence as <sup>No. 18,275</sup> ~~is~~ old aments crowded.

18,681 ♀ In sand along river, abundant; 3-6 ft. high. September 3-4. Leaves subglaucous beneath; denticulate, nearly glabrous; capsules brown.

CORDATAE

Salix mackenziana (Hook) Barratt

(1)

✓ 18,668 fol. Shaded rocky slope, occasional, 4-5 feet.

Sept. 3-4. Seasonal twig with sprout leader; bark reddish, peeling; leaves lanceolate, short-acuminate, rounded to approaching truncate at base; petioles slender, suggesting amygdaloides.

Salix pseudomyrsinites Anderson

(1)

14,970 ♀ Edge of stream; shrub. July 5. Typical lanceolate leaves; aments 3 cm. long, capsules about 6 mm., and styles about 0.7 mm.

✓ 15,293 ♀ Edge of Appekunny Creek, 4 feet high, July 9. Leaves very small, 2-3 cm. long, oblong-ob lanceolate, finely serrulate; aments infertile, probably frosted.

17,363 fol. Along creek, 6-8 feet high. August 8. Leaves 1.2 x 3 to 1.5 x 4 cm. broadest just above middle, short-acute.

17,645 fol. In willow thicket, common, 5-10 feet high. Aug. 15.

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variety equalis (?) Anderson<sup>f</sup>

~~15,223 ♂ Edge of lake. 3-4 feet high. July 8~~

✓

14,958 ♀ Low thicket, common shrub. July 5. Leaves broadly lanceolate to oblanceolate, thin, abruptly acute; shallowly crenate-serrulate; aments leafy-pedunculate, 3 cm. long; capsules about 7 mm. long; pedicels 1.5 cm. long.

Salix commutata Bebb

- ✓ 15,444 ♀ Meadow, common; 2-4 feet high. July 11. Fairly typical leaves, oblanceolate to mostly obovate, sharply serrulate; aments only 1.5 cm. long.
- ✓ 16,151 ♂ Wet meadow, common, 2-4 feet high. July 22-23. Foliage typical, elliptic-obovate to oval, shallowly crenate-serrulate, the lower glabrate; aments 2.5-3.5 cm. long; leafy peduncles 1-2 cm. long.
- ✓ 16,384 ♂ Wet meadow, abundant; 2-3 feet. July 26. Much as last but less tomentose.
- ✓ 16,386 ♀ Wet meadow; 2-3 feet high. July 26. Much as last but leaves larger.
- 16,477 ♀ Wet meadow, common, 1-3 feet high. July 26. Much as last but leaves narrower.
- ✓ 17,297 fol. Edge of brook, 3-4 feet high. August 7. Leaves more elliptical, subentire.
- ✓ 18,085 ♀ Open rocky slope, common, 1-2 feet high. August 24. Much as No. 16,151.
- ✓ 16,828 ♀ Wet meadow; 3 feet high. July 31. Small, elliptic-lanceolate leaves, acute at apex, finely serrulate; fruit mature; peduncles 1-2 cm. long, leafy; aments 3-5 cm.; a small-leaved form.

S. commutata denudata Bebb. (3)

- ✓ 15,223 ♂ Edge of (Grinnell) Lake, 3-4 ft. high. July 8. Young leaves, tomentose to rapidly glabrate, about 3 cm. long, darkened somewhat in drying, entire; aments just unfolding, about 2 cm. long; on short leafy peduncles.
- ✓ 15,390 ♀ Foot of cliff; 2-3 ft. high. July 11. Bark shining, suggesting pseudomyrsinites, Leaves young, thinly tomentose when unfolding, soon glabrate, mostly cordate at base.
- ✓ 15,430 fol. Meadow; 2-3 ft. high. July 11. Small leaves suggesting pseudomyrsinites but all thinly tomentose, becoming glabrate, finely reticulate and serrulate.
- 15,446 ♂ As last. Leaves softly tomentose, or pilose-tomentose and becoming glabrate, Aments 2-3 cm., just flowering.
- ✓ 15,448 ♀ Meadow; 2-4 ft. high. July 11. More nearly typical commutata but the leaves softly tomentose, becoming glabrate, finely serrulate; aments on long leafy peduncles; capsules ~~rufescent~~.
- ✓ 16,152 ♂ Wet meadow; 2-4 ft. high. July 22-23. Large ovate or elliptical leaves, as commutata, but glabrate, subentire; aments 2 cm. long, old.
- ✓ 16,368 ♀ Wet meadow; 2-3 ft. high. July 26. Leaves broadly elliptical to ~~subovate~~ subobovate, 3-5 cm. long, thinly tomentose above, becoming glabrous throughout; ament long-peduncled.
- ✓ 17,298 ♀ Edge of brook, 3-4 ft. high. Aug. 7. Leaves ovate or elliptical, acute, 3-4.5 cm., rounded to subcordate at base, (resembling forms from S. E. Oregon), thinly tomentose to glabrate, sharply serrate; aments old.

Salix pseudomonticola Ball (ined.)

(2)

15,259 ♀ Spruce woods; 3 feet high. July 8. Leaves suggest monticola but aments are on 1 cm. leafy peduncles; capsules 7 mm., pedicels 1-1.5 mm. and styles about 0.7 mm.

15,755 ♀ Rock slide above lake; common; 2-3 feet high. July 15. Leaves entire, elliptic to ovate, 3-6 cm.; aments 2-3 cm. on leafy peduncles 0.6-1 cm. long, capsules 5-6 mm. long, styles short.

16,058 fol. Open marsh, abundant, 1-2 feet high. July 20. Leaves shallowly serrulate, oblong-obovate to elliptical.

16,109 ♀ Marsh, 3 feet high, July 21. Leaves entire, ovate, the larger subcordate; aments 2.5-4 cm. (on 0.7-1.0 mm. leafy peduncles); capsules 5-6 mm. long, pedicels 1.5 mm. long, styles 0.5-6 mm.

16,278 ♂ 6-8 feet high. July 24. Leaves crenate-serrate, elliptic-oblancoate (as monticola), discolored, 4-7 cm. long; ament 1.5 cm. long, on peduncle 7 mm. with two leafy bracts.

Salix

2

Salix farrae Ball (ined).

✓

15,813 ♀ Moist places at foot of cliff, 3 feet high.

July 15. Glabrous throughout, even to the scales. Bark reddish, scarcely shining; leaves entire, elliptic-ovate, 2-2.5 cm. long, open-reticulate on both sides with slender veins, impressed or excurrent above; aments 2-2.5 cm. long, on leafy peduncles 1 cm. long, pedicels 1-1.5 mm. long; capsules about 3 mm. long; scales minute, dark, glabrous; style about 0.5 mm. long.

✓

16,110 ♀ In marsh, 3 feet high. July 21. Bark reddish, somewhat lustrous; leaves entire, elliptic-ovate or rhombic-ovate, 2-3.5 cm. long; capsules about 3 mm. long, pedicels about 0.5 mm. long.

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✓

16,753 ♀ On rocks near brook; common; 2-4 feet high. July 31.

Bark and venation as in 15,813; leaves larger, elliptic oblanceolate and 2-5.5 cm. long on fruiting twigs, broader (some 2x5 cm.) on seasonal shoots, peduncles about 2 cm. long, aments 2-3 cm.; capsules 4-5 mm. long; pedicels 1 mm. long, scales dark, oblong or elliptic, glabrous, 1 mm. long.

✓

16,930 ♀ (rusted). Open mossy bog; 2-3 feet high. Aug. 2. Along Apekunny Creek. Much as No. 15,813, but leaves more rhombic-oblanceolate, and bark partly sublustrous.

15755 }  
16058 } farrae, see pseudomonticola, p. 8  
16109 }

LANATAE

Salix barrattiana Hooker (form)

18,129 ♀ Rock slide; common; 1-2 feet high. August 25.

Branchlets dull, rough, more or less long-pilose; buds, ovate stipules (2-3 mm.), petioles and leaves all densely tomentose-pilose, blades elliptic to oval, the larger most oval, 1x2, 1.5x3, and 2.2x3.5-4 cm. being common sizes, entire or occasionally glandular, rounded at base, abruptly acute at apex; single ament sessile, 4 cm. long, on last year's wood; capsules apparently infertile, about 5 mm. long, long-conic, densely white pilose; style and stigma 1.5 long; scales oblanceolate to ob-ovate, acute, black, long-pilose, 2 mm. long.

Differs from typical barrattiana in the small, short leaves, elliptic-oval instead of long and oblanceolate. Sanson's No. 2036 from Banff is very similar, though its leaves are more obovate.

OVALIFOLIAE

Salix brachycarpa Nuttall

15,764♀ Rock slide above Cracker Lake, 2 feet high.

July 15. Yg. fruit; elliptic-oval leaves.

16,389♀ Wet meadows, not common, 2-3 feet high. July 26.

As the last,

16,785<sup>fol.</sup> On moraine; scarce, prostrate, July 31. A true alpine form, leaves 0.5-1.3 cm., some densely lanate, some almost glabrate beneath.

16,906♀ Open mossy bogs; scarce; 1-2 feet high. Aug. 2.

Much branched; narrowly elliptical leaves.

17,451♀ Open gravelly slope; abundant, 1 foot high. Aug. 11.

Normal scraggly plant.

17,457♀ Open gravelly slope, common, 1-2 feet high. Aug. 11.

Small leaves, leaves alpine, mature fruit.

Salix glaucops globrescens Anderson<sup>5</sup>  
A

16,442 fol. Steep meadow; 1 foot high. July 26. Normal small leaves.

16,509 fol. Open thicket; (5) feet high, July 27.

17,450 ♀ Open gravelly slope, with "krumholz", abundant, dense depressed clumps, 2 feet high. Aug. 11. Oblanceolate to broadly elliptical leaves.

17,456 ♀ Open gravelly slope, Pigeon Pass, 1-2 feet high. Aug. 11.

16,249 ♀ Moist woods; 1-2 feet high. July 22-23. Small, elliptic-ob lanceolate leaves, 2-3.5 cm. long; aments (young) 1-2 cm. long.

Salix petrophila Rydberg(10)  
(4)

✓ 15,402 ♀ Meadow, Iceberg Lake, July 11. Erect or spreading, 6-8 cm. high; aments not expanded; leaves ditto, narrowly elliptical, thinly pilose; aments 1-2 cm. long; scales elliptical, obtuse or acute.

✓ 15,408 ♀ As the last. Leaves obovate, 1.5-3.5 cm. long, pale beneath; aments erect, 2-3 cm. long; scales 2-3 mm. long, elliptical obtuse or acutish, nearly glabrous outside; style entire, stigmas linear, deeply divided.

15,420 ♂ ♀ Meadow, prostrate and matted. July 11. Elliptical leaves; aments 1 (♂) or 1.5-2 (♀) cm. long, style and stigmas as last, but stigmas shorter.

✓ 16,203 ♀ Open rocky places, abundant (photo). July 23-24. Leaves elliptic or elliptic-obovate, 1.5 to 2.5 cm. long, acutish or obtuse, distinctly pale beneath; aments (fruit) 2-3.5 cm. long, lax; capsule 4 mm.; style long, entire to divided; stigmas divided.

✓ 16,204 ♂ As last. Small form, elliptic-oblongate leaves, 1-2 cm., aments 1 cm. or less; scales obovate, obtuse.

✓ 16,212 ♀ Open rocky slope, July 23-24. Leaves oblanceolate or broader, 2-3 cm. long, strongly nerved beneath and sometimes reticulate, Aments about 2 cm.; capsules cm., styles entire; stigmas bifid.

✓ 16,370 ♀ Wet meadow, July 26. Leaves oblanceolate, 2-2.5 cm.; aments 1-2.5 cm. scales obovate, rounded to truncate; styles and stigmas bifid.

✓ 17,216 ♂ Moist rocky slope, August 7. Leaves oblanceolate; about 2 cm.; aments 8-15 mm. long.

✓ 17,278 ♀ Edge of brook near summit; August 7. Leaves small, about 1.5 cm. long, elliptical. Aments 1.5-2 cm.; capsule 5 mm.; style long; stigmas entire.

✓ 17,463 ♀ Open rocky place, abundant. Piegan Pass, August 11. Leaves 2-3 cm., narrowly elliptical to oblanceolate, mostly short-acuminate, often plicate at apex (resembling large-sized cascadensis); aments 2-3 cm. long; capsules long, 5-5.5 mm.; scales narrow, elliptical; style long, entire; stigma bifid.

✓ 18,049 ♀ Moist meadow. August 24. About as last, but stigmas entire.

S. anglorum araioclada Schm.

37

✓ 15,453 ♂ Meadow, densely matted. July 11. 10-12 cm. high; elliptic-obovate leaves 1.5-3 cm. long; glaucescent beneath; aments 1.5 (♂) to 2.5 (♀) cm. long, scales broadly obovate or some (♂) oblanceolate obtuse to slightly retuse; style entire, or rarely partly divided; stigmas divided, linear.

✓ 16,371 ♀ Wet meadow; abundant. July 26. 20 cm. tall; leaves oblanceolate to obovate, 2-4 cm. by 1-1.8 cm. <sup>part</sup> to only subglaucescent (just expanded and thin); aments 2.5 - 4.5 cm., lax at base, about 1.3 wide; capsules 5-6 mm. long; style 1-1.5 mm., entire; stigmas (receptive) entire, in process of dividing. Scales oblanceolate to obovate; gland oblinear, 1 mm. long.

✓ 16,430 ♂ Steep meadow. July 26. plant 10-15 cm. tall; erect yellow twigs, <sup>1</sup> one dm., leaves broadly elliptical to ovate, thin (young), scarcely glaucescent; up to 4 x 2.5 cm.; aments (2) 2 cm. long, lax; scales obovate or elliptical; filaments united full length, or occasionally only half.

• 16,439 ♂ ♀ Steep meadow, July 26. Plant 8-15 cm. tall; leaves elliptical to narrowly obovate, 1.5-3 cm., glaucescent beneath, abruptly acute or obtuse, somewhat reticulate; aments 1.5-2 cm.; scales abovate, obtuse or subretuse; style entire, stigmas bifid, oblong; filaments free.

✓ 16,758 ♂ ♀ Wet meadow. July 31. <sup>A</sup>(♂) Plant 10-15 cm. tall; large obovate leaves, the larger 3-5 by 2-3 cm., suggesting arctica, glaucescent beneath; aments teratological, the filaments bearing an aborted ovary with long style and divided stigmas. (♀) Very small leaves 1.5-2.5 cm. long, elliptic-obovate; aments 2-2.5 cm., young.

✓ 16,780 ♀ Wet meadow. July 31. Plant 6-12 cm. tall, small oblanceolate leaves, glaucescent; aments 2-3 cm., lax at base; style entire; stigma entire or divided. Leaves suggest variety kophophylla in size and venation.

✓ 16,802 ♀ Wet meadow. July 31. Plant 6-8 cm., Leaves broader and more reticulate, approaching var. kophophylla; aments 2-3 cm.; scales nearly glabrous; capsule 6 mm.; style very long, entire; stigmas entire.

✓ 18,091 ♀ Open rocky slope; abundant. August 25. Obovate leaves, 2-3.5 cm.; capsule about 5 mm.; styles entire or partly divided; stigmas divided; scales glabrate.

18,092 ♀ rusted specimen of above.

S. andersonii kophophylla Schum. (2)

- ✓ 16,191 ♂ Open rocky place, abundant. July 23-24. Leaves small, obovate or the small lower ones: oval; obtuse; aments 1-1.5 cm. long; scales obovate, obtuse or acute. (This may be nearer the species).
- ✓ 16,265 ♂ Open rocky place. July 23-24. Leaves oval, or oboval, 1.3-2 by 0.9-1.5 cm; pale above (resembling Collins and Fernald No. 60 from Gaspe); strongly veined; ament about 1 cm.
- ✓ 16,323 ♀ Rocky slope on switchbacks, July 24. Like 16,191. About 5 cm. high. Aments 1.5-2.5 cm. long; capsule 6 <sup>7</sup>/<sub>8</sub> mm.; scales obovate, obtuse to retuse; glabrate.
- ✓ 17,218 ♂ Moist rocky slope, August 7. Only 3-5 cm. tall; Leaves very small, 6-12 mm; obovate, oval or ovate, strongly nerved. Aments 0.6-1.2 cm. (This may be nearer the species).
- ✓ 17,225 ♀ Moist rocky slope, August 7. Much branched, creeping by stolons 8-12 cm. long; 3 cm. high; leaves small, as 17,218; aments 1-1.5 cm. long; capsule scarcely 5 mm. long; scales obtuse to retuse, glabrate.
- ✓ 17,251 ♀ Windswept rocky summit, August 7. Erect or ascending. 4-9 cm. high, from long top roots; leaves oval, obovate or suborbicular, obtuse to retuse, obtuse to retuse at base, 1-1.5 by 0.8-1.2 cm. Aments 1.5 cm. long; scales broadly obovate, obtuse to retuse.

## HERBACEAE

✓ Salix cascadiensis Cockl. (S. tenera And.)

(1)

17,204 ♀ Rocky slope, abundant. Aug. 7. Leaves large for this species, 1-1.5 or occasionally 2 cm. long, linear-oblongate, glabrous, acute or abruptly apiculate, strongly veined with parallel veins beneath; aments 1-2 cm. long; capsule 4 mm.; style long, entire; stigmas entire or divided.

RETICULATAE

Salix saximontana Rydberg

(S. nivalis saximontana (Rydb.) Schn.

18,119 ♂ Open rocky slope, frequent. Aug. 25. Leaves small, 6-15 mm. long, aments about 6-7 flowered.

18,131 ♀ Rock slide. August 25. Leaves 1-2 cm. long. Aments 5-6 flowered.

Intermediate in leaf size and number of flowers between these species.

Salix vestita Pursh

15,810 ♀ Moist places along cliff; 3-4 feet high. July 15,  
Leaves oval, about 2x3 cm., obtuse to truncate at base, more hairy be-  
neath; aments 2-2.5 cm. long; capsules slightly pointed.

16,304 ♀ Rocky slope on switchbacks, nearly prostrate; leaves  
lustrous. July 24. Leaves mostly oval, 2-3x3-4 cm., long hairy  
beneath; aments 2 cm. long; capsules conic.

✓ 16,304 ♂ Not said to be prostrate and apparently not so. Leaves  
enormous, 3x4 to 5x6.5-7 cm., mostly retuse at base, not more hairy than  
erecta; aments 2.5 cm. long.

The stout orange yellow buds, 5-7 mm. long, are very striking  
against the dark green leaves.

Salix vestita erecta Andersson

15,431 ♀ Meadow; 3-4 feet high. July 11. Leaves broadly  
elliptic, 3-5 cm. long, glabrate except veins; young aments 3-4 cm. long.

15,757 ♂ Rock slide above lake; 2 feet high, forming large patches,  
July 15. Leaves obtuse, thinly clad beneath.

15,759 ♀ As the last. Leaves very small, about 2.5 cm. long,  
elliptical, obtuse, some densely silky.

15,763 ♀ Rock slide above lake; 2 feet high, July 15. Several  
leaves ovate, acute; aments 4 cm. long.

16,397 ♀ Wet meadow; abundant; 1-3 feet. July 26. Elliptical leaves 2.5-4 cm. long, subglabrate, of erecta, but short aments, mostly 2 cm., of vestita.

16,472 ♂ Steep meadow; abundant in large masses, 1-3 feet high. July 26. Leaves small, broadly elliptical to suboval, subglabrate; aments 1.5-2.5 cm.

16,757 ♀ On moraine; 1 foot high. July 31. Midsized ovate, subacute leaves, 3-4 cm. long, of var. erecta, but more lanate, and single ament 1.5 cm. with acuter capsules, of vestita. Buds large, orange yellow, 7 mm. long, glabrate.

17,295 ♀ Edge of brook; 2-4 feet high. August 7. Leaves 3-5 cm. long, elliptic to suboval, becoming glabrate; aments 3 cm. long.

17,464 ♀ Open rocky slope, frequent; 1-2 feet high, often prostrate. Piegan Pass. Aug. 11. One specimen with elliptic leaves about 2 cm. long; another with broadly elliptic to oval leaves, 2-3 cm. long, fairly lanate beneath, and aments 1 cm. ~~increasing~~ in length. Tossup whether species or variety.

18,126 ♀ Rock slides, common, 1-2 feet high. August 25. (Vicinity of Gunsight Pass, altitude 1775 to 2100 meters). About as the last except leaves on broad-leaved specimen nearly glabrate and aments 2-2.5 <sup>c</sup>mm. long.

ARGENTAE

Salix candida Fluegge

(1)

- ✓ 16,052 ♀ Open marsh; 1-2 feet high; common here. July 20.  
Small linear-oblongate leaves 3-4 cm. long; capsules 6.5-7 mm.;  
styles 1.3 mm. long.

elliptic-oblongate, 3-5 cm.; thinly pubescent only.

17,296 ♀ Edge of brook; 365 feet high. Aug. 7. Leaves narrowly elliptic-oblongate, 1-1.5 x 3.5-5 cm.; single belated ament, 1.5 cm. long; on 7 mm. leafy stalk.

17,306 fol. Open slope along trail, 6 feet high. Aug. 7. Small oblongate acute leaves.

17,311 fol. Along brook; 6 feet high. Aug. 8. One sprout, both pruinose, leaves elliptical, acute; one seasonal twig; leaves narrowly elliptical, thick, old, only thinly pubescent.

17,342 fol. Along creek, 5-6 feet high. Aug. 8. Sprouts, one pruinose, leaves .8 x 5 to 1.5 x 7-8 cm. mature, thinly pubescent to glabrate and green beneath.

17,392 ♀ Low thicket, abundant, 6-8 feet high. Aug. 8. Leaves narrow, 0.8-1 by 3-5 cm. subglaucous to glaucous, glabrate with age; ament 2 cm.

17,642 fol. Willow thicket, abundant; 5-8 feet high. Aug. 15. Pruinoso; vigorous seasonal shoots, leaves large, elliptic-oblong to narrowly oval (lower), deformed.

✓ 17,655 ♀ Willow thicket; 4-6 feet high. Aug. 15. Leaves small, elliptical, 1-1.4 x 2-4 cm., subglaucous, old aments 2 cm. long, glabrate with age;

✓ 17,820 fol. Edge of creek, 6 feet high, Aug. 18. Small oblongate leaves, new growth.

18,127 fol. Open rocky slope; common; 1-2 feet high. Aug. 25. Stunted; oblongate leaves, oblong on sprout.

18,193 fol. As last, 3-5 feet high. Aug. 25. As last.

18,432 fol. Edge of lake, abundant, 5-10 feet high. Aug. 29. Subpruinose on one sprout; leaves elliptic-oblong. largest 1.8 x 10 cm.

✓ 18,804 fol. Leaves elliptic oblong. 4-7 cm. long; densely silvery tomentose; pruinose.

18805

ruled

8  
4

Salix drummondiana Barratt.

✓ 15,426 ♂ Meadow; 2-3 feet high. July 11th. Bark glabrous, glossy; leaves elliptic to obovate, 3-4 cm. long, 1.2-1.9 cm. wide, satiny beneath, thinly tomentose above, mostly on veins, midrib glabrous to pubescent beneath; ament dense, sessile, 1.5 cm. long, erect; scales black, elliptic, acute.

✓ 17, 130 Fol. Rocky beach of St. Mary Lake; abundant; 6-10 feet high. August 6-7. Bark as last, leaves 3-4 cm. long, elliptic-oblong to nearly obovate, costa glabrous beneath.

✓ 17,570 Fol. Moist meadow, Morning Eagle Falls, 6-8 feet high, August 11th. A sprout and 2 seasonal twigs. Leaves elliptic to obovate, on sprout ~~up~~ to 3.5 x 10 cm.; on twigs 1.7 x 5 (elliptic) to 2.5 x 5 (obovate). Costa pubescent to glabrate. (May be sitchensis)

✓ 17,907 ♀ Thicket along lake, abundant; 6-12 feet high. August 22nd. Bark subglossy; leaves elliptic-oblong to somewhat oblanceolate, thick, 1.3 x 3 to 2 x 5 cm.; costa pubescent to glabrate.

✓ 18,504 Fol. Edge of pond along trail, 2-3 feet high. August 29. Bark reddish, only subglossy, the leaves thinner and more obovate, resembling sitchensis more, 1.0 to 1.8 by 3-5 mm.; tomentum of shorter hairs, costa sericeous to glabrate.

✓ 18,683 Fol. Shaded, rocky slope; frequent; 5-6 feet high. Sept. 3-4. Bark reddish, glossy to dull. Stipules 4-5 mm. long, elliptic-oval; leaves broad, 1.5 x 3, 2.5 x 4 to 2.8 x 5 cm., sprout leaves to 3 x 7, thick, densely satiny-tomentose beneath.

✓ 18,761 Fol. Vicinity of Belzon, September 3-4. Seasonal twigs, lower bark glossy; leaves small, narrow, elliptic--oblong to oblanceolate, 1.2-1.5 or 2 x 4-5 cm., thick, densely satiny-tomentose beneath.

✓ 18,797 Fol. Thicket along river bank, with handsome bright red galls (cherry). September 3-4. Twigs and sprout, one year bark shining, leaves small, 1.3 - 1.6 x 3-4, or sprout 1.8 - 2.3 x 4 - 6.5 cm., all elliptic and abruptly acute.

Salix scouleriana Barratt

15,489 fol. Moist hillside; 6 feet high. July 12. Leaves small, 3-4 cm.; on one twig somewhat resembling bebbiana in shape.

15,608  $\phi$  Along creek, common, 6 ft. high. July 12. Normal form; old aments; pedicels 1.5 mm. Elliptic-spatulate leaves.

15,968-69 Six feet high. July 17. Leaves obovate, small, 3-4 cm., glaucous, glabrate.

15,970-71 Six feet high. July 17. New growth; leaves obovate, beautifully silvery-tomentose; twigs ditto.

16,679-80 fol. Open slope. July 30. Leaves obovate, glaucous, glabrous.

17,119 sprout fol. Deep moist woods; 6 ft. high. Aug. 6-7. Large elliptical leaves, youngest densely tomentose.

17,403 fol. Low thicket, common; 6-10 ft. high. Aug. 8. Normal spatulate, <sup>sinu</sup>subulate-margined leaves, glabrous.

17,644 fol. In willow thicket, common, 5-10 feet high, Aug. 15. Normal flavesceus type, glabrate.

17,908 fol. Thicket at edge of lake; abundant, 6-12 ft. high. Aug. 22. Leaves elliptic-oblancheolate, acute, many shallowly and remotely crenate-serrulate.

17,922 fol. Thin woods, common, very slender tree, 10-20 ft., with few and spreading branches, Aug. 23. Normal flavesceus type, glabrate.

18,484 fol. Thin rocky woods, slender tree, 6-15 feet; common, Aug. 29. Typical glabrous, obovate to oblanceolate leaves.

18,736 fol. Dry woods, 5-6 ft. high; Sept. 3-4. A typical looking much like poor bebbiana, but O.K.

18,840 fol. Low flat woods, common, 8-10 ft. Sept. 3-4. Elliptic - spatulate leaves.

Salix bebbiana Sargent

15,005 ♀ Shrub; along streams. July 5. Leaves distinctly pubescent, 3.5-5 x 1.5-2 cm.

15,328 ♀ Low meadow; 5-6 feet high. July 9. As last, some margins crenate-serrate.

15,523 ♂ Open swamp; 10 feet high. July 12. Leaves elliptical-oblongate, 3.5-6 cm., pubescent.

15,689 ♀ Open swamp, 6-10 feet high. July 14. The long leaves, 1.2-1.8 x 4-6 cm., acute at both ends, somewhat shining above and glaucescent beneath and the mostly sterile capsules indicate hybridity with glauca glauca, but long pedicles and capsules and leaf margins are bebbiana.

15,690 ♀ Swamp; 5 feet high. July 14. Sprouts, leaves large, 1.5-2.5 by 4-6 cm., pubescent to glabrate.

15,998 ♂ Edge of swamp; 4-5 feet high. July 18. Leaves small, narrowly to broadly elliptical, thinly pubescent, scarcely rugose. 2.5-3.5 by 1.2-1.8 cm. approaching var. perrostrata Rydb.

17,362 ♀ Along creek, 6-8 feet high. Aug. 8. Leaves 1.5-2 x 3.5-5 cm., thinly pubescent.

17,364 ♀ As the last. Twigs short and much branched; leaves small, obovate-elliptic, 1-1.5 by 2-3 cm. thinly pubescent.

17,646 fol. In willow thicket, common 5-10 feet. Aug. 15. Seasonal twigs, leaves crowded, broadly elliptic to ovate, acute, apex often twisted, 3-5 cm. long; stipules reniform, 2-5 mm. long.

18,599 fol. Dry brushy slope. 5-6 feet high. Sept. 3-4. Leaves small, 3-4 cm. long, glabrate with age.

S. bebbiana var. perrostrata (Rydberg) (1)

✓ 15,492 ♀ Wooded swamp, 6 feet high or more. July 12. Leaves small, elliptical, acute, 1 by 3-3.5 cm. long, thinly pubescent beneath.

15,698-99 ♀ Low thicket; 6-10 feet high, July 14. Leaves narrowly to broadly oblanceolate, subglaucous, glabrous, thin, finely reticulate.

16,942 fol. Mossy open bog; 2-3 feet high. Aug. 2. Small leaves, 2-2.5 cm. long, narrowly elliptical and somewhat pubescent beneath on one specimen, broader and glabrous on the other.

18,671 fol. Shaded rocky slopes, occasional; 3-4 feet high. Sept. 3-4. Small leaves, scarcely 3 cm. long, nearly glabrous, finely reticulate, somewhat paler but not rugose beneath.

Salix geyeriana Anderson<sup>S</sup><sub>A</sub>

(1)

✓

18,595 fol. Dry brushy slope; 5 feet high. Sept. 3-4.

Pruinos~~e~~, slender; leaves 2.5-4 mm. long, narrowly elliptical, acute,  
~~glaucous~~ and thinly pubescent beneath.

Wallows of Glacier Park, Montana  
Collected by Paul C. Standley, July - Sept., 1919.  
Determined by Carleton R. Ball, 1919.

~~List of Localities.~~

1. Vicinity of Glacier Park Station, altitude  
1440 to 1530 meters. ③ ✓

|                        |                        |                       |
|------------------------|------------------------|-----------------------|
| 14915 subcorulea       | 17642 subcorulea       | 17686 pseudomonticola |
| 14919 melanopsis       | 17644 scouleriana      | 17741 melanopsis      |
| 14958 pseudomyrsinites | 17645 pseudomyrsinites | 17751 interior        |
| 14961 subcorulea       | 17646 bebbiana         | 17773 melanopsis      |
| 14970 pseudomyrsinites | 17655 subcorulea       | 17820 subcorulea      |
| 15005 bebbiana         |                        |                       |
| 15111 (n) subcorulea   |                        |                       |
| 15160 exigua tenerrima |                        |                       |

2. Vicinity of Grinnell Lake, altitude 1500 to  
1650 meters. ③

|                          |              |
|--------------------------|--------------|
| 15223 commutata denudata | 16109 farrae |
| 15224 subcorulea         | 16110 farrae |
| 15227 subcorulea         |              |

3. Vicinity of Lake McDermott, altitude  
about 1450 to 1740 meters. ✓

|                       |                  |
|-----------------------|------------------|
| 15259 pseudomonticola | 16339 melanopsis |
|-----------------------|------------------|

Standley's Gl. Nat. Pk. Willows

Salix bella Piper

I did not report this species in your material but now believe that No. 18,804 should be referred to that species, judging from the notes I made. It was det. as S. subcoriacea but I cannot find it under that name in the Nat. Herb. Also page 18432

Salix drummondiana Barr.

Digitized by Hunt Institute for Botanical Documentation  
I determined 8 numbers as this species but in checking material recently, I cannot find No. 18,761 in Nat. Herb. Now I have det. No. 18,193 from vic of Gunsight Pass as drummondiana

Salix subcoriacea Piper.

I now believe that much of the material I determined as this species does not truly represent it. The following numbers, however, are ~~type~~ referred to it still!

14961, 16864, 16885 17311, 17342, 17642

17655  
~~17644~~

18,123

Linear leaf

Tidestrom

✓ Your *Salix geyseriana* No. 10368 from  
Lake Tahoe, Nev. should be var. *argentea* (Bebb)  
Schw., as is No 10,183.

Cusick 4727a, 4728. Unipinnate watershed  
from *geyseriana* form to *lasiolepis*

Digitized by Hunt Institute for Botanical Documentation  
from *geyseriana* to *subcorulea*

✓ Bradshaw <sup>RV.</sup> 1266 + 1281 = *coulteri*  
not *sitchensis*

Piper Priest Lake Ida Aug 28, 1916  
No. 1 = *bella* (infant, prunose) + *selch* inf  
as = " nos 7, 8, 9 + 10  
No 11. = *drummondiana*.

Standley  
No 804 = *bella* not *subcor*  
where is No 18761 *drum* (not in Nat Herb)

4. Along Apakunmy Creek.

2

- 16906 *brachycarpa*  
 ✓ 15,293 *pseudomyrsinites* - ✓ 16930 *farrae*  
 16942 *lebiana perrostrata*

5. Along Swiftcurrent Creek, below Lake Mc-  
Barnett, altitude about 1350 meters.

7

- 15328 *lebiana* 15,968 <sup>2469 (n)</sup> *sconleriana*  
 15489 *sconleriana* 15,970 <sup>2471 (n)</sup> *sconleriana*  
 ✓ 15,492 *lebiana perrostrata* ✓ 16,052 *candida*  
 ✓ 15,523 *lebiana* ✓ 16,053 *serissima*  
 15,523 *lebiana* ✓ 16,053 *pseudomonticola*  
 15,608 *sconleriana* 16,509 *glauco-psglabrassens*  
 15,677 *melanopsis* 16,864 *subcorrulea*  
 ✓ 15,685 *melanopsis* ✓ 16,865 *lasiandra caudata*  
 • 15,689 *lebiana* 16,885 *subcorrulea*  
 15,690 *lebiana*  
 15,698 *lebiana perrostrata*  
 15,699 (2) " "

6. Vicinity of Iceberg Lake, altitude 1740  
to 1950 meters.

15

- 15,339 *subcorrulea* 16,368 *commutata denudata*  
 15,390 *commutata denudata* ✓ 16,370 *petrophila*  
 ✓ 15,402 *petrophila* ✓ 16,371 *anglorum araioclada*  
 ✓ 15,408 *petrophila* ✓ 16,384 *commutata*  
 15,420 *petrophila* ✓ 16,386 *commutata*

- ✓ 15,426 *drummondiana* 16,389 *brachycarpa*  
 • 15,430 *commutata demidata* 16,397 *vestita erecta*  
 15,431 *vestita erecta* ✓ 16,430 *anglorum araioclada*  
 15,432 *subcoerulea* 16,439 *anglorum araioclada*  
 ✓ 15,444 *commutata* 16,442 *glaucops glabrescens*  
 15,446 *commutata demidata* 16,472 *vestita erecta*  
 15,448 " " 16,477 *commutata*  
 ✓ 15,453 *anglorum araioclada*

Digitized by Hunt Institute for Botanical Documentation

7. Vicinity of Glacier for Botanical Documentation  
to 1920 meters. 2 ✓

- ✓ 15,755 *pseudomont* 15,763 *vestita erecta*  
 15,757 *vestita erecta* 15,764 *brachycarpa*  
 15,758 *subcoerulea* 15,810 *vestita*  
 15,759 *vestita erecta* ✓ 15,813 *farrae*  
 15,889 *subcoerulea*

8. Slopes of Altyn Peak, above Many Glacier  
halets, altitude 1480 to 1720 meters. 0

- 15,606 (r) *sconleriana* 16,679 (r) *sconleriana*  
 15,998 *bebiana*

9. Vicinity of Granite Park Chalets, alt-  
tude 1800 to 2100 meters. 3

✓ 16,151 *commutata*

16,152 " *dumata* ✓ 16,249 *glauca*/*glabrescens*.

10 Swiftcurrent Pass, altitude 2152 meters ✓  
July 23-24. 5

✓ 16,191 *anglorum* <sup>kophophylla</sup> ✓ 16,212 *petrophila*

✓ 16,203 *petrophila* ✓ 16,265 *anglorum* <sup>kophophylla</sup>

✓ 16,204 *petrophila*

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11. Along the trail from Many Glacier Hotel  
to Swiftcurrent Pass, altitude 1500 to 2150 meters, 3

✓ 16,304 *vestita* ♀

✓ 16,304 *vestita* ♂

✓ 16,278 *pseudomonticola* ✓ 16,323 *anglorum* *kophophylla*

12. Vicinity of Grinnell Glacier, altitude 1650  
to 1950 meters. 3

16,742 *subcoerulea* ✓

~~16,762~~

✓ 16,753 *farrae*

✓ 16,780 *anglorum* *varaioclada*

16,781 *subcoerulea*

16,757 *vestita* *erecta*

16,785 *brachycarpa*

✓ 16,758 *anglorum* *varaioclada*

16,802 *anglorum* *varaioclada*

16,762 *subcoerulea*

16,828 *commutata*

13 Vicinity of Gong-ta-he-Sun Chalets,  
St. Mary Lake, altitude about 1350 meters. ✓

- 17,119 *sconleriana* ✓  
 17,130 *drummondiana* <sup>2</sup>  
 17,131 *melanopsis*

14. Vicinity of Sexton Glacier, altitude 1950  
 to 2220 meters. ✓  
 8

- ✓ 17,204 *cascadensis* 17,295 *vestita erecta*  
 ✓ 17,216 *petrophila* 17,296 *subcorulea*  
 Digitized by Google for Botanical Documentation  
 ✓ 17,225 *anglosum kophophylla* 17,297 *concinna*  
 ✓ 17,225 *anglosum kophophylla* 17,298 *demidata*  
 ✓ 17,251 *anglosum kophophylla* 17,306 *subcorulea*  
 ✓ 17,278 *petrophila*

15 Vicinity of St. Mary Chalets, at the foot  
 of St. Mary Lake, altitude 1350 meters. ✓  
 3

- ✓ 17,311 *subcorulea* 17,366 (2) *subcorulea*  
 ✓ 17,342 *subcorulea* ✓ 17,392 *subcorulea*  
 17,362 *lebiana*  
 17,363 *pseudomyrsinites* 17,403 *sconleriana*  
 17,364 *lebiana*

16 along the trail from Many Glacier Hotel  
Piegaw Pass, altitude 1500 to 2160 meters ✓  
 2

- ✓ 17,450 *glaucops glabrescens* 17,463 *petrophila*  
 17,451 *brachycarpa* 17,464 *vestita erecta*  
 17,456 *glaucops glabrescens* ✓ 17,570 *drummondiana*  
 • 17,457 *brachycarpa*

17. Vicinity of Glacier Hotel ("Lewis's"), at  
 the head of Lake McDonald, altitude 960 to 1050 meters ✓  
 2

Digitized by Hort Institute for Botanical Documentation

- 17,906 *lesiandra caudata* 17,908 *acuticarpa*  
 17,922 " "  
 ✓ 17,907 *drummondiana* 18,275 *melanopsis*

18. Vicinity of Sperry Glacier, altitude 1900 ✓  
 to 2600 meters. 2

- ✓ 18,049 *petrophila* ✓ 18,085 *commutata*

19 Vicinity of Sunlight Pass, altitude 1775 ✓  
 to 2100 meters. 2

- ✓ 18,091 *anglorum var. acicladia* 18,127 *subcoerulea*  
 • 18,092 (rus.) " " ✓ 18,129 *farrattiana* (form)  
 18,119 *saximontana* 18,131 *saximontana*  
 18,126 *vestita erecta* 18,193 *subcoerulea*

2

20 Avalanche Lake and vicinity, alt-  
tude 1000 to 1160 meters.

18432 subcorulca 18485 (2) scouleriana  
18460 (2) subcorulca " 18504 drummondiana  
18484 scouleriana

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21 Vicinity of Belton, altitude 946 to  
980 meters.

✓ 18595 geyeriana 18736 (2) scouleriana  
18599 babiana " 18761 (2) drummondiana  
18619 exiguatenerima ✓ 18797 " "  
18658 melanopsis ✓ 18804 subcorulca  
✓ 18668 macKenzieana ✓ 18805 (2) "  
18671 babiana perrostrata 18840 scouleriana  
18676 melanopsis 18845 amygdaloides  
18681 melanopsis  
✓ 18683 drummondiana