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New Combinations in *Salix* (Sections *Pellitae* and *Phyllifoliae*).

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Many taxonomic papers create new species or raise varieties to specific rank. This paper reduces three species to varietal status, and two others to synonymy.

A. *Salix Drummondiana* Barratt and Its Western Relatives.

In Section *Pellitae*, five species of *Salix* from the western part of North America have been named. Of these, only *S. Drummondiana* Barratt is here recognized as a species. Two others, *S. bella* Piper and *S. subcoerulea* Piper, are reduced to varietal rank. The final two, *S. Covillei* Eastwood and *S. pachnophora* Rydberg, are regarded as synonyms of *S. subcoerulea*.

Section *Pellitae*, in western North America, is composed of shrubs 1-4.5 meters tall; twigs and buds mostly glabrous and often thinly to densely pruinose; leaves subentire, silvery-tomentose beneath, with veins impressed above; anthers precocious to subcontaneous, sessile to subsessile; scales elliptic-oval to ovate, mostly acutish, black, long-villous; stamens 2, filaments free, glabrous; capsules 4-6 mm. long, sericeous; pedicels 0.5-1.5 mm. long, puberulent; styles 0.7-1.2 mm. long, mostly entire, puberulent at base; stigmas about half as long, entire to notched or divided.

In general, *S. Drummondiana* has non-pruinose subshining twigs, with short and broad ~~long~~ leaves densely tomentose beneath; variety *bella* has twigs varying from non-pruinose to pruinose, and long narrow elliptical leaves with similar tomentum; while variety *subcoerulea* has twigs mostly densely pruinose, and oblanceolate leaves with shorter and less dense tomentum. Unfortunately, there are some wide variations from these standards, as discussed later.

The two representatives in northeastern North America, *S. pellita* Andersson and *S. argyrocarpa* Andersson, vary somewhat from the western group. The leaves often tend to become glabrate in age, and *S. argyrocarpa* is smaller in most characters, especially height, and leaf and capsule size.

1. *Salix Drummondiana* Barratt. Drummond Willow.

Salix Drummondiana Barratt in Hooker, Fl. Bor.-Amer. 2: 144. 1838; Andersson (Nord America Pilarter), in Öfvers. Kon. Vet.-Akad. Förhandl. 15: 123. 1858 (printed simultaneously, as *Salices Boreali-Americanae*, in Proc. Amer. Acad. Arts and Sci. 4: 63. 1858; or p. 17 in reprint thereof); Andersson (Monog. Salic.), in Kon. Svensk. Vet.-Akad. Handl. 6: 137-138. 1867 (in 1868, Andersson cites a "fig. VI" to this species in his Monog. Salic., but none was published therein); Andersson in DC., Prodr. 16(2): 245. 1868; Bailey and Bailey (Woody Pl. West. Natl. Parks), in Amer. Midland Nat. Monog. 4: 42, 53-54. 1949; Ball in Standley (Fl. Glacier Natl. Park), in Contrib. U. S. Natl. Herb. 22: 320, 323. 1921; Ball in Abrams, Illus. Fl. Pacific States 1: 503, fig. 1224. 1923; Henry, Fl. So. Brit. Col. 99. 1915; Macoun, J., Cat. Can. Pl. 1(3): 448. 1886; Rydberg, Fl. Rocky Mtns. and Adjae. Plains 196. 1917; Ulke (Fl. Yoho Park, B.C.), in Contrib. Biol. Lab. Cath. Univ. Amer. 14: 65. 1934.

S. pellita (in part) as determined ~~for~~ by Ball for Farr (her No. 922, Laughing Falls, Yoho, in Contrib. Cat. Fl. Can. Rocky Mtns. and Selkirk Range), in Contrib. Bot. Lab. Univ. Penn. 3(1): 31. 1907, not Andersson.

S. sitchensis (in part) as understood by some northwestern authors, not Sanson.

S. subcoerulea (in part) as understood by some northwestern authors, not Piper.

Shrub 1-3 or 4.5 m. tall; twigs relatively short, stoutish, and divaricate, the younger yellowish-brown, pubescent to puberulent, older dark-brown to purplish-brown, subshining to shining, mostly glabrous; buds 3-7 or 10 mm. long, colored and clothed as the twigs; stipules on fruiting twigs none or minute, on summer foliage twigs sometimes 5-9 mm. long, obliquely lanceolate to obliquely semi-ovate, colored and clothed as the leaves; petioles 5-10 mm. long, colored and clothed as the twigs; blades narrowly to broadly elliptic-lanceolate, or narrowly to broadly oval, or oval-obovate (oblanceolate while opening), 3-7 or 10 cm. long, 1-3 or 4 cm. wide, or to 11-13 by 3-5 cm. on vigorous summer shoots, obtusish to apiculate or acute at apex,

SALIX DRUMMONDIANA BARRATT. DRUMMOND WILLOW.

S. Drummondiana Barratt, in Hooker, Fl. Bor.-Amer. 2:144. 1838; Andersson (Nord Amerika Pflanzert), in Öfvers Kon. Vet.-akad. Förhandl. 15:123. 1858 (printed simultaneously, as Salices boreali-Americanae, in Proc. Amer. Acad. Arts & Sci. 4:63. 1858, or p. 17 in reprint thereof); Andersson (Monog. Salic.), in Kon. Svensk. Vet.-akad. Handl. 6:137-138. 1867 (in 1868, he cites a "fig. 71" for the Monog. Salic., but none was published therein); Andersson, in D.C. Prodr. 16(2):243. 1868; Ball, in Standley (Fl. Glacier Natl. Park), in Contrib. U.S. Natl. Herb. 22:320, 323. 1921; Ball, in Abrams, ~~XXXXXX~~ Illus. Fl. Pacific States 1:503, fig. 1224, 1923; Henry, Fl. So. Brit. Col. 99. 1915; Macoun, J., Cat. Can. Pl. 1(3):448. 1886; Rydberg, Fl. Rocky Mtns. & Adjac. Plains 196. 1917; Ulke (Fl. Yoho Park, B.C.), in Contrib. Biol. Lab. Cath. Univ. Amer. 14:65. 1934.

S. pellita (in part), as determined by Ball for Farr (her No. 922, Laughing Falls, Yoho, in Contrib. ~~Cal.~~ Fl. Can. Rocky Mtns. & Selkirk Range) in Contrib. Bot. Lab. Univ. Penn. 3(1):31. 1907, not Andersson.

S. Hitchensis (in part), as understood by some northwestern authors, not Sanson.

S. subcoerulea (in part) as understood by some northwestern authors, not Piper.

Bailey and Bailey (Woody Pl. West. Natl. Parks), in Amer. Midland Nat. Monog. 4: 42, 53-54. 1949;

25a

1st draft

25. S. bella Piper. Beautiful Willow. Shrub 2-4 m. tall; younger twigs yellowish and puberulent, older darker to purplish-black, somewhat pruinose, glabrate-glabrous, brittle; buds 2 ~~5~~ (12) mm ^{acut. glabrous pruinose} stipules lanceolate to cordate-ovate, acute, 3-6 mm. long; petioles 5-10 mm. long, leaves lanceolate to oblong-lanceolate or oblong-obovate, 4-7 (12) cm. long, 1.5-2.5 (3.5) cm. wide, acute at apex, mostly rounded at base, entire or the larger repand-crenulate, green and (the ~~old~~ mature) glabrate above, densely silvery-tomentose beneath, the pubescent yellow midrib conspicuous; aments precocious (to subcoetaneous?), sessile or the pistillate sometimes short-leafy-pedunculate, dense, ~~xxxx~~ 1-5 (6) cm. long, 1- cm. wide; scales oblong-ovate, 1.5-2 mm. long, obtuse, blackish, persistent, long-villous; stamens 2. filaments glabrous, free; capsules 4.5-5.5 mm. long, gray-silky; pedicels 1 (-2 Piper) mm. long; ; styles 1-1.5 mm. long, stigma short, thick, entire or bifid; gland 0.5-1 mm. long, broad. 3000-5000 feet elevation, Moist locations in mountains, eastern Oreg. to southern B.C. east to northern Idaho and NW. Mont.

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25. S. Drummondiana Barratt. Drummond Willow. Shrub 1- ~~4~~ (3-7) m. tall; younger twigs yellow to light brown, pubescent to puberulent, older dark brown, shining, glabrous; buds 2-5 (10) mm. puberulent to glabrous, ^{sub} cal as long; stipules small, minute or wanting to 7 mm. long, silvery-tomentose beneath; petioles 0.5 - 1 cm. pubescent, ~~to older glabrous~~ oblong-lanceolate, ~~whole revolute~~ or elliptic-obovate. leaves broadly oblong, elliptical, oval, or obovate, 3-7 (10) cm. long; 1-3 (4) cm. wide, obtuse and mostly plicate-apiculate at apex, acute to obtusish at base, entire and revolute, or sparingly serrulate near apex, green, puberulent to glabrous, somewhat shining, with impressed veins above, densely silverywhite tomentose beneath; aments ~~aments~~ precocious or coetaneous, sessile or subsessile, dense, 1-3 (4) cm. long; scales ~~likely to be mostly oblance~~ ^{oblong-ovate} 1.5-2 mm. long, obtuse, blackish, persistent, long-villous; stamens 2, filaments glabrous, free; capsules 5 mm. long, silvery-pubescent; pedicels 0.5-1 mm. long; styles 0.5-1 mm. long, stigmas thick, bifid

Moist situations in mountains at 3000-7000 feet elevation, southern B.C. and Alta. south to northern Idaho (Bonner Co.) and NW. Mont.

acutish to obtuse at base (acute while expanding), somewhat revolute at margin and entire or rarely micro-serrulate, dark green with impressed veins and pubescent or puberulent above, densely silvery-tomentose tomentose with secondary veins almost hidden beneath; midrib densely pubescent beneath, becoming glabrescent to glabrous and then yellow in age.

Aments precocious to subcoetaneous, sessile to becoming subsessile and bracted at base, 1-5 or 6.5 cm. long, 1-1.5 cm. wide, rather dense; peduncles 3-7 or rarely 10-12 mm. long, with mostly tiny bracts but rarely tiny leaves to 1-1.5 cm. long; scales elliptic-oval or ovate, mostly acutish when fully developed, 1-1.5 or 2 mm. long, black, persistent, long-villous; stamens 2, filaments free, glabrous; capsules 4.5-5.5 or 6 mm. long, subovate or pyriform, silvery-pubescent; pedicels 0.5-1 or 1.5 mm. long, stoutish, silky-puberulent; styles mostly 0.8-1.2 mm. long, often slow in elongating, usually entire, puberulent on basal portion; stigmas shorter, 0.3-0.6 mm. long, entire, notched, or divided; gland short, about as long as the stigmas.

Moist locations in mountain areas, at altitudes of 3000-7500 feet, from northwestern Montana, northern Idaho, and eastern Washington (Spokane Co.) northward to central Alberta and British Columbia. Flowers in May and June, fruit and opening leaves in June and July, varying with altitude.

Specimens of S. Drummondiana should be readily distinguished from those of all other members of section Pellitae by the usually broadly elliptic-lanceolate to broadly oval leaves, acute to obtusish at apex. Under two sets of conditions, however, these differences do not fully appear. The first relates to seasonal development. If specimens are collected when a plant is in flower, the leaves are just beginning to open, as in most precocious species. If collected when in fruit, the leaves usually are not yet fully expanded and often are still oblanceolate because the apical portion broadens first and the basal portion last. At this stage they may strongly resemble those of variety subcoerulea, although generally with more dense tomentum. Most of Stanley's specimens from Glacier National Park were collected in these stages and were then (1919) determined by the writer as S. subcoerulea.

The second set relates to fragmentary material. A single herbarium specimen of most willows is but a fragment and seldom gives a picture of the characters found on the whole plant. Willows are especially variable and the leaves on an early twig may be very different from those on a late twig of the same plant (Ball, in Journ. Arnold Arb. 27:371-385. 1946). As wide or wider differences occur in leaves from different plants of the same species. If a species, as S. Drummondiana, has relatively broad leaves and a variety, as variety bella, has longer and relatively narrower leaves, herbarium specimens almost inevitably will be found with leaves almost exactly intermediate between the two, although the leaves on the two plants as a whole might be distinctly different. If such a specimen has the twigs non-pruinose, it probably would be assigned to the species; if pruinose, then to the variety. Worse still, however, is a specimen consisting of a branching shoot with the ^{narrowly elliptical} ~~oblong-ovate~~ leaves of variety bella ~~oblong-ovate~~ on most twigs but the broadly elliptic-oval leaves of the species on one still-attached twig, as in Christ 17984 from Bonner County, Idaho.

The specimens cited below, probably representing the total range of the species, are located in the following designated herbariums: Carleton R. Ball (CRB), Catholic University of America (CUA), U.S. Forest Service (FS), U. S. National Herbarium (USN), and Washington State College (WSC). Many others ~~discovered~~ have been determined by the writer but only those studied recently are cited. In general, locations are given from south to north, ~~ascending~~

MONTANA. Glacier National Park: Vernon Bailey on Aug. 29, 1917 (USN, as S. sitchensis); A. S. Hitchcock 11921 in 1914 (USN); alt. 7600 ft., C. L. Hitchcock 1942 in 1933 (CRB); Bassett Maguire 683, 684 in 1932 (CRB); Maguire et al. 5271, 5274, 5279, 5286, 5287 in 1934 (all CRB); Paul C. Standley 14915, 15224, 15227, 15399, 15426 (CRB), 15432, 15758, 15894, 16742 ^{Cherry Lake}, 16762, 16781, 17130 (CRB), 17206 ^(peduncles with tiny leaves), 17306, 17570, 17620 (CRB), 18193, 18504, 18683, 18797 (all USN). County Unknown (probably ~~Kootenai~~ Flathead Co. or nearby): McDougal Peak, alt. 6000 ft., Flathead Lake, Marcus E. Jones on July 31, 1908 (USN, 2 sheets as S. pellita); Midvale, L. M. Umbach 310 in 1903 (USN).

IDAHO. Kootenai Co.: Honeysuckle Ranger ~~STATION~~ Station, alt. 3000 ft., Wilfred W. White 22 in 1934 (FS 71189). Bonner Co. (all Priest Lake area): South end of Chase Lake at Lost Creek, south of Coolin, J. H. Christ 175⁹⁵⁶~~77~~, 17958, 17960 in 1948 (CRB); Upper Priest Lake at outlet into Thorofare, Christ 18021, 18025 in 1948 (CRB); Priest Lake at mouth of Granite Creek, Christ 18027, 18029 in 1948 (CRB); Priest Lake, C. V. Piper 11 on Aug. 28, 1916 (CRB, WSC); Coolin, foot of Priest Lake, Piper 6627 in 1923 (CRB, WSC); Ryers Hotel, head of Priest Lake, Piper 6643 in 1923 (CRB, WSC). WASHINGTON. Spokane Co.: Spokane, Piper 3517 on Oct. 1, 1900 (CRB).

ALBERTA. Cypress Hills (extreme SE. corner of Province), Robert C. H. Connack 7 in 1945 (CRB); Waterton Lakes Park: M. O. Malte and W. R. Watson 116740 (167), 116742 (169), 116743 (170), 116744 (171), 116754 (252), 116755 (253), 116756 (254), 116757 (255), 116760 (258), 116762 (339), 116763 (340), 116765 (342) all in 1925, at altitudes of 4200-4600 ft. or one at 5000 ft. (all CRB); W. C. McCalla 6556 in 1941 (CRB) and 6886 in 1942 (CRB); E. H. Moss 964 in 1940 (CRB). Southwest of Pincher Creek, Moss 1178 in 1941 (CRB). Crows-nest Pass area: John Macoun 94323 (6) in 1897 (CRB); McCalla 6832 in 1942 (CRB). Palliser Pass, alt. 7000 ft., N. B. Sanson 500 in 1922 (CRB, alpine depauperate). Rocky Mtns. National Park (Banff and Vicinity): Cascade Creek, ~~EEK~~ ~~ERIE~~ alt. 4650 ft., McCalla 2247 in 1899 (USN); Sanson 0109 in 1902 (CRB); Sanson 2, 46, 51, 147, 157, 240, 252, 253, 314, 2046, 2071, 2072, 2076, 2119, 2127, 2128, 2192 all in 1911 (all CRB); Sanson on Aug. 12, 1912 (CRB); 17 miles se. of Banff, Sanson 104 in 1926 (CRB); Sanson 114, 116 in 1928 (CRB). Laggan, J. Macoun 68891 in 1904 (CRB); Malte 15 on July 11, 1913 (CRB). Lake Louise, Malte and Watson 116825 (1095), elev. 5700 ft., in 1925 (CRB); J. G. Jack 2912 in 1922 (CRB). Clearwater River, northern Banff boundary of ~~ERM~~ Park, I. McTaggart Cowan 5 in 1943 (CRB). Jasper National Park: W. P. Fraser 14 in 1940 (CRB); James M. Macoun 95387 in 1917 as S. candida (CRB); McCalla 7111, 7112 in 1942 (CRB); Moss 4712, 4713 in 1939, at alt. 5900 ft. (CRB).

BRITISH COLUMBIA. Kootenay Park: through G. A. Hardy, 10 in 1943 (CRB); Sanson 6 in 1940 (CRB). Crows-Nest Pass: Thos. T. McCabe 6492, (15 ft. tall) in 1938 (CRB). National Yoho Park: Edith M. Farr 922 in 1905 (CRB, det. as S. pellita); 25 miles east of Golden, McCabe 6304 in 1938 (CRB); Sanson 818 in 1924 (CRB); ~~McCabe 6304~~ Burgess Pass Trail, alt. 6500 ft., Titus Ulke 1125 on July 28, 1922 ~~McCabe 6304~~ (CIA, very depauperate); alt. 7500 ft., Ulke on July 23, 1927 (CRB). Kicking Horse Pass, east of Field, McCalla 7447, in 1943 (CRB). Clearwater River Road, 20 miles from North Thompson River Road (approx. 52° N., 120° W.), McCabe 1047, 1048, 1051, 1052 in 1934 (CRB). Between Stanley and Barkerville (approx. 53° N., 121° W.), McCabe 955, 1082, 1089 in 1934 (CRB). 29 miles north of Prince George (approx. 54° 20' N., 122° 40' W.), McCabe 6946 in 1939 (CRB). The McCabe specimens presumably all are in the herbarium of the University of California also.

It should have been stated earlier that many of the specimens cited under S. Drummondiana and each of its two varieties, hells and subcoerulea, may have been distributed under a different one of these three ~~three~~ names than that under which it appears here. Some northern specimens of variety subcoerulea have been distributed also as S. pachnophora and some California specimens as S. Covillei. ~~Drummondiana~~ Mention of this was made in the discussion of the Glacier Park specimens of the species. Only where specimens have been distributed under names not treated in this paper, as S. candida, S. pellita, etc., is that name inserted after the herbarium abbreviation.

2. *S. Drummondiana* Barrett, variety *bella* (Piper) c. comb.

Salix bella Piper, in Bull. Torrey Bot. Club 27: 399. 1900; Bailey and Bailey (Woody Plants Western Natl. Parks), Amer. Midland Naturalist Monog. 4: 53. 1949; Ball in Abrams, Illus. Fl. Pacific States, 1: 503, fig. 1223. 1923; Piper and Beattie, Fl. SE. Washington and Adjac. Idaho 75. 1914; Rydberg, Fl. Rocky Mtns. and Adjac. Plains 196. 1917; Van Dersal. (Native Woody Pl. U.S.), in U. S. Dept. Agric., Misc. Publ. 303: 245. 1938.

Twigs mostly longer, less pubescent and less shining, sometimes somewhat purplish, and, with the buds, often more or less pruinose; leaves narrower, oblong-lanceolate or narrowly elliptic-lanceolate, or somewhat oblanceolate while unfolding), 4-8 cm. long, 1-2 cm. wide, or to 12 by 3 cm. on vigorous shoots, acute at apex, sometimes rounded at base, often less pubescent above, and the midrib beneath often becoming glabrate and yellowish earlier; styles averaging longer, to a maximum of 1.5 mm. long.

Variety bella ranges slightly farther south than the species, with sporadic occurrences in Valley County, Idaho, and northeastern Oregon. Northward it reaches central Alberta but only southeastern British Columbia, and is less common in both. Flowering and fruiting occur as in the species. All specimens restudied recently by the writer are cited below. Herbarium abbreviations are the same as for the species.

MONTANA. ~~Flathead~~ ^{Co.} Lake ~~Swan~~: Swan Lake, alt. 3000 ft., M. E. Jones on Aug. 24, 1908 (USN, 2 sheets, as S. candida, one annotated: "This is Jones 9138 in Herb. Mo. Bot. Gard."). Glacier National Park: Bassett Maguire et al. 5272, 5273, 5276, 5277 in 1934 (all CRB); Paul C. Standley 18432 (USN); 18804 in 1919 (CRB). Missoula Co.: Flathead Forest, London Ranger Station, W. W. White 272, 273 in 1937 (FS 81719, 81720).

IDAHO. Valley Co.: Lake Fork, near McCall, alt. approx. 3500 ft., J.H. Christ 9616, 9629 in 1938 (CRB). Clearwater or Shoshone Co.: Oxford Ranger Station, alt. 5000 ft., Clearwater Forest, Epling and Houch 9675, 9677 in 1926 (CRB). Shoshone Co.: North Fork of Clearwater River, Christ, Gail, and Ward 8757 in 1937 (CRB, 2 sheets); Clarkia, alt. approx. 3000 ft., Epling and H. Offord 8226 in 1925 (CRB); St. Maries River near Clarkia, C. R. Quick 1130 in 1933 (CRB); Upper St. Maries River, St. Joe Forest, around Clarkia, alt. 4000 ft., W. W. White 41, 42, 43, 45, 56 in 1933 (FS 70624-70628). Benewah Co.: Emerald Creek, alt. 3000 ft., White 38 in 1933 (FS 70623). Kootenai Co.: Fernan Lake, Coeur d'Alene, Henry J. Rust 502 in April, 1913 (CRB, USN).

Bonner Co.: South end of Chase Lake at Lost Creek, south of Coolin, Christ 17957, 17961 in 1948 (CRB); in Bismark Meadows, 2 miles south of Nordman, Christ 17984 in 1948 (CRB); Priest River, alt. 2700 ft., Epling 7932 in 1925 (CRB); West Fork of Priest River, J. B. Leiberg 2841 in 1897 (USN); Priest Lake, C. V. Piper 7, 8, 9, 10 on Aug. 28, 1916 (CRB, WSC); Priest Lake, Piper 3742 in Aug., 1901 (USN, WSC); East Fork of Priest River near Coolin, Piper 6611, 6620, in 1923 (CRB, WSC); Foot of Priest Lake, Coolin, Piper 6616b (WSC), 6633 (CRB, WSC) in 1923; Head of lower lake, Piper 6634, 6637, 6648, 6649, 6650, 6651 in 1923 (CRB, except 6634 and 6648; all WSC); Kaniksu National Forest, ^{alt.} elev. 2400 ft., White 2 in 1926 (CRB) (FS 69173), White 2 in 1926 (FS 69174). Boundary Co.: Bonners Ferry, Christ 3691 in 1934 (CRB); Kaniksu Forest, Moore's Creek bridge, alt. 2400 ft., White 1934-b in 1934 (FS 71206). County Unknown: North Fork of Coeur d'Alene River, Leiberg 1533 in 1895 (USN); Headquarters, Epling, in July, 1929 (CRB); Jansville (or Jairsville), Piper 2919 in July, 1898 (WSC).

OREGON. County Unknown (probably Union or Wallowa): Wet subalpine meadows, Un.
C. Cusick ^{1302a} in 1886 (USN). WASHINGTON. Whitman Co.: "6 miles east of Pullman"
(type locality), Piper 2922 on April 30 and July 2, 1901 (CRB and CIA, 2 sheets each;
USN); Piper 3590 on April 13 and Sept., 1901 (CRB, CIA, USN).

ALBERTA. Waterton Lakes Park: alt. 4200 and 5000 ft., respectively, Malte and
Watson 116759 (257), 116764 (341), in 1925 (CRB). Crows-nest Pass area: J. Macoun
94322 (7) in 1897 (CRB); W. C. McCalla 6831 in 1943 (CRB). Castlemount River (west
branch of): Malte and Watson 116951 (2486) in 1925 (CRB). Rocky Mountains Park
(Banff area): McCalla 6500, 6524 in 1941 (CRB); N. B. Sanson 16, 255, 259, 2077 in
1911, 39 in Aug., 1942 (all CRB). In Rocky Mountains, Nordagg, Robt. G. H. Cormack
793 in 1945 (CRB). Lake Louise area: alt. 5700 ft., Edith M. Farr 1056 in 1905
(CRB, as S. pellita); Malte and Watson 116824 (1092) in 1925 (CRB). Jasper Park:
J. G. Jack 2623, 2640, 2773 in 1922 (CRB). Athabaska River at Athabaska (Landing),
C. R. Ball 2364 in 1925 (CRB, 2 sheets).

BRITISH COLUMBIA (southeastern): Elk River valley at Fernie, McCalla 6840 in
1942 (CRB). North side of Wapta Lake, J. Macoun 68890 in 1904 (CRB).

3. *S. Drummondiana* Barratt, variety *subcoerulea* (Piper) n. comb.

Salix Covillei Eastwood, in Zoe 5: 80. 1900.

S. pachnophora Rydberg, in Bull. Torrey Bot. Club 31: 405. 1904; Rydberg (Fl. Colorado), in Colo. Agric. Expt. Stat. Bull. 100: 95. 1905; Rydberg, Fl. Rocky Mtns. and Adjac. Plains 197. 1917.

S. pallida, at least in part, as interpreted by Ball (Notes on West. Willows), Trans. Acad. Sci. St. Louis 9: 81-82. 1899; Farr (Contrib. Cat. Fl. Can. Rocky Mtns. and Selkirk Range), in Contrib. Bot. Lab. Univ. Penna. 3(1): 31. 1907; Nelson (Elias E., Shrubs of Wyo.), in Wyo. Agric. Expt. Stat. Bull. 54: 249. 1902, not Andersson.

S. subcoerulea Piper, in Bull. Torrey Bot. Club 27: 400. 1900; Bailey and Bailey (Woody Pl. Western Natl. Parks), Amer. Midland Naturalist Monog. 4: 42, 53. 1949; Ball in Coulter and Nelson, New Man. Bot. Centr. Rocky Mtns. 136-137. 1909; Ball in Standley (Fl. Glacier Natl. Park), in Contrib. U. S. Natl. Herb. 22: 320, 323. 1921; Ball in Abrams, Illus. Fl. Pacific States 1: 502, fig. 1222. 1923; Graham (Bot. Studies Uinta Basin), in Ann. Carnegie Museum 26: 166. 1937; Hawkins, Trees and Shrubs Yellowstone Park. 16mo. 69. 1924; Henry, Fl. So. Brit. Col. and Vancouver Id. 99. 1915; Rydberg, Fl. Rocky Mtns. and Adjac. Plains 197. 1917; Smith (Willows Colo.), in Amer. Midland Naturalist 27: 245. 1942; Tidestrom (Fl. Utah and Nevada), in Contrib. U. S. Natl. Herb. 25: 136. 1925; Van Dersal (Native Woody Pl. U.S.), in U.S. Rept. Agric. Misc. Publ. 303: 253. 1938; Wootton and Standley (Fl. New Mex.), in Contrib. U. S. Natl. Herb. 19: 161. 1915.

Twigs more slender, glabrate-glabrous, often subshining, and, like the buds, usually more or less pruinose; leaves thinner, mostly narrowly oblong-ob lanceolate and acute on fruiting twigs, oblong-lanceolate, oblanceolate, or oblanceolate-oval and acuminate on summer shoots, sparsely pubescent or puberulent above, tomentum shorter and less dense beneath, with the veins more evident, sometimes becoming glabrescent; stipules small or wanting; scales more thinly villous; styles to 1.5 mm. long.

Variety subcoerulea has a much more extensive southern distribution than either S. drummondiana or variety bella, principally in the wide Rocky Mountain System. It occurs from the mountains of northern ^{New} Mexico northward across Colorado (including adjacent Albany Co., Wyoming) and adjacent Utah (Wasatch and Uinta Ranges), the western parts of Wyoming and Montana, most of Idaho, eastern Oregon (Harney, Union, and Wallowa Counties), and northeastern Washington (Spokane and Okanogan Counties). In Canada, it occupies the mountainous adjacent portions of Alberta and British Columbia to about lat. ~~55° N.~~ 56° N. There is a sparse southwestern distribution across Nevada to Inyo and Tulare Counties in the southern Sierra Nevada of California.

In the southern mountains, variety subcoerulea occurs at altitudes ranging from 6000 to 10000 or ~~11000~~ 11000 feet, with progressively lower elevations northward, usually from 3000 to 7000 feet in Canada. The flowering and fruiting periods are about the same as for the species and variety bella. In its southern range, the higher altitudes counteract the usual effects of the more southern latitudes.

Collections are cited here from only the norther part of its range, where its distribution overlaps that of the species, or variety bella, or both. This area covers northwestern Montana, the northern tip of Idaho, and the adjacent portion of Washington, together with the total area occupied in Alberta and British Columbia. In these Provinces, variety subcoerulea extend northward to about 56° N., which is farther north than either the species or variety bella are found, especially the latter in British Columbia. Although variety subcoerulea occurs in northeastern Oregon, no specimens are cited here even though one specimen of variety bella from there is cited. The abbreviations of the names of containing herbariums are the same as previously given.

The difficulty of being completely sure of the identity of juvenile specimens should be re-emphasized here. It is quite probable that the writer himself would change some determinations in any future inspection of this material and even more certain that others will do so. We can be sure, however, that they all belong within the species.

MONTANA. Missoula Co.: Camas Prairie, in Blackfoot Valley, 20 miles nw. of Bonner, C. L. Hitchcock 1552 in 1933 (CRB). Glacier Co.: Summit (border of Glacier Natl. Park), H. L. Shantz on May 19, 1926 (CRB, 2 sheets; USN). Flathead Co.: Columbia Falls, R.S. Williams 972 in 1893 (USN, pist. aments 8-9 cm. long). Glacier National Park: Vernon Bailey at Lake McDonald, on Aug. 29, 1917 (USN); Bassett Maguire et al., at various points, 5275, 5278, 5281, 5283, 5306 in 1934 (all CRB); Paul C. Standley, at various localities, 14961, 16864, 16885, 17311, 17342, 17642, 18127 in 1919 (all USN).

IDAHO. Shoshone Co.: On Heller Creek, 6 miles southeast of Red Ives Ranger Station, J. H. Christ 17063 in 1947 (CRB); Coeur d'Alene Natl. Forest, Magee Ranger Station, alt. 3000 ft., Wilfred W. White 374 in 1935 (FS 94186). Benewah Co.: Santa Creek, north of Buda, Christ and Ward 7665 in 1937 (CRB); Christ 12414 in 1941 (CRB).

WASHINGTON. Spokane Co.: Latah Creek, southeast of Spangle, W. N. Salsdorf 8638, 8639, 8640 in 1916 (CRB). Okanogan Co.: Vicinity of Crawfish Lake, Charles B. Fiker 2385, 2386, 2388, 2389, 2392, 2393, 2424, 2425, 2427 in 1937 (all CRB).

(Very difficult to assign certain specimens from Montana.

Maguire 5275 and Standley 17642 have twigs pruinose
and leaves short and broad as in the species, also Standley 16885.

Maguire 5281 and 5283 are not pruinose and the leaves are narrow
and rather densely pubescent, suggesting var. bella.

Standley 17392 (CRB, fragmt) has twigs not pruinose and leaves glabrate.
Probably hybrid or perhaps S. Geyeriana.

ALBERTA. Waterton Lakes Park: alt. 5440 ft., W. C. McCalla 6591, 6592 in 1941 (CRB). Castlemount Ranger Station (3 miles east of), alt. 4300 ft., Malte and Watson 116780 (535) in 1925 (CRB). Jasper Park: Yellowhead Pass, alt. 3700 ft., J. C. Jack 2777 in 1922 (CRB). Slave Lake District: Prairie Creek, A. H. Brinkman 4115 in 1929 (CRB); Assiniboine River, Brinkman 4349 in 1929 (CRB). Freeman River beyond Fort Assiniboine, McCalla 7250 in 1942 (CRB).

BRITISH COLUMBIA. McCulloch, high pass between West Kettle River and Okanogan Lake, Thomas T. McCabe 5959, 5960, 5961 in 1938 (CRB). Clearwater River Road 20 miles from North Thompson River Road, 52° N., McCabe 1049, 1050 in 1934 (CRB). 25 miles west of Needles, McCabe 6675 in 1938 (CRB). Chezacut (Chilcotin) Lake, $52^{\circ} 20'$ N., 124° W., O. J. Murie 1326 in 1935 (CRB). Beaver Pass, 53° N., $121^{\circ} 30'$ W., McCabe 1076, 1079, 1085 in 1934 (CRB); Devils Canyon Summit, between Stanley and Barkerville, 53° N., $121^{\circ} 30'$ W., McCabe 1086, 1087 in 1934 (CRB); Indianpoint Lake, 25 miles ne. of Barkerville, 53° N., 121° W., McCabe 1176 in 1934 (CRB). Summit Lake Road, 8 miles north of Prince George, 54° N., McCabe 6944 in 1939 (CRB). Francois Lake, 54° N., 125° plus W., J. W. Eastham 11997 in 1944 (CRB). 25 miles south of Ft. St. James, $54^{\circ} 30'$ N., $124^{\circ} 20'$ W., McCabe 7587, 7592 in 1940 (CRB). Takla Landing, $55^{\circ} 30'$ N., 126° W., McCabe 7865 in 1940 (CRB). Lake Tetam, Driftwood River Valley, 56° N., $126^{\circ} 30'$ W., Mrs. Theodor E. S. Fletcher no. C on Sept. 5, 1938 (CRB). Near Fort St. John, $56^{\circ} 15'$ N., 121° W., E. H. Moss 2351 in 1931 (CRB, 2 sheets).

The latitudes and longitudes given above are only approximate, in many cases, but should aid students in visualizing distribution because many of the localities named cannot be found in the ordinary atlas.

2. *S. PLANIFOLIA* Pursh, var. *NELSONII* (Ball) Ball, apud Fraser & Russell

There have been certain uncertainties concerning this variety and its previous specific status. Therefore it seems desirable to cite discussions of it, correct items in the description, and list numerous specimens representing it.

S. chlorophylla Andersson, in part, as interpreted by many western authors, in so far as specimens with very narrow leaves are included.

S. Nelsonii(1) Ball, in Bot. Gaz. 40:379(-380), pl. 13. 1905; Ball, in Coulter & Nelson, New Man. Bot. Centr. Rocky Mtns. 137. 1909; Ball (Notes on N.A. Willows III), in Bot. Gaz. 60:397-398. 1915; ~~XXX~~ Farr (Contr. Cat. Pl. Can. Rocky Mts. & Selkirk Range), in Contrib. Bot. Lab. Univ. Penn. 3(1):31. 1907; Hawkins, Trees & Shrubs Yellowstone Park 67. 1924, 16mo.; Rydberg, Fl. Rocky Mts. & Adjac. Plains 198. 1917; Schneider (Notes on Amer. Willows VI), in Jour. Arnold Arb. 1:80-81. 1919; Schneider (do. XII), *ibid.* 3:77 (footnote). 1922; Tidestrom (Fl. Utah & Nev.), in Contrib. U.S. Natl. Herb. 25:137. 1925.

S. planifolia Pursh, var. *Nelsonii* (Ball) Ball, apud Fraser & Russell, ~~Monograph~~
~~A Revised, Annotated List of the Plants of Saskatchewan~~
23. 1944 ("Salix planifolia Pursh var. Nelsonii Ball — *S. Nelsonii* Ball. Differs from the species by its narrow, pointed leaves."); Breitung (Cat. Vasc. Pl. Cent.-East. Sask.), in Can. Field Nat. 61:84. 1947; Smith (Willows Colo.), in Amer. Midland Nat. 27:246. 1942 ("Salix planifolia var. Nelsonii Ball, Bot. Gaz. 40:379. 1905. Now considered by Ball as a variety (personal letter)."). nomen nudum; Turner (Pl. Edmonton Dist., Prov. Alta.), in Can. Field Nat. 63:10. 1949.

Differs from the species in leaves narrowly oblanceolate or sometimes narrowly lanceolate or narrowly elliptical, acute at both ends or the base sometimes cuneate, 3-6 cm. long on flowering and fruiting twigs or to 7 or 8 cm. long and 1.3-1.8 cm. wide on vigorous foliage shoots, entire or the larger sparsely and shallowly glandular crenate-serrulate; stipules none, or small and early deciduous.

The original description was based on limited and some not properly developed material. It should be noted, therefore, that the pistillate aments may become 5 cm. long. The styles, described from imperfect specimens as 0.3-0.5 mm. long, normally range from 0.6-1.2 mm. in length and the stigmas are somewhat shorter.

The writer published S. Nelsonii (i) in 1905, before he had learned how painstakingly the willows must be studied. For several years, however, he has recognized this narrow-leaved plant as being only a variety of S. planifolia and has so determined scores of specimens for collectors. Unfortunately, the publishing of the new combination was overlooked. The first author to use the varietal combination in print apparently was Smith, in 1942 (l.c. above), but he neglected to give the specific name as a synonym although he cited the place of its publication. The varietal combination therefore was not validly published by him. The first authors to do this were Fraser and Russell, in 1944, as noted.

The pistillate type is Nelson 7580, from Laramie Peak, Albany Co., Wyo., in 1900, in Herb. GRB. Because the species is precocious in flowering, it is almost impossible to recognize staminate plants of the variety while in flower. This causes a scarcity of authentic staminate specimens in herbariums, as noted by Schneider in 1919. The remedy lies in tagging staminate plants and collecting flowering specimens then and foliage specimens later, when identification is possible.

Variety Nelsonii is found practically throughout the range of the species. It occurs rather commonly in the broad Rocky Mountain System of Colorado, South Dakota, Wyoming, and western Montana, and adjacent Alberta. It occurs rarely in NE. Utah, SE. Idaho, and central British Columbia, more commonly in central Alberta and Saskatchewan, less commonly in their northern parts and in Mackenzie, and rarely in Ontario (Hudson Bay), Ungava, and Labrador. In the mountains of Colorado, it reaches elevations of 11,000-12,000 feet, with progressively lower maximum altitudes northward, until nearly sea-level is reached at Hudson Bay and eastward.

complete

2

1st draft

1. *Salix planifolia* Pursh, var. *Nelsoni* (Ball) Ball, n. comb.

Salix Nelsoni Ball, Bot. Gaz. 40:379-380, pl. 13. 1905.

"Salix planifolia var. Nelsoni Ball", in Smith, Ernest C. (The Willows of Colorado), Amer. Midland Nat. 27:246. 1942. (invalid because synonym not given).

The writer published *Salix Nelsoni* in his youth, before he had learned how plants must be studied. For many years, he has recognized this narrowleafed plant as only a variety of *S. planifolia* and has so determined scores of specimens for collectors. Publishing the new combination was neglected, however, until the checking of Colorado specimens for Professor Smith disclosed the omission. Smith actually inserted it in the paper cited above. This publication, unfortunately, was incomplete and therefore invalid, as the synonym, *S. Nelsoni*, was not included, although the citation of its publication was given.

Little change in the original description is needed. The leaves, described as 3-5.5 cm. long, are that on fruiting ^{flowering and} specimens but may reach lengths of 7 and even 8 cm. on vigorous foliage shoots, with widths of 1.3-1.8 cm. The pistillate anthers may reach 5 mm. in length. The styles, described from imperfect material as from 0.3-0.5 mm. long, range from 0.6-1.2 mm. and the stigmas are nearly as long.

Its distribution, as originally known, was in the Rocky Mountains from central Colorado to southern Alberta. It is now known to occur in the Uintah Mts. of northeastern Utah, and thence northwest to central British Columbia. East of the mountains it occurs from east-central Saskatchewan to Lake Athabaska in northern Alberta. Saskatchewan and west to the Edmonton area in Alberta. In the southern mountains, it reaches elevations of more than 11,000 feet.

COLORADO. El Paso Co.: Little Fountain Cr., J.C. Blumer 12, in 1903 (CRB); Pikes Peak, J. H. Christ 1164, in 1935 (CRB). Teller Co.: Rosemont, Christ 2243, in 1936 (CRB). El Paso or Teller Co.: Pikes Peak For. Res., S.J. Flinham, on Aug. 18, --- (USN); Pikes Peak, Alpine Lab., 10000 ft. elev., C.J. Whitfield 17, in 1931 (CRB). Park Co.: Mt. Lincoln, 12000 ft. elev., J.M. Coulter, July 9, 1873 (USN). Lake Co.: between Twin Lakes & Leadville, Christ & Ward 2442, in 1936 (CRB). Ouray Co.: Mt. Ouray, Pammel & Dudgeon 28, in 1905 (CRB). Larimer Co.: Rocky Mtn. Natl. Park, Christ 727, in 1935 (CRB); Beaver Cr., L.N. Goodding 1440, in 1903 (CRB); Estes Park, E.C. Smith 257, 259, in 1933, 287, 377, 378, in 1934, & 1438, in 1940 (all CRB); Poudre Lakes, 10796 ft. elev., Smith 1473, in 1940 (CRB); Longs Peak Inn, Smith 1644, in 1943 (CRB). Jackson Co.: Rabbit Ear Pass, Smith 419, in 1934 (CRB); North Park, Walden, Smith 928, in 1937 (CRB). Routt (?) Co.: Routt Nat. For., 6700 ft. elev., Roscoe B. Weaver 145, in 1914 (CRB). Co. not known.: Peak Valley, elev. 3800 m., F.E. & E.S. Clements 310, in 1901 (USN). UTAH. Duchesne Co.: Mt. Emmons, Uinta Mts., alt. 11000-11350 ft., F. J. Hermann 5011, 5028, 5170, in 1933 (CRB). S. DORSEY DAKOTA. Lawrence Co.: (Black Hills), ~~XXXXXXX~~ W.H. Over 16359, in 1924 (CRB). Pennington Co.: near Deerfield, A. C. McIntosh 851, in 1921 (CRB); Over 16355, in 1924 (CRB); B. H. Natl. For., headwaters of ⁱⁿ Jim Creek, T. C. Setzer 3, 1913 (CRB). WYOMING. Albany Co.: Laramie Peak, A. Nelson 7580, in 1900 (CRB, type; USN); Nashs Fork, Nelson 7779, in 1900 (CRB); Centennial, Nelson 1754, in 1895 (USN); Nelson 8822, in 1902 (CRB, USN); Laramie Hills, elev. 8500 ft., L.O. Williams 2200, in 1935 (CRB, USN). Sheridan Co.: West R. Big Goose Cr., elev. 8500 ft., Pammel & Stanton 220, in 1897 (CRB); Frank Tweedy 47, in 1893 (USN). Johnson Co.: Big Horn Mts., headwaters of Clear Cr. & Crazy Woman R., Tweedy 3438, in 1900 (USN); No. Fork Powder R., alt. 9000 ft., L.O. & Rna Williams 3126, in 1936 (CRB). Washakie Co.: Highway 16 in Big Horn Mts., Carleton R. Ball 2901, 2904, 2907, in 1939 (CRB, USN). Big Horn Co.: West Tensleep Cr., alt. 9000 ft., L.O. & Rna Williams 3140, in 1936 (CRB). Sublette Co.: Big Horn For., So. Fk. Piney Cr., alt. 7800 ft., S. R. Long 229, in 1912 (CRB, FS 22274). Teton Co.: Two Ocean Lake, O. Murie 193, in 1928 (USN); Grand Teton Natl. Park, elev. 7500 ft., Williams 1194, in 1933 (CRB); Double Diamond Ranch, Williams 3500, in 1937 (CRB). Yellowstone Natl. Park: near Lower Geyser Basin, Ball 2167, in 1923 (CRB, USN); E. A. "earns 3125, in ~~XX~~ 1902 (USN).

~~IDAHO. BOZEMAN CO.: Fremont Co.: Henry's Lake, H. J. Rust 10180, in~~
 MONTANA. Carbon Co.: near Beartooth Pass, so. of Red Lodge, elev. 9400 ft., P. L.
 Ricker 6398, in 1946 (CRB). Gallatin Co.: near Madison R., nw. of Greyling, Ball
 2917, in 1939 (CRB, USN). Meagher Co.: Helena Natl. For., Birch Cr., Wilfred W. White
 335, in 1939 (CRB, Ps 94161). Missoula Co.: Camas Prairie, Blackfoot Valley, 20 mi.
 ne. of Bonner, C.L. Hitchcock 1553, in 1933 (CRB).

BRITISH COLUMBIA. Chezacut (Chilcotin) Lake, O. J. Marie 1319, 1325, in 1935 (CRB).
 ALBERTA. Banff & Vicinity: W.C. McCalla 2253, in 1899 (USN); McCalla 6444, in 1941
 (CRB); N. B. Sanson 72, 76, 100, 153, 154, 160, 163, 204, 223, 238, 305, 378, 394, 423,
 446, 447, 2070, 2074, all in 1911 (all CRB). Elbow R. Valley, Calgary, McCalla 6811,
 in 1942 (CRB). 30 mi. se. of Calgary, McCalla 9094, in 1946 (CRB). Smith Landing,
 H. V. Radford 10, 57, in 1911 (CRB). Ft. Saskatchewan and vic., George H. Turner 15,
 in 1928 (CRB); 1150A, 1150B, 1189, 1236, 1260, in 1939 (all CRB). MACKENZIE. Great
 Bear Lake, Hansford T. Shacklette 3054, in 1948 (CRB).

SASKATCHEWAN. Cypress Hills, A. J. Breitung 5121, 5210, in 1947 (CRB); Robert
 G.H. Cormack 542, in 1945 (CRB). McKague & vic., Breitung 543, 552, 553, 830, in 1940
 (CRB); Breitung 910, 1499, in 1941 (CRB). Lake Athabasca: McFarlane R., H.M. Laing
 224, in 1920 (CRB); Charlot Point, Hugh M. Raup 6147, in 1935 (CRB); Emuysse Cr.,
 Raup 6944, in 1935 (CRB). ~~ONTARIO: Weemusk, Hudson Bay, Lat. 55° 15' N., Dutilly &
 Lepage 16897, in 1946 (CRB). QUEBEC: Ungava, Larch R., Lat. about 57° N., Dutilly &
 Lepage 14510, in 1945 (CRB). LABRADOR: Cape North, near Cartwright, Lat. approx. 53°
 30' N., G. Gardner 240, in 1938 (CRB).~~

Candle Lake, 60 mi. ne. of Prince Albert, Boivin & Breitung
 6081, in 1949 (CRB).

Raup 6944 in 1935 (CRB); Candle Lake, 60 miles ne. of Prince Albert, Boivin and Breitung
 6081 in 1949 (CRB). ONTARIO. Moosonee, Dutilly and Lepage 12056 in 1944 (CJA); Weemusk,
 Hudson Bay, 55° 15' N., Dutilly and Lepage 16897 in 1946 (CRB). QUEBEC. Ungava, Larch
 River, approx. 57° N., Dutilly and Lepage 14510 in 1945 (CRB). LABRADOR. Cape North,
 near Cartwright, approx. 53° 30' N., G. Gardner 240 in 1938 (CRB).

Draft of Abstract

~~Summary~~ BALL, CARLETON R. (3814 Jocelyn St., N.W., Washington 15, D.C.).
/ New Combinations in Salix (Sections Pellitae and Phylicifoliae). / Amer. Midl. Nat. /

In Section Pellitae, five shrubby species of Salix have been descr. from W. N.E. No. Am. Of these, only S. Drummondiana Barratt is maintained as a species. It occurs in the mts. of No. Ida. and adjacent Mont. and Wash., northward to central Alta. and B.C. S. bella Piper, which occurs in the so. part of this range, and S. subcerulea Piper, which occupies the species range but is more abundant in the Rockies south to N. Mex. and less common westward, are reduced to varietal status under S. Drummondiana. Piper apparently was ~~un~~acquainted with it when he described his two species. For these three, full ~~bi~~ bibliographies and brief descriptions are given and all available specimens collected in the overlapping range are cited. The final (Calif.) two, S. Covillei Eastwood and S. pachnophora Rydberg (Rocky Mts.) have long been regarded as synonyms of S. subcerulea. Two northeastern species, S. pellita and S. argyrocarpa, both Andersson, are unaffected.

S. Nelsonii Ball (1905), of Sect. Phylicifoliae, is here recognized as a variety of S. planifolia Pursh, as it should have been in 1905. The author long has so regarded it and has so determined it for many collectors, but had neglected to publish the new combination. It was validly published by Fraser and Russell in 1944 and invalidly by E.C. Smith in 1942. Bibliography, description, and citation of specimens are given.
C. R. Ball.

Anderson

12.

Phyllophora (Virescentes)

Summersoniana

chlorophylla And (= Speltita
denticulata

Speltita

pychnoscarpa (= subventralis CBS)

fuscescens (= S. fuscescens And)

phyllophora (arbusculoides And)

11. Argentea Rehmii

S. biternata

S. argentea

S. petiolata x var. subsericea
v sericea (S. sum. March)

S. humilis

S. triolus

S. repens

S. cantheris with S. lasiophora

Organs	<i>S. Prunellifolia</i>	<i>S. bella</i>	subcorulea
Twigs young	yellow to br. pub-pubes	yellowish + sparsely,	yellowish glabrous
leaves	dark br, glab. shining	dark purp. m/ light part	br-br. shiny " "
buds	2-7 pubes to glab	2-8(10) glab, pub	2-8 glab " "
stipules	0-9, ? torn	3-6(8) lance, ov,	0-8 lance
petioles			
blades			
shape			
size			
aments	sess or subsess, bractif 1-3(4) dense	sess + bractif bract pub 1-5(6)	sess 1-6
peduncles			
scales	oblong, acutish 0.5-1.5	oblong-ov. to abov obt 1.5-2	ellip-obov-ellip-obov 1-2 mm ac-obt
capsules	4-6 alv-pub	4.5-6,	ov. 3.5-5 alv. shd-pub
pedicels	0.5-1	1-(2 Pap),	0.3-0.7
styles	0.5-1 0.8-1.5	1-1.5	1-1.5 m/entire
stigmas		bigid shd, whit, out-bigid	0.3-0.5 snt to bifid
glands		0.5-1	0.3-0.5 mm.

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Dr. John D. Mizelle, Editor,
American Midland Naturalist,
Notre Dame, Indiana.

3814 Jocelyn St., N. W.,
Washington 15, D.C.

27 July, 1950.

Dear Dr. Mizelle:

I am sending herein, by registered mail, a manuscript entitled "New Combinations in Salix (Sections Pollitae and Phyllofoliae).", which I trust may prove acceptable for the American Midland Naturalist.

Besides the title, it has two subtitles, on pp. 1 and 14, indicated by the letters A and B. Under subtitle A, there are three subheadings, on pp. 2, 7, and 10. According to the usage in my former paper, the title will be set in bold-face caps. and small caps.; the subtitles in roman caps. and small caps.; and the subheads in roman caps. and lower-case. I have so indicated. Unfortunately, the last 4 pages were written first, before I had considered where I might send it, and the format therein is not that you use and that I have tried to follow in the first 13 pages.

In glancing through several publications from your press I found that there was some variation in ~~punctuation~~ punctuation and other matters but I have tried to follow what seemed to be the commonest practice therein.

One matter I did not check in that scanning and that was italics for the names of collectors. I now note that they were all italicized in my paper last year, but I have not so indicated them in this manuscript. It seems to me that it must cost more in typesetting and does not help the reader much if any. If you want them italicized, I shall have no objection, and if you will have it done I will pay the extra cost.

I have submitted a similar but larger paper to the Journal of the Washington Academy of Science and it has been accepted. I trust that this one may be as fortunate. These new combinations are somewhat belated I am trying to get them published before some State Floras in which I have used some of them get into print this coming winter. Now I must finish the Willows of Alaska-Yukon for Dr. Anderson of Iowa.

Cordially yours,

Carleton R. Ball



THIS SIDE OF CARD IS FOR ADDRESS

Dr. Carleton R. Ball
3814 Jocelyn St., N.W.
Washington 15, D. C.

July 31, 1950

Dear Dr. Ball:

This is to acknowledge receipt of your manuscript entitled "New Combinations in *Salix* (Sections *Pellitae* and *Phylicifoliae*)"

which has been sent to the associate editor in your field for his comments. Soon after it returns to our office I shall write you further.

Many thanks for your interest in our journal.

Most cordially,

American Midland Naturalist
Notre Dame, Indiana

John D. Mizelle
John D. Mizelle, Editor

Dr. John D. Mizelle, Editor,
American Midland Naturalist,
Notre Dame, Indiana.

3814 Jocelyn St., N.W.,
Washington 15, D.C.

3 August, 1950.

Dear Dr. Mizelle:

Your card of 31 July is here. Since mailing the manuscript I have discovered that the first line on page 17 is incomplete. That portion of the mss. was written long ago, and I neglected to put a question mark in the margin.

The line reads: "IDAHO. Fremont Co. Henry's Fork, H. J. Rust 10180 in ."
I am completely unable to find the missing year of containing herbarium for completing this citation, and don't know now where I got the original item. If the manuscript is accepted, please delete this line.

Cordially yours,

Carleton R. Ball

P.S. I have just received the new Gray's Manual and am sorry to see that it excludes *S. petiolaris* from America, reduces *S. tristis* to varietal rank, and maintains other items which I have protested in print thro the years.

The American Midland Naturalist

FOUNDED BY J. A. NIEWLAND, C.S.C.

University of Notre Dame
Notre Dame, Indiana

JOHN D. MIZELLE, EDITOR

August 16, 1950

Dr. Carleton R. Ball
3814 Jocelyn St., N.W.
Washington 15, D. C.

Dear Dr. Ball:

This will acknowledge receipt of your letter concerning the deletion of the first line on page 17 as per your directions. I shall write you further as soon as I hear from the associate editor in your field.

Many thanks for your continued interest in the "Midland".

Most cordially,

John D. Mizelle
John D. Mizelle, Editor

*Under Drummondian
var subcaerulea
Montana: Glacier Co. insert
JDM:rh
A. Duffus 8866 in 1907 (C.R.)*



THIS SIDE OF CARD IS FOR ADDRESS

Dr. Carleton R. Ball
3814 Jocelyn St. , N.W.
Washington 15, D.C.

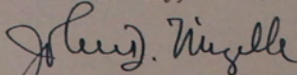
November 3, 1950

Dear Dr. Ball:

It is a pleasure to inform you that your paper entitled "New Combinations in Salix, etc." has been approved for publication.

Many thanks for your continued interest in the "Midland".

Most cordially,


John D. Mizelle, Editor

American Midland Naturalist
Notre Dame, Indiana

Dr. John D. Mizelle, Editor,
American Midland Naturalist,
Notre Dame, Indiana.

2814 Jocelyn St., N.W.,
Washington 15, D.C.

23 December, 1950.

Dear Dr. Mizelle:

Your card of 3 Nov., announcing that my paper on New Combinations &c., had been accepted, was promptly received and I thank you. The reason (but not excuse) for this belated acknowledgement is that I have been buried under the biggest avalanche of willows for determination that I ever have known. Hundreds from the Arctic (Alaska to Greenland) and more hundreds from our western mountains (mostly Natl. Park) and to elev. of 13,000 ft.

Am almost cleaned up on that and am trying to clean out correspondence before the new half-century begins. Fifty years is long enough to let letters lie unanswered.

I will be glad to know if you have any general idea of when my paper will appear. Some of the combinations will be used in the new Flora of Idaho, which is coming along and I am hoping the Am. Midl. Nat. may be out first. Have written to Idaho to see what they expect in date of publication.

With all best wishes for the joys, the inspirations, and the opportunities of the present Christmas and New Year season, and for the many that lie ahead.

I am,

Cordially yours,

Carleton R. Ball

The American Midland Naturalist

FOUNDED BY J. A. NIEUWLAND, C.S.C.

University of Notre Dame

Notre Dame, Indiana

JOHN D. MIZELLE, EDITOR

February 6, 1951

Dr. Carleton R. Ball
3814 Jocelyn St., N.W.
Washington 15, D.C.

Dear Dr. Ball:

Please pardon my tardy response to your last letter. Regarding your request with reference to appearance of your paper with us, I will try and print for you in the May issue of this year.

Many thanks for your continued interest in our journal.

Most cordially,

John D. Mizelle
John D. Mizelle, Editor

JDM:rh

(See over)

Dr. John D. Mizelle, Editor,
American Midland Naturalist,
Notre Dame, Indiana.

3814 Jocelynn St., N.W.,
Washington 15, D.C.

10 February, 1951.

Dear Dr. Mizelle:

I have your letter of February 6, and thank you for the information that my paper may appear in the May issue of A.M.N.

The Flora of Idaho, by Prof. Ray J. Davis, in which will appear the combination made in my manuscript which you have, is being delayed. Prof. Davis writes me that he is ~~fin~~ having difficulty in finding a publisher. As he has worked for 20 years in preparing this volume, he feels rather badly about the matter. At any rate, it seems certain that the combinations will not appear in his Flora before they do in American Midland Naturalist.

A Flora of Idaho is much needed. The Coulter-Nelson Manual of Rocky Mtn. Botany is out of date and no new edition is in prospect. Rydberg's manuals are very faulty. Prof. Porter is preparing a new Flora of Wyoming. Idaho is a key State because of its location, and also because of its great southern valley, its almost inaccessible lofty central mountains, and its low northern lake areas. I do hope that he gets his volume published.

Cordially yours

I wish you all the joys, the inspirations,
the opportunities, and the hard labors of the
new year and the new half-century.

Carleton R. Ball

The American Midland Naturalist,
University of Notre Dame,
Notre Dame, Indiana.

3814 Jocelyn St., N.W.,
Washington 15, D.C.

27 April, 1951.

Dear Dr. Mizelle:

I am inclosing the mss. and corrected proof of my paper "New Combinations in *Salix*", etc. Also Abstract, and order for 100 reprints without covers.

When the mss. and proof were received and pulled out of the envelope, the folded abstract sheet and attached directions for editing did not come out and were overlooked. Hence, all of the editing was done in black. Later, I found the instructions but had not red and blue pencils at hand. Therefore, I now have indicated by ink all of the corrections caused by errors in my mss. or new changes suggested (5 in all). Trust that this will enable you to find them readily.

Considering the difficult character of this mss., I think that the editor and compositor did a splendid job. Part of the required or suggested changes arise from the action of the editor in underscoring names. For example, at bottom of mss. p. 4 the names of two collectors were underscored for capitals instead of italics.

The matter of capitalization of the names of Parks in Alberta, I will leave to your judgement. In citing distribution of specimens, names of counties in the several States are capitalized (underscored for). Because Glacier Natl. Park in Mont. and Yellowstone Natl. Park in Wyo. take the place of counties, these also properly were so underscored for capitals. But in Canada, there are no counties. Therefore we must cite towns, mountains, rivers, and parks, districts (areas) and there seems no reason why the names of the parks should be capitals when the others are not.

The Alberta parks were not so underscored under *S. Drummondiana* (mss. pp. 5 & 9; proofproof pp. 3 & 4). They were so underscored under var. *bella* (mss. p. 9 and proof p. 5) including "Lake Louise area" which is merely the area around that lake. They also were so underscored under var. *subcaerulea* (mss. p. 13 & proof p. 7), including "Slave Lake Dist." I will leave the disposition of these to your judgement, although in proof-reading I indicated change back to caps. and lower case. It is not important, and few readers will ever notice it.

Another instance of somewhat contradictory usage is in the matter of giving each State or Province a separate paragraph in the citation of specimens. I did not do this, where the paragraphs would have been quite short. (resulting The editor has indicated such separate paragraphs in most parts but not all.

Under *S. Drummondiana* (mss. p. 5; proof p. 3) and again under var. *bella* (mss. p. 9; proof p. 5) he has caused such change. But under *S. planifolia* var. *Nelsonii* (mss. p. 16; proof p. 9), where there are 3 Provinces in one paragraph and 4 in another, he has not made these changes. I will leave this matter wholly to your judgement, altho I automatically indicated the locations of these last by queries (?) on the proof.

I forgot to note that in the Idaho citations (mss. p. 8; proof p. 5), the Paniksu National Forest is set in capitals although it is merely one of many localities cited for Bonner Co., which last properly is capitals.

Thanking you again for your many courtesies, I am

Carleton R. Ball