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SOME CRITICAL PLANTS OF ATLANTIC NORTH AMERICA.

C. A. WEATHERBY.

THE following notes are the result of an attempt to name accurately certain critical plants contained in the collections of the late Professor E. J. Grimes from southeastern Virginia. In so far as they have merit, it is hoped that they may serve, in some sort, as a memorial of the thorough and keenly discriminating work which, during two seasons, he had done as collector and student of the too little known flora of the southern coastal plain, as represented in his region. All botanists interested in the taxonomy, distribution, and ecology of the plants of eastern North America may well regret his untimely death.

Though the bulk of the finished notes is not great, some of them have called for a considerable correspondence. I am indebted for the loan of specimens, for needed information, or for other aid in the preparation of this paper, to Prof. J. F. Collins, Dr. A. B. Stout, Mr. K. K. Mackenzie, Mr. Bayard Long and, like all students of our eastern flora, to Prof. M. L. Fernald. To all, my thanks are extended.

CAREX MITCHELLIANA M. A. Curtis, Am. Journ. Sci. xlv. 84 (1843); Dewey, op. cit. xlviii. 140 (1845) in part, but not as to illustration; Boott, Ill. i. 18, t. 50 (1858), at least as to perigynium figured.—Similar to *C. crinita*, var. *gynandra*, but the spikes usually more slender; lowest sheaths slightly hispidulous or rarely smooth; perigynia ovate, 2.5–3.5 mm. long, 1.4–2 mm. wide, lenticular, scarcely inflated, strongly granular-roughened with minute papillae,

distinctly 2-4-nerved on both sides; achenes ovate or suborbicular, 1.5-2 mm. long, 1.1-1.5 mm. wide, substipitate, not at all bent or contorted.—MASSACHUSETTS: swale by Swan Pond, Dennis, July 23, 1918, *Fernald*, no. 16,473; Harwich, June 10, 1916, *Winslow & Sanford*; swale, West Yarmouth, July 22, 1907, *E. W. Sinnott*; Hyannis, July 4, 1874, *Wm. Boott*. NEW JERSEY: Pemberton, July, 1873, *Canby* (sheaths smooth); New Egypt, June 10, 1905, *J. H. Grove*, no. 48; Forked River, June 1, 1896, hb. *Joseph Crawford*; Albion, June 26, 1907, *Van Pelt*, no. 2; rich swampy woods, Cape May Court House June 1, 1912, *Bayard Long*, no. 7245. DELAWARE: swamp, Millsboro, June 18, 1875, *Commons*. VIRGINIA: open swamp, 3 miles west of Williamsburg, June 16, 1921, *Grimes*, no. 3781. SOUTH CAROLINA: Santee Canal, May, *Ravenel*. GEORGIA: bank of woodland stream near Atlanta, May 29, 1901, *Curtiss*, no. 6802. FLORIDA: without date or definite locality, *Croom*. ALABAMA: without definite locality, 1867, *Peteers*. The New Jersey and Delaware specimens cited are in the herbarium of the Philadelphia Academy of Sciences.

C. Mitchelliana is a rather striking plant of the Coastal Plain and the Piedmont, in its strongly granular perigynia suggesting *C. maritima*, but in all other respects clearly a member of the group of *C. crinita*. From all variants of that species, *C. Mitchelliana* is ordinarily well distinguished by the characters given. *C. crinita*, var. *gynandra*, however, to which *C. Mitchelliana* is nearest and to which it has usually been referred, sometimes has plane achenes; and a single immature specimen from the District of Columbia (Takoma Park, May 17, 1903, *J. H. Painter*, no. 166) suggests an intermediate condition in other characters, in that the young perigynia are granular, but not nerved, and are somewhat inflated. Two sheets, one from western Louisiana, *Hale*, and one from Texas, *Wright*, have uncontorted achenes and the perigynia somewhat granular. But the latter are nerveless, more or less inflated, and, in the Wright specimen, obovate; the spikes are densely flowered and the lower sheaths entirely smooth. These plants seem best regarded as an extreme phase of *C. crinita*.

The redescription and citation of specimens above are rendered desirable by the vagueness of Curtis's original diagnosis. Indeed, the evidence as to the application of the name *C. Mitchelliana* is not altogether satisfactory. Curtis places emphasis chiefly on the shortness of the spikes in his plant and mentions none of the perigynial characters which set the species, as here interpreted, apart. Prof. W. C. Coker, who has kindly interested himself in the matter, informs

me that Curtis's phaenogamic herbarium was broken up after his death and distributed among a number of small institutions: under these circumstances I have been unable to locate the type of *C. Mitchelliana*. In the herbarium of Brown University is a sheet on which Olney has noted that the plant represented thereon was submitted to Curtis and that he said it looked "mighty like *C. Mitchelliana*." This plant is the short-spiked form of *C. crinita*, var. *gynandra* distributed by Olney as *C. gynandra*, var. *caroliniana*. In the Dewey herbarium is a specimen labelled, in Dewey's handwriting, "C. Mitchelliana. S. Carolina . . . Sent from Rev. J. [sic] Ashley Curtis." This is a stunted individual of the plant here treated as *C. Mitchelliana*. In the cover with it is a specimen, from Olney, of a form of *C. crinita*, var. *gynandra* with unusually short and thick spikes. This corresponds closely with Dewey's figure of *C. Mitchelliana* (Am. Journ. Sci. xlviii, pl. Dd, f. 98) and is probably the specimen there illustrated. It seems likely, therefore, that Dewey, perhaps misled by Curtis's emphasis on the shortness of the spikes, confused the coastal plain plant with reduced forms of *C. crinita*, var. *gynandra*. The nerved and strongly granular perigynium figured by Boott certainly belongs to the coastal plain plant; but the contorted achene and the strongly hispidulous sheaths illustrated suggest that he also had mixed material.

It is possible that Curtis likewise included two things under *C. Mitchelliana*. But, in the absence of the real type, the specimen sent by him¹ to Dewey is apparently the only authentic material available: I am accordingly taking it as typical of the species and as determining the application of the name.

The following key may serve to place *C. Mitchelliana* in relation to the main variants of *C. crinita*:

- a. Perigynia smooth or nearly so, the sides nerveless or sometimes with a single median nerve which reaches the apex; achenes oblong to obovate, variously bent or contorted, often with a deep wrinkle on one or both edges near the middle. *b*
- b. Sheaths smooth and glabrous. *c*
- c. Spikes densely flowered, the somewhat spreading and crowded perigynia inflated, broad-ovoid to obovoid, loosely investing the achene and longer than it. *C. crinita*.
- c. Spikes less densely flowered, the ascending perigynia not inflated, closely investing the achene and only slightly longer than it, ellipsoid or ovoid. var. *Porteri*.

¹ The use of the initial "J" instead of "M" in Curtis's name on the label appears to be a slip of the pen on Dewey's part. Curtis's letters to Dr. Gray testify that he sent Carices to Dewey on various occasions.

- b. Lower sheaths rough-hispidulous with short stiff ascending setae; perigynia ascending, moderately inflated, loosely investing the achene, chiefly ovoid var. *gynandra*.
- a. Perigynia manifestly granular with numerous minute papillae, distinctly 2-4-nerved on both faces, the nerves reaching the apex or near it, lenticular, scarcely inflated, distinctly longer than the achene; achene broadly ovate to suborbicular, not at all bent or contorted; lowest sheaths slightly hispidulous *C. Mitchelliana*

POLYGONUM DENSIFLORUM Meisn. Fl. Bras. v. pt. 1. 14 (1855). *P. portoricense* Bert. ex Small, Monog. Polyg. 46, t. 10 (1895). *P. eciliatum* Stone, Pl. Southern N. J. 423 (1910), as to plant, but not as to name-bringing synonym. *Persicaria portoricensis* Small, Fl. Southeastern U. S. 377 (1903).

There appears to be no nomenclatorial bar, under any code, to the use of the name *Polygonum densiflorum* Meisn. *P. densiflorum* Bl. of the Index Kewensis is an error. What Blume published in the passage cited, Bijdr. 533 (1825), is *P. corymbosum* ϵ *densiflorum*, a varietal, not a specific name. Blume's variety is generally referred to *P. chinense* L. as a synonym: I do not find that anyone had raised it to specific rank until this was done through inadvertence by the editors of the Index, long after Meisner had applied the same combination to a wholly different plant.

Meisner's name seems also correctly applied to the plant of the southeastern United States and the West Indies. In his original treatment in the Flora Brasiliensis, Meisner included in *P. densiflorum* a Brazilian plant with somewhat ciliate sheaths and eciliate specimens from Louisiana, the West Indies, Peru and Chile. He specified no type. Later, in the Prodrum xiv. 121 (1864), he divided the species, as thus constituted, into two varieties, α *imberbe*, including the plants of the United States, the West Indies and western South America, and β *ciliatum*, based on the Brazilian plant, of which he seems to have had only one collection. Since Meisner placed our plant in var. α and since in his time a variety so designated was held to be typical of its species when any such distinction was made, it may reasonably be considered that Meisner himself indicated the plant of the United States and the West Indies as typical of *P. densiflorum*. The Chilean and Peruvian plants, of which I have seen no specimens, might not now be regarded as conspecific with ours; in view, however, of the wide ranges of other hydrophilous species of the section *Persicaria*, such as *P. acre*, it is by no means a necessary assumption that they are not.

Urban, Symb. Antill. iv. 211 (1905), reduces *P. densiflorum* to *P. glabrum* Willd. Typical *P. glabrum* of India, however, differs in its smaller perianth, which is nearly or quite destitute of glandular punctation: it seems best considered a distinct species.

The Grimes collection contains excellent material of *P. densiflorum*, already known, in the North, from southern New Jersey and Delaware.

CHELONE Grimesii, n. sp., radice ignota; caule simplice, circa 14 dm. alto, minute granulato-puberulo; foliis omnino sessilibus apice acutis vel acuminatis basi rotundatis argute serratis supra viridibus subtus glaucescentibus, medianis ovatis 8–8.5 cm. longis 3–4 cm. latis, inferioribus lanceolatis valde reductis, superioribus ovatis superne gradatim decrescentibus, supremis utrinque minute puberulis; costis foliorum subtus puberulis; bracteis superficie puberulis, margine minute ciliolatis; corollis 2.5–2.8 cm. longis, "purpureis."

Root not seen; stem simple, apparently about 14 dm. high; leaves all completely sessile, acute or acuminate, rounded at base, sharply serrate, green above, more or less glaucous beneath, the median ovate, 8–8.5 cm. long, 3–4 cm. wide, the lower lanceolate, much reduced in size, the upper ovate, gradually decreasing upward; stem, midribs of the leaves beneath, both surfaces of the uppermost leaves, and bracts minutely granular-puberulent; bracts minutely ciliate; corolla 2.5–2.8 cm. long, purple, according to the collector's notes.—Wooded swamp near Elko, Henrico Co., Virginia, Aug. 8, 1921, *Grimes* no. 4189.

Since there appear to be no floral characters, except color, by which the species of *Chelone* can be separated, I have confined the description of *C. Grimesii* to those vegetative characters which are most distinctive. It is apparently the plant figured by Miller, Ic. Pl. 17 (1760), though that is represented as having very large upper leaves. But all the leaves shown are ovate and are not only pictured, but described, as sessile. Miller states that his plant was sent from Virginia by Clayton and that it is the latter's "*Chelone floribus speciosis pulcherrimis colore rosae damascenae*." This last appears to have been a temporary opinion; in both the 1759 and 1768 editions of his Dictionary, Miller assigns the Clayton phrase-name to a plant with petiolate leaves (*C. purpurea* Mill.), which is generally referred to *C. obliqua*. Whatever the correct disposition of Clayton's name, it is, in view of the small amount of collecting which has been done in southeastern Virginia, not impossible that he did find the presumably local *C. Grimesii*, and send it to Europe where it was cultivated and figured by Miller; that it died out of English gardens and was lost sight of until found again now in Clayton's region.

The following synopsis will serve to indicate the relation of *C. Grimesii* to other groups in the genus.

- a. Corolla normally white, rarely and exceptionally pink; bracts usually not evidently ciliate; leaves short-petioled or sessile; pubescence, if present, of short, comparatively stiff, mostly unicellular hairs..... } *C. glabra.*
C. Cuthbertii.
- a. Corolla pink or purple; bracts usually evidently ciliate. b.
 b. Leaves long-petioled; plant (except the bracts) glabrous or sparsely pilose with weak, pluricellular hairs..... } *C. obliqua.*
C. Lyoni.
- b. Leaves closely sessile; stem and midribs of the leaves beneath minutely granular-puberulent..... *C. Grimesii.*

GNAPHALIUM OBTUSIFOLIUM L., var. **micradenium**, n. var., plerumque gracile, caule breviter glanduloso-puberulo non tomentoso; foliis linearibus acutis vel obtusiusculis, 1.8–5:3 cm. longis, 1.5–7 mm. latis, rarius majoribus et tum oblanceolatis, subtus tomentosis supra glandulosis; involucri squamis plerumque acutis.

Usually slender; stem glandular-puberulent, not tomentose; leaves linear, acute or obtusish, 1.8–5.3 cm. long, 1.5–7 mm. wide, rarely exceeding these dimensions and then oblanceolate, the lower surface tomentose, the upper glandular; scales of the involucre mostly acute. —MAINE: Dry, sandy thicket by Sand Pond, Limington, Oxford Co., Aug. 20, 1916, *Fernald, Long & Norton*, no. 14809. MASSACHUSETTS: dry sandy openings among scrub oaks, Barnstable, Oct. 7, 1917, *Fernald*, no. 15870, TYPE in hb. Gray; sandy wood-road through oak and pine barrens, Dennis, Aug. 22, 1918, *Fernald & Long*, nos. 17568, 17667; dry soil, Sandwich, Sept. 16, 1916, *Harger & Woodward*; sandy wood-road, Barnstable, Sept. 17, 1916, *F. T. Hubbard*; sandy wood-road through oak and pine woods and barrens, Barnstable, Sept. 4, 1918, *Fernald & Long*, no. 17569; wood-road in dry, sandy woods, Barnstable, July 15, 1918, *Fernald*, no. 17566. NEW YORK: without locality, 1835, *A. Gray*. NEW JERSEY: dry pine woods, Forked River, Ocean Co., Sept. 6, 1908, *Mackenzie*, no. 3841. VIRGINIA: dry soil along roadside near Williamsburg, Sept. 9, 1921, *Grimes*, no. 4351. MICHIGAN: Bay City, 1873, *F. V. Walthausen*. KENTUCKY: Pine Mt., Harlan Co., Aug., 1893, *Kearney*, no. 219.

The plant here described is apparently the northern and more inland representative of var. *Helleri* (Britton) Blake, which seems to be confined to the coastal plain from Virginia to Florida. In most of the specimens seen, the small, narrow leaves are very characteristic, increasing very little or not at all in size even when the stem attains a height of 4.5 dm. as in the Grimes specimen. This foliar character, though generally useful, is more or less inconstant, even in the same colony. The characters of the glandular pubescence, however, appear to correlate perfectly with natural geographic ranges.

Gnaphalium obtusifolium and its varieties may be distinguished as follows;

- a. Stem with white, floccose tomentum, not visibly glandular.....*G. obtusifolium*.
- a. Stem glandular, not tomentose, or only slightly so. b
- b. Stem glandular-puberulent; leaves usually linear or linear-lanceolate, 1.8–5.3 cm. long, 1.5–7 mm. wide, 6–10 times or more longer than wide; involueral bracts mostly acute.....var. *micradenium*.
- b. Stem glandular-villous; leaves usually oblong-lanceolate, 2.5–7 cm. long, 4–13 mm. wide, 4–7 times as long as wide; involueral bracts mostly obtuse.....var. *Helleri*.

GRAY HERBARIUM

VACCINIUM ULIGINOSUM AND ITS VAR. ALPINUM.

M. L. FERNALD.

Vaccinium uliginosum L. is commonly treated as a circumpolar species which, in America, extends southward to the alpine and subalpine regions of New England and New York and bogs of Oregon. The plant of arctic-alpine range in North America has often been set off on account of its depressed habit and small thick leaves from the typical shrub of European bogs but in none of the differentiations have any characters been pointed out which seem to be more than responses to the exacting summer, and often winter, climatic conditions under which the plant grows in arctic and arctic-alpine eastern America. In comparing the shrub which abounds on the barrens of Greenland, Labrador and Newfoundland and the alpine regions of Quebec and northern New England with the typical European plant a number of points of seemingly real significance come out. In the first place the European is usually a larger and more ascending shrub, and its flowers and fruits are on slender pedicels 3–10 mm. or more long; while the smaller mostly depressed and smaller-leaved shrub of arctic-alpine American distribution has the pedicels very short and often almost obsolete, ranging from 0.1–3.5 mm. in length. In the European plant the horns of the anther are ascending and commonly shorter than the two tubules. This character is well shown in such detailed illustrations as Sturm, *Deutschl. Fl.* iii. t. 12 (1802), *Svensk Botanik*, v. t. 331 (1807), *English Botany*, ed. Syme, vi. t. 878 (1873) or Hartinger & Dalla Torre, *Atlas der Alpenfl.* iii. t. 313 (1884). Con-



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