EXPLANATION OF PLATES 193 and 194

PLATE 193, upper fig., basal leaflet of LIGUSTICUM SCOTHICUM, to show venation, \times 3; lower fig., venation \times 20. PLATE 194, upper fig., basal leaflet of L. HULTENII, to show venation, \times 3; lower fig., venation, \times 20.

II. CAREX MACROCEPHALA AND C. ANTHERICOIDES

M. L. FERNALD

DR. Charles W. Townsend sent me in November last a much battered "pocket specimen" of a grass-like plant which he had found "on a sand dune near Seaside Park, near Tom's River, New Jersey," with the additional information that "it was said to have spread rapidly over the dune, and that it was never planted there . . The care-taker of the property thought it would be an excellent sand binder, which it appears to be, as it makes a close mat." The plant had nearly cylindric culms and no fruit, so, taking it upon casual inspection to be a grass, I sent half the material to Mrs. Agnes Chase for identification. In the absence of Mrs. Chase, the plant was examined by Mr. E. C. Leonard who has correctly identified it as Carex macrocephala Willd. of the sandy coast of eastern Asia, from eastern Kamtchatka, Sachalin Island and Japan to Shantung. It is apparently quite at home on the New Jersey sands, for Mr. J. R. Swallen of the Bureau of Plant Industry writes: "This is the second specimen that has been sent in from New Jersey."

Carex macrocephala is generally supposed to occur on the Pacific coast of North America, from southern Alaska to Oregon; but Dr. Townsend's material so closely matches the Asiatic specimens and so far departs from the fine series in the Gray Herbarium from the sands of British Columbia, Washington and Oregon that I have compared the two series with some care. It now becomes clear that the plant of western North America is a thoroughly distinct species, for more than a century wrongly identified with the Asiatic *C. macrocephala*. The American species is C. ANTHERICOIDES Presl., Rel. Haenk. 204 (1828), originally collected at Nootka Sound on Vancouver Island; and it is distinguished from the Asiatic by characters of the rootstock, lowest leaves, rosette-leaves, culm, scales, anthers and achenes. The original description by Willdenow of the Asiatic plant was meagre, but the very complete description of true *C. macrocephala* given by Regel¹ and beautifully illustrated by him may be compared

¹ Regel, Tent. Fl. Ussur. 164, t. xii. figs. 8-12 (1861).

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with the equally full original description by Presl of his C. anthericoides or the beautiful plate (as C. macrocephala) of Francis Boott.¹ The Regel and Presl descriptions and the Regel and Boott plates accurately portray the two species, while Kükenthal's description² was based primarily upon Asiatic material and Mackenzie's description and accurate figure of the American plant in Abrams's Illustrated Flora³ are drawn from American specimens.

The rootstock of C. macrocephala soon loses the shredded sheaths, that of C. anthericoides retains them tightly investing the internodes. In C. macrocephala the leafy shoots have few if any bladeless basal leaves, and the bases of the true foliage-leaves quickly disintegrate into fibres ("Culmi . . . basi fibris foliorum emarcidorum vestiti"-Regel); in C. anthericoides the basal leaves are reduced, dry and bladeless and they, as well as the long green leaves above them, rarely if ever disintegrate into fibres. In C. macrocephala the upper leaf-surface is scarcely ribbed, in C. anthericoides prominently so; in C. macrocephala the fresh leaf-margins are coarsely (often papillately) toothed ("Folia . . . marginibus grosse serrata"-Kükenthal), in C. anthericoides the serration is much finer and spinulose ("margins minutely but sharply serrulate"-Mackenzie). The culm of C. macrocephala is very obtusely angled, almost cylindric, and smooth ("Culmi . . . obtuse triangulares, leaves, glabri"-Regel; "Culmus . . . obtusangulus laevis"-Kükenthal); the culm of C. anthericoides harshly serrate on the sharp angles ("Culmus . . . triqueter striatus angulis serrato-scaber"-Presl; "Culmus . . . triqueter, scaber"-Boott; "Culms . . . often strongly roughened on the angles"-Mackenzie). In C. macrocephala the scales of the spikes are herbaceous and greenish, with pale firm borders, becoming drab, and they are conspicuously toothed on the margin ("Squamae . . . praecipue apicem versus serrulatae, herbaceae,"-Regel; "Squamae . . . in acumen . . . marginibus eroso-denticulatum attenuatae"-Kükenthal); in C. anthericoides the scales have thin, scarious or hyaline brown sides and, except for the outer bracteal ones, are quite entire ("Glumae . . . dorso nervoso-striatae virescentes, margine fuscae"-Presl; "squama . . . ferruginea"-Boott; "scales . . . brownish with green center and hyaline margins"-Mackenzie), the margins beautifully

¹ Boott, Ill. Carex, i. 27, t. lxix (1858).

² Kükenthal in Engler, Pflanzenr. iv²⁰. 187 (1909).

¹ Mackenzie in Abrams, Ill. Fl. i. 293, fig. 691 (1923).

1930] Fernald,—Distribution of Ligusticum scothicum

shown in the illustrations cited, Regel's fig. 12 of the Asiatic plant showing the characteristically toothed scale, Boott's figs. c, g and hand Mackenzie's figure of the American correctly representing entire scales. The anthers of the Asiatic *C. macrocephala*, as shown by 4 staminate inflorescences before me, are 4.5-6 mm. long; in the American *C. anthericoides*, as shown by Boott's illustration and by several sheets of specimens, only 2-3.3 mm. long. The achene of the Asiatic *C. macrocephala* tapers to the base, that of the American is strongly rounded at both ends, as clearly shown in Boott's figs. f.

Altogether, the specific distinctness of the plants of the two sides of the North Pacific is apparent. Geographically they parallel numerous other cases and it is at least worth noting that true *Carex* macrocephala, now establishing itself on the Atlantic coast of North America comes from the same region as the other sea-shore species, Artemisia Stelleriana Besser, which has rapidly fixed itself upon our coastal dunes and beaches. It is also not without interest that the coarse Sand Reed or Psamma of Atlantic America, Ammophila breviligulata Fernald¹ should have proved to be specifically quite unlike the European A. arenaria (L.) Link; but that the European, rather than the Atlantic America, plant should have made itself at home on the Pacific coast of North America.

¹ Fernald, RHODORA, XXII. 71 (1920).

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(To be continued.)



Fernald, Merritt Lyndon. 1930. "Carex macrocephala and C. anthericoides." *Contributions from the Gray Herbarium of Harvard University* (87), 9–11. <u>https://doi.org/10.5962/p.336118</u>.

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