

RANGE EXTENSIONS OF MARSH AND AQUATIC PLANTS

NEIL HOTCHKISS

DURING the past ten years of field study of waterfowl ecology, excellent opportunity has been afforded several members of the Bureau of Biological Survey, United States Department of Agriculture, to visit localities not readily accessible to most botanists and to make detailed observations on marsh and aquatic vegetation. The following records seem worthy of note.

Specimens of each collection have been filed in the United States National Herbarium and duplicates of a few in the Gray Herbarium. Identifications are by the writer, except as otherwise noted.

POTAMOGETON PRAELONGUS Wulfen. Almaloya del Rio, Rio Lerma, Estado de México, Mexico, April 17, 1935, *E. A. and L. J. Goldman*.

This is apparently the first record from south of the United States; but the high altitude of the Mexican Plateau makes its occurrence there a natural one.

HALODULE WRIGHTII Aschers. New River, Marines, Onslow County, North Carolina, October 11, 1935, *N. Hotchkiss* and *Clarence Cottam* No. 4780.

On April 7, 1936 the writer found it, *Zostera marina* and *Ruppia maritima* growing within 5 feet of one another in New River at Peru, Onslow County. Drift of *Halodule* has been observed in Bogue Sound, Carteret County, North Carolina, where, for a few miles, there is an overlap in the ranges of this sub-tropical species and the boreal *Zostera*. Although J. K. Small's "Manual of the Southeastern Flora," 1933, indicates that *Zostera* grows southward as far as Florida, the writer has been unable to confirm its occurrence south of New River, North Carolina. *Halodule* has also been found in great abundance in the Texas coastal lagoons: Aransas Bay, near Rockport, Aransas County, Texas, January 25, 1936, *N. Hotchkiss* No. 4856; and Laguna Madre, West of Port Isabel, Cameron County, Texas, March 6, 1936, *N. Hotchkiss* No. 4876. Small's Manual records the species only from southern Florida.

HALOPHILA ENGELMANNII Aschers. Aransas Bay, near Rockport, Aransas County, Texas, January 25, 1936, *N. Hotchkiss* No. 4858; and (in drift) Laguna Madre, west of Port Isabel, Cameron County, Texas, March 6, 1936, *N. Hotchkiss* No. 4877.

Small's Manual records it only from Florida.

THALASSIA TESTUDINUM Koenig and Sims. Drift in Aransas Bay, near Rockport, Aransas County, Texas, January 25, 1936, *N. Hotchkiss* No. 4857.

Small's Manual records it only from Florida.

ECHINOCHLOA POLYSTACHYA (H. B. K.) Hitchc. Determined by Jason R. Swallen, United States Bureau of Plant Industry. Delta Migratory Waterfowl Refuge, Pilottown, Plaquemines Parish, Louisiana, October 29, 1937, *John J. Lynch*.

Mr. Lynch watched the development of this coarse, perennial species in the Mississippi Delta marshes from March to November, 1937. Local people have had it under observation for several years and it appears to be spreading rather rapidly. It is here recorded from the United States for the first time, having been found heretofore from the West Indies and San Luis Potosí, Mexico, south to Argentina.

SCIRPUS ACUTUS Muhl. Lake Mattamuskeet, Hyde County, North Carolina, June 13, 1929, *N. Hotchkiss* and *L. E. Ekvall* No. 3743; and Neabsco Creek (arm of the Potomac River), Prince William County, Virginia, October 14, 1938, *N. Hotchkiss* No. 6107.

There appear to be no records from so far south along the East coast as the Potomac River; and the species is not included in Small's Manual.

SCIRPUS CALIFORNICUS (C. A. Meyer) Britton. Combahee Plantation, Whitehall, Colleton County, South Carolina, May 10, 1928, *F. M. Uhler*; and Grassy Lake, Hempstead County, Arkansas, December 2, 1937, *N. Hotchkiss* and *John J. Lynch* No. 5797.

Small's Manual indicates the range of the species as Florida to Texas and California.

ANEILEMA NUDIFLORUM (L.) Kunth. Determined in the Division of Plant Exploration and Introduction, United States Bureau of Plant Industry. Minim Island, Santee Delta, Georgetown County, South Carolina, October 7, 1935, *N. Hotchkiss* and *C. Cottam* No. 4776.

Small's Manual reports this introduced species from Florida and Georgia. The present locality is more than half way up the South Carolina coast, and the plant appeared to be at home along the margin of a marsh. The presence of an unidentified commelinaceous seed in abundance in duck stomachs taken in that locality in 1931 and earlier, the contents of which were studied in the Biological Survey, led to a search for the plant and its ultimate identification as this species.

CENTAURIUM SPICATUM (L.) Fernald. Blackwater Migratory Bird

Refuge, 10 miles south of Cambridge, Dorchester County, Maryland, June 27, 1938, *N. Hotchkiss* No. 5924.

Professor Fernald informs the writer that this is the first record of the species between Nantucket, Massachusetts and Norfolk, Virginia. It appeared as much at home along the margin of a road through a brackish marsh as does its relative, *Sabatia*.

BACOPA ROTUNDIFOLIA (Michx.) Wettst. (*Macuillamia rotundifolia* (Michx.) Raf.). Lake Mattamuskeet, Hyde County, North Carolina, June 13, 1929, *N. Hotchkiss* and *L. E. Ekvall* No. 3742.

Neither Small's Manual nor F. W. Pennell's "The Scrophulariaceae of Eastern Temperate North America," 1935, reports this species from any of the East Coast States.

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THE FIRST RECORDED OCCURRENCE OF *DISTICHLIS* *SPICATA* IN THE CENTRAL INTERIOR OF THE UNITED STATES

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THE GEOGRAPHICAL distribution of *Distichlis spicata* in the United States is more or less coincident with the location of salt marshes along the Atlantic, Gulf, and Pacific coasts. The distributional map of this species in the United States in A. S. Hitchcock's Manual of the Grasses¹ shows it following the seacoasts, although Mr. J. R. Swallen, Agrostologist of the Bureau of Plant Industry at Washington, D. C., in a letter to the writer, states that it is known also from a few inland localities in Texas.

In Missouri the only species of *Distichlis* previously recorded was *Distichlis stricta* (Torr.) Rydb., a plant of alkaline soil of the interior, chiefly the western half of the United States, from Saskatchewan and Minnesota to eastern Washington, south to Missouri, Oklahoma, Texas, California, and Mexico. In Missouri it is known, not from alkaline soils, but rather from cinders and clay soil along railroads where it has been introduced into the western part of the state in Buchanan and Jackson counties.

¹ A. S. Hitchcock, Manual of the Grasses of the United States. U. S. D. A. Misc. Publ. 200: p. 177, fig. 350. 1935.



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