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FIRST REPORT OF *WOLFFIELLA LINGULATA*
(LEMNACEAE) IN WESTERN MEXICO

Wolffiella are small, glabrous, thalloid plants that often occur with other species of Lemnaceae. The thallus is flat and thin, appearing two-dimensional, mostly solitary but occasionally with two to several attached. They float freely within the water column of quiet waters, seldom forming large colonies. Daubs (1965) reports that flowering is rarely observed in *W. lingulata*; however, Landolt (1986), in his comprehensive monograph of Lemnaceae, reports that *W. lingulata* is frequently observed flowering or fruiting.

Wolffiella lingulata (Hegelm.) Hegelm. usually floats in the water column just below the surface. The thallus is broad, oblong to ligulate in shape, dorsoventrally flattened, and channeled. The surface is usually prominently punctate with brown pigment cells in the epidermis. Two to four thalli often remain connected and are recurved, thus appearing like a segment of a curved band (Correll & Correll 1975). The plant is distributed in the tropical and warm temperate areas of Meso-America, Mexico, southern United States, and as far south as Argentina and Uruguay (Daubs 1965). McVaugh (1993) excluded the genus *Wolffiella* from Flora Novo-Galiciana but mentioned its probable presence there based upon its occurrence in nearby extra-territorial areas. The area treated in Flora Novo-Galiciana is historically known as Nueva Galicia and includes the states of Jalisco, Colima, and adjacent portions of the states of Nayarit, Durango, Zacatecas, Aguascalientes, Guanajuato, and Michoacán. Daubs (1965) reported *W. lingulata* in Lakes Pátzcuaro and Jiquílpan, both located in a part of Michoacán excluded from the flora.

Recent field collecting yielded specimens of *Wolffiella lingulata* from four different locations in Jalisco, thus the genus may now be considered as part of the flora of Nueva Galicia. In the following list of exsiccata, geographical coordinates and elevations were taken with a global positioning system. All CES numbered specimens were collected under the supervision of W. C. Holmes by the aquatic botany class of the Chapala Ecology Station (CES). The Chapala Ecology Station is operated by the Universidad Autonoma de Guadalajara and Baylor University. Duplicate specimens will be distributed to IBE, MIA, NLU, GUADA, and VDB at a later date.

Voucher specimens: **MEXICO**. Jalisco: Lago de Chapala, ca. 1 km east of Mezcala, N 20° 20' 02.0" W 103° 03' 04.2", 1504 m, 22 Jun 1995, Holmes 7802 (BAYLU); Chapala, between boat launch and yacht club, marshy shoreline of Lago de Chapala, N 20° 17' 16.4" W 103° 11' 35.9", 1496 m, 9 Jun 1995, CES 66, CES 72, and CES 73 (all BAYLU); Guadalajara, aqueduct under Hwy 23, N 20° 39' 29.2" W 103° 15' 50.5", 1470 m, 16 Jun

1995, CES 112 (BAYLU); Lago del Ahogado, N 20° 39' 29.2" W 103° 16' 03.2", 1536 m, 12 Jun 1995, CES 84A (BAYLU).

Wolffiella was abundant at all collection stations and was associated with large floating mats of *Eichhornia crassipes* (Mart.) Solms. (Pontederiaceae), being found among the roots and lower portions of the floats. It was discovered by submersing the *Eichhornia* into the water, thus allowing the *Wolffiella* to float to the surface. Occasionally associated plants included *Spirodela polyrhiza* (L.) Schleid., and *Lemna gibba* L. (both Lemnaceae), *Sagittaria longiloba* Engelm. (Alismataceae), *Myriophyllum aquaticum* (Vell.) Verde. (Haloragaceae), and *Berula* sp. (Umbelliferae). All *Wolffiella* specimens collected were in the vegetative condition.

The widespread occurrence of *W. lingulata* seems to indicate that the plant is not a recent introduction but only overlooked. That it has only now been discovered may be related to its presence at the end of the dry season, generally an unfavorable time for collecting in the Lago de Chapala basin. Coupled with this is its close association with *Eichhornia crassipes*, a plant which may provide *Wolffiella* with aspects of a suitable environment (protection from waves and intense sunlight) not normally present at this time. *Eichhornia crassipes* is a weedy plant that is generally not collected; however, this, and its ability to interfere with water use, makes it an important plant for aquatic botany classes, hence the discovery of *Wolffiella*.

We wish to thank Sidney McDaniel of the Institute for Botanical Exploration (IBE) for verifying our determinations.—*T.L. Morgan, J.R. Stevens, and W.C. Holmes, Department of Biology, Baylor University, Waco, TX 76798-7388, U.S.A.*

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