MARSILEA MUTICA (MARSILEACEAE) NEWLY REPORTED IN TEXAS, U.S.A.

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ABSTRACT

This paper documents the first occurrence in Texas of a wild population of *Marsilea mutica* Mett., (Marsileaceae), an exotic species of water-clover fern. The colony's life history and potential for invasive behavior are discussed.

RESUMEN

Este artículo documenta la primera aparición en Texas de una población silvestre de *Marsilea mutica* Mett., (Marsileaceae), una especie exótica de helecho de trébol de agua. Se discute la historia de vida de la colonia y su potencial comportamiento invasor.

Six species of water-clover, *Marsilea* L. (Marsileaceae), are described in Flora of North America, of which five are native and one introduced (Johnson 1993). *Marsilea mutica* Mett. (banded water-clover, Marsileaceae), native to Australia and New Caledonia, is not among these, but has been reported in the United States no later than 2001 (Knepper et al. 2002), and subsequently in isolated populations across the southeastern United States (Jacono & Johnson 2006). A colony of *M. mutica* in Austin, Texas, first documented in 2017 (GBIF 2021), constitutes the first wild occurrence of this species in the state.

The population occupies a shallow detention basin adjacent to a parking lot at Ascension Seton Northwest Hospital in north Austin. The basin, approximately a quarter-acre in area, is in full sun and retains shallow (~6 in or less) standing water in the center, within which the fern is locally dominant, forming dense mats with thousands of individual stems. The area occupied by above-ground plants was observed to vary with the level of water in the basin, increasing significantly following a period of heavy rain in May 2021; this suggests that dormant rhizomes may occupy a substantially larger area than the footprint of the colony visible during drier conditions. The fern was identified by its distinctive variegated or "two-toned" fronds, which are diagnostic of *M. mutica* among other North American *Marsilea* (Jacono & Johnson 2006). Fertile plants were numerous at the margins of the colony on the date of collection (11 April 2021). Associated vegetation included *Ludwigia palustris* L., *Dichondra carolinensis* Michx., *Rumex crispus* L., and *Eleocharis* sp.

Voucher specimen (**Fig. 1**): **TEXAS. Travis Co.:** Ascension Seton Northwest Hospital, E side of State Highway 183 between Braker Lane and Balcones Woods Drive, shallow detention basin adjacent to parking lot on E side of property, 30.40458°, 97.74207°, elev. 853 ft, 11 Apr 2021, *Yatskievych & Moorhead 21-052* (TEX).

The population was well-established at the time of my first observation in 2017, and I cannot speculate on the date of its introduction. Neither is the mechanism of the fern's introduction known. While *Marsilea* is spread through avian transport of sporocarps (Johnson 1985), Jacono and Johnson (2006) cite escape from horticultural cultivation as a more likely vector. In any case, the low level and ephemeral presence of water in the basin make it unlikely habitat for waterfowl of any kind. Although it is listed as a noxious weed in both Oklahoma (OAC 800:20-3-2) and Louisiana (LAC 76:VII-1101), *Marsilea mutica* remains legal for sale in Texas and is a popular ornamental plant in the pond and aquarium trades; an escape from a captive population, whether deliberate or accidental, is probable.

Little is known about the invasive potential of *M. mutica* specifically, though Johnson (1986) notes several life-history characteristics of the genus *Marsilea* common to invasive seed plants, including rapid growth, occurrence in early successional habitats, and long viability of propagules. Jacono and Johnson (2006) note the plant's ability to persist through both drought and frost via dormant vegetative growth. The latter is supported

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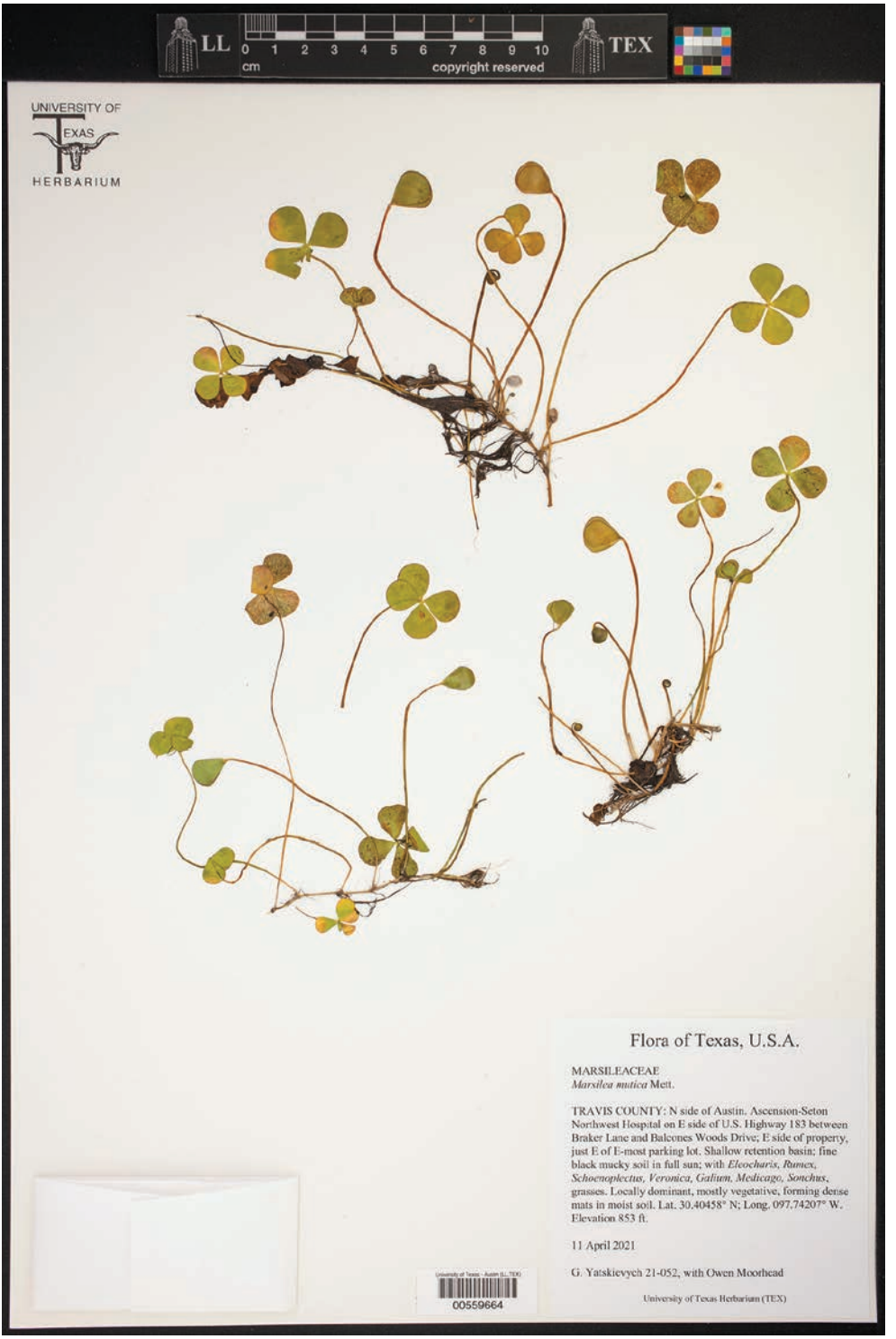

Fig. 1. *Marsilea mutica*, an exotic species of water-clover fern occurring in Travis County, Texas, 11 Apr 2021, *Yatskievych & Moorhead 21-052* (TEX).

by records of the species in Maryland (Redman 2008) and Virginia (Knepper et al. 2002), and by the Texas population's apparent survival of a five-day period of uninterrupted sub-freezing weather in February of 2021. Given the above, as well as the plant's proscription in neighboring states and the comparatively recent date of establishment, the population should be monitored for spread beyond the original site.

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