

NEW TO OKLAHOMA: *TRIADICA SEBIFERA* (EUPHORBIACEAE)

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ABSTRACT

This paper documents occurrences of the exotic *Triadica sebifera* (Chinese tallow) in southeastern Oklahoma. Previous reports of this species in the state referred to a single, planted specimen. These new records indicate that the tree is naturalizing in McCurtain County.

An occurrence of *Triadica sebifera* (L.) Small from Marshall Co., Oklahoma is cited in BONAP (2019) and EDDMaps (2019). The Center for Agriculture and Bioscience International, however, specifically lists this tree as a cultivated, planted specimen (2019) — it is actually located on the grounds of the Marshall County Courthouse (Mike Proctor, pers. comm.). Naturalized occurrences do exist in southeastern Oklahoma in McCurtain County (Figure 1). Thirteen individuals were present at Unit 20 of the Red Slough Wildlife Management Area (RSWMA), a USDA Forest Service Wetland Reserve project south of the town of Haworth. At least three of the thirteen were mature and producing fruits, and root sprouting was also noted (Figures 2 and 3). These trees, as well as any visible seeds have since been destroyed. An additional fruiting tree was found at unit 27b of RSWMA, approximately 1.0 km south of those in Unit 20. Associated species at both sites included *Ampelopsis arborea*, *Apios americana*, *Campsis radicans*, and *Baccharis halimifolia*. A single tree was found in the city of Idabel (also McCurtain County), growing out of the side of a small, possibly man-made, pond that had been recently cleared of all other vegetation, including *Pontederia cordata* and *Alternanthera philoxeroides*. Its location in relation to the pond indicates that it was not planted.

Vouchers. Oklahoma. McCurtain Co.: Red Slough Wildlife Management Area, Unit 27b, N33.74295° W94.65758°, 29 Aug 2019, *Buthod, Hoagland, & Arbour AB-12313* (OKL); Idabel, pond area behind Museum of the Red River, 33.879398 -94.819994, 30 Aug 2019, *Buthod & Hoagland AB-12275* (OKL).

Triadica sebifera is a tree in the Euphorbiaceae native to southern China, Taiwan, and Vietnam. In East Asia, the species is economically important for timber and dye manufacturing and for the waxes and oils found in its seeds (Wurdack 2016). *Triadica sebifera* was first introduced into the USA in the 1700s. Today, it is found in Alabama, Arkansas, California, Florida, Georgia, Louisiana, Mississippi, North Carolina, South Carolina, and Texas (EDDMaps 2019; Kartesz 2015; USDA, NRCS 2019). It is assumed to be extirpated from Kentucky, where a single individual was found and destroyed (Comley 2008; Wurdack 2016).

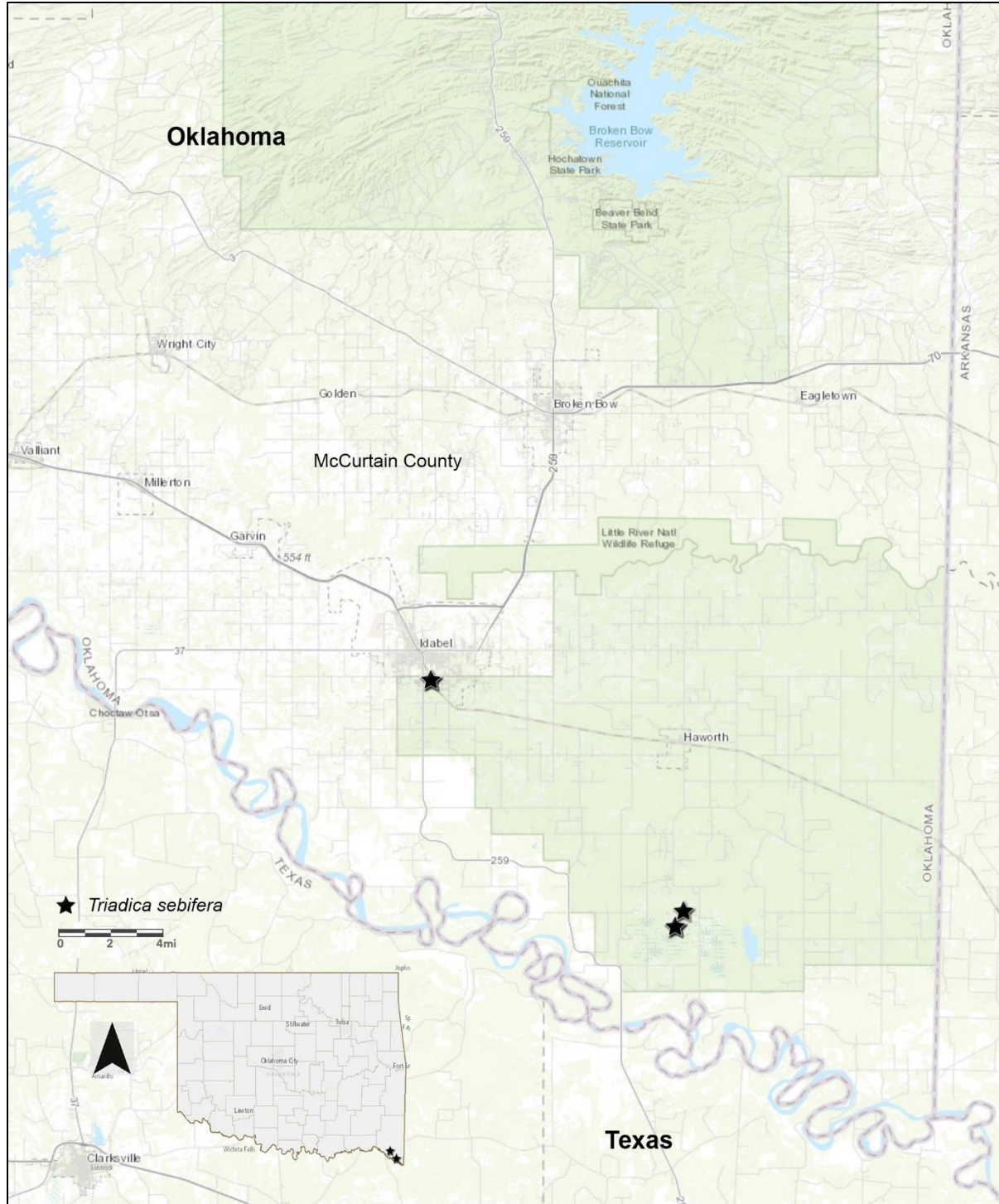


Figure 1. Locations of *Triadica sebifera* in Oklahoma.

Benjamin Franklin is frequently cited (or blamed) for its early appearance in the USA; he sent seeds to the Georgia colony in 1772, noting the tallow to be "a most useful Plant" (National Archives 2019). Most of the naturalized trees in the USA are instead, however, descended from seeds introduced in the early 1900s by the USDA for use as an oil crop and for soap-making (DeWalt et al. 2011; Miller 2003; USDA, NRCS 2019). In the USA today it is mainly utilized as an ornamental landscape plant. It also is a major nectar source for domesticated honeybees (Lieux 1975).



Figure 2. Fruiting specimen of *Triadica sebifera*, Red Slough Wildlife Management Area, McCurtain Co., Oklahoma.



Figure 3. Root sprouting of *Triadica sebifera*, Red Slough Wildlife Management Area, McCurtain Co., Oklahoma.

Triadica sebifera can grow in a variety of soil types and habitats. It readily spreads to wet areas, including the banks of rivers and streams, ditches, and coastal wetlands, and it is tolerant of high salinity, drought, shading, and flooding (Miller 2003; Texas Invasive Species Institute 2014). It can also grow in drier upland sites and has the ability to invade undisturbed forests, replacing entire stands of native trees (EDDMapS 2019; Wurdack 2016). The species is considered noxious in Florida, Louisiana, Mississippi, and Texas (USDA, NRCS 2019). The species produces great quantities of pollen, and its flower architecture allows it to be pollinated by several generalist species of bees (Clark & Howard 2019). Chinese tallow can form root sprouts, and its seeds are dispersed by birds and water (USDA, NRCS 2019).

ACKNOWLEDGEMENTS

We thank Jenna Messick (CSU) and Abby Moore (OKL) for reading this manuscript and providing useful suggestions and helpful edits and Mike Proctor (Noble Research Institute) for providing information on the Marshall County *Triadica* record.

LITERATURE CITED

- CABI. 2019. Invasive Species Compendium. CAB International, Wallingford, UK. <<http://www.cabi.org/isc>> Accessed 29 September 2019.
- Clark, J.W. and J.J. Howard. 2019. Pollination mechanisms in *Triadica sebifera* (Euphorbiaceae) in the southeastern United States. *J. Torrey Bot. Soc.* 146: 18–26.
- Comley, E. 2008. Noteworthy Collections: Kentucky. *Castanea* 73: 151.

- DeWalt, S.J., E. Siemann, and W.E. Rogers. 2011. Geographic distribution of genetic variation among native and introduced populations of Chinese tallow tree, *Triadica sebifera* (Euphorbiaceae). *Amer. J. Bot.* 98: 1128–1138.
- EDDMapS. 2019. Early Detection & Distribution Mapping System. The University of Georgia Center for Invasive Species and Ecosystem Health, Athens. <<http://www.eddmaps.org/>> Accessed 30 September 2019.
- National Archives. 2019. From Benjamin Franklin to Noble Wimberly Jones, 7 October 1772, Founders Online, National Archives, Washington, D.C. <<https://founders.archives.gov/documents/Franklin/01-19-02-0220>> Accessed 25 November 2019.
- Kartesz, J.T. 2014. Taxonomic Data Center. The Biota of North America Program (BONAP). Chapel Hill, North Carolina.
- Lieux, M.H. 1975. Dominant pollen types recovered from commercial Louisiana honeys. *Econ. Bot.* 29: 87–96.
- Miller, J.H. 2003. Nonnative invasive plants of southern forests: a field guide for identification and control. Gen. Tech. Rep. SRS-62. U.S. Department of Agriculture, Forest Service, Southern Research Station, Asheville, North Carolina.
- Texas Invasive Species Institute. 2014. Chinese Tallow. <<http://www.tsusinvasives.org/home/database/triadica-sebifera>> Accessed 26 November 2019.
- USDA, NRCS. 2017. The PLANTS Database. National Plant Data Team, Greensboro, North Carolina. <<http://plants.usda.gov>> Accessed 30 September 2019.
- Wurdack, K.J. 2016. *Triadica*. Pp. 226–227, in *Flora of North America* Editorial Committee (eds.). *Flora of North America North of Mexico*, Vol. 12, New York and Oxford.