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NEW ENGLAND NOTE

# A SIGNIFICANT NEW RECORD FOR *HYDRILLA VERTICILLATA* (HYDROCHARITACEAE) IN CENTRAL CONNECTICUT

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During a field trip to Coventry (Wangumbaug) Lake, Coventry, Connecticut on 23 September, 2015 we discovered fragments of the invasive aquatic plant *Hydrilla verticillata* (L.f.) Royle (hydrilla), which had washed ashore near the public boat launch (41°45′55.34″N, 72°18′34.70″W; WGS 84). The plants were recognized immediately as hydrilla by their whorls of 4–6 leaves, strongly serrate leaf margins, and abaxial midrib teeth, a combination of features distinguishing the genus from the closely-related *Egeria* Planch. and *Elodea* Michx. (Bowmer et al. 1995; Crow and Hellquist 2000). The presence of flower buds indicated that the fragments originated from established lake populations. One fragment was preserved for subsequent DNA analysis, with the others comprising a voucher specimen deposited in the George Safford Torrey Herbarium (CONN; *Les 1159*, CONN00193436). Following the report of our discovery to the Connecticut Department of Energy and Environmental Protection (DEEP), several established hydrilla beds (up to 19 $m^2$) eventually were located by DEEP contractors on 30 October, 2015 in the vicinity of the south island (William Foreman, DEEP, pers. comm.) within 750 m of our initial discovery area. Specific management plans have been implemented by DEEP (William Foreman, DEEP, pers. comm.) to eradicate the hydrilla.

The University of Connecticut Aquatic Plant Biology class, which has surveyed this site biennially since the early 1990s, had never before observed hydrilla in the lake. Since 2008 (and most recently in 2014), vegetation surveys of Coventry Lake by staff of the Connecticut Agricultural Experiment Station also had not encountered hydrilla (CAES 2014), which further suggests a relatively recent introduction. Two North American introductions of hydrilla have been documented by the presence of discrete genetic lineages—a dioecious (but female) biotype and a monoecious biotype. Our molecular analysis (following Benoit 2011; sequences deposited in GenBank: accession numbers

KU242358, KU242359) identified the Coventry Lake hydrilla as the monoecious biotype, which already was known from other Connecticut localities following its initial discovery near Mystic in 1989 (Les et al. 1997). Monoecious hydrilla has spread rapidly in North America since it was first documented from the Potomac River in 1976 (Rybicki et al. 2013) and currently it occurs in all Atlantic coastal states (except New Hampshire) from Georgia to Maine (EDDmapS 2015; Owens et al. 2012; Shearer 2014). Its extensive inland progression also includes Alabama, California (widely disjunct), Indiana, Iowa (eradicated?), Kansas, Kentucky, Missouri, Ohio, Pennsylvania, Tennessee, Washington (eradicated?), West Virginia, and Wisconsin (eradicated?). Both biotypes presently co-occur in Alabama, California, Georgia, North Carolina, South Carolina, Tennessee, and Virginia (Alix and Scribailo 2009; Netherland and Greer 2014; Owens et al. 2012; Shearer 2014). The dioecious biotype was first introduced to Florida around 1953 (Schmitz et al. 1991) and spread mainly in the Southeast and along the Gulf Coast, with disjunct populations in California, Idaho, and Kentucky (Alix and Scribailo 2009; Madeira et al. 2007; Owens et al. 2012; Rybicki et al. 2013). It remains unknown from Connecticut.

The Coventry Lake hydrilla population is particularly significant compared to previous Connecticut localities from the Silvermine River (Fairfield County) and a few small, private water bodies in other southern counties (New Haven and New London). In contrast to those occurrences, Coventry Lake is a large (approximately 151 ha), densely populated lake, with a public boat launch (CAES 2014). It is the closest, moderately sized, recreational water body with public access within the greater Hartford area (Clausen and Thomas 2013). Since the early 1800s, it has provided a diverse range of recreational activities such as boating, fishing, rowing, swimming and waterskiing to local residents and seasonal users.

The source of hydrilla in Coventry Lake is unknown, but it likely resulted from the inadvertent transport of fragments into the lake on boating equipment, or by the careless disposal of aquarium plants. Given the high recreational use of Coventry Lake, the presence of hydrilla considerably increases the likelihood that this invasive species will be dispersed to other water bodies in the region through transport of fragments on boating or other recreational equipment. Accordingly, the potential threat of hydrilla introductions to other water bodies in the region cannot be underestimated. Although other Connecticut hydrilla populations have remained relatively stable (Capers et al. 2005), this new record serves as a timely reminder that lake users, managers, and botanists alike should remain vigilant for this species.

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