EXTIRPATED *GLYCERIA ACUTIFLORA* NEWLY DISCOVERED IN KENT COUNTY, MICHIGAN

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ABSTRACT

Glyceria acutiflora Torr., a species that was previously listed as extirpated from the state of Michigan, has been rediscovered in a bog in Kent County. *Glyceria acutiflora* was last documented in Michigan by Clarence and Florence Hanes in 1947 and published in *Flora of Kalamazoo County.* Although this species occurs in much of the eastern United States, throughout its range it is consistently uncommon to rare. The discovery of *Glyceria acutiflora* in a small Kent County wetland underscores the importance of preserving and protecting our natural areas and the biodiversity they hold.

Keywords: *Glyceria*, extirpated, wetland, prairie peninsula

INTRODUCTION

In 1947 Clarence and Florence Hanes published *Flora of Kalamazoo County* in which they documented over 50 state records for Michigan including a Brady Township collection of *Glyceria acutiflora* Torr. (Hanes and Hanes 1947). This specimen, initially collected in 1935 (Hermann 1936), along with one by F.W. Rapp in a nearby location in Schoolcraft Township, represent the only known collections of this species in Michigan (McKenna 2004). Previously, *Glyceria acutiflora* had been attributed to Michigan by Hitchcock (1950) but no specimens were referenced and the species did not appear on any statewide distribution maps. Although no additional specimens were found after 1947, *Glyceria acutiflora* was still listed as "threatened" in 1977 (Wagner et al. 1977). However, given such limited documentation and subsequent habitat loss in proximity to where the Hanes specimen was collected in Kalamazoo County, by 1999 *Glyceria acutiflora* was presumed to be extirpated from the state (DNR 1999). Now, nearly 70 years after it was first collected in Michigan, and a decade after it was listed as extirpated, *Glyceria acutiflora* has again been found, this time in Cannon Township of Kent County.

MATERIALS AND METHODS

The first record was collected in a bog moat on private property ½ mile south of 10 Mile Rd. in Kent County, Michigan (46˚6′N, 85˚28′W, T8N, R10W, NE ¼ of Sec. 3) on June 23, 2000. It was found at this time during a floristic inventory of the townships surrounding the city of Grand Rapids. Additional specimens were collected in the summer of 2003, one of which was sent to the University of Michigan Herbarium (MICH) for confirmation and remains there as a voucher specimen (David

FIGURE 1. Habitat location for *Glyceria acutiflora:* grassy moat area surrounding a *Chamaedaphne calyculata* dominated bog mat.

Warners #2041). Additional voucher specimens are housed in the Herbarium of Calvin College in Grand Rapids (David Warners NAI #307 and #2042-2044).

The bog mat of this site is heavily dominated by leatherleaf (*Chamaedaphne calyculata)* and surrounded by a moat (Figure 1). *Glyceria acutiflora* was growing in the open water of the moat at water depths of approximately 1–2 ft. with a loose mucky substrate at the bottom. This habitat is consistent with the habitat descriptions in several floras reported as "shallow water" and "wet soil" (Hitchcock 1950, Voss 1972, Hanes 1947). At this site, two populations were discovered on opposite ends of the bog, one with approximately 60 culms and the other with approximately 45 culms. In both populations *Glyceria actutiflora* was growing in the deepest water intermingling with G*lyceria borealis* further away from the open water. Found nearby were yellow pond lily (*Nuphar variegata),* threeway sedge *(Dulichium arundinaceum),* floating mannagrass (*Glyceria septentrionalis),* alkali grass (*Puccinellia pallida)*, and wheat sedge (*Carex atherodes*). The bog was surrounded by relatively undisturbed upland oak woodland.

Glyceria acutiflora is a perennial grass that is very slender and rhizomatous with culms

FIGURE 2. Flowering culm of *Glyceria acutiflora* (foreground) with *Juncus effusus,* growing in approximately 50–75 cm of standing water.

50–80 cm in length (Figure 2). Much of the plant grows horizontally on the surface of standing water with the terminal inflorescence 10–20 cm long, erect and exposed above the water. *Glyceria acutiflora* can be distinguished from other wetland/aquatic *Glyceria*—including the recent noteworthy collection of *Glyceria melicaria* (Rafaill 2008)—by its unusually extended palea which projects well beyond the tip of the lemma. This taxon is also more delicate and lax than other *Glyceria* found in Michigan and seems to prefer deeper water than any of its congeneric relatives.

RESULTS AND DISCUSION

South and east of Michigan *Glyceria acutiflora* is found somewhat more commonly although never in abundance. Its range is known to include all of

New England, several southeastern states, and a portion of southern Missouri (Gleason and Cronquist 1991). *Glyceria acutiflora* has also been documented in eastern Asia (Koyama, and Kawano 1964). It seems that the species is most abundant in the New England portion of its range; however, it is a listed species in 9 states including, Maine, Vermont and New Hampshire. The notable absence of *Glyceria acutiflora* from Illinois makes its documented range seem rather strange especially given that it is found in all of Illinois' neighbors to the east and in Missouri to the southwest. Stuckey has postulated that this pattern is the result of the warm dry xerothermic period during which many of the aquatic plants of the prairie peninsula were lost. In support of his hypothesis the range maps of *Glyceria acutiflora* correlate with those of several other aquatic or wetland species found around and east of the Mississippi river; among these are New England bulrush (*Scirpus subterminalis*), ribbonleaf pondweed *(Potamogeton epihydrus),* and Torrey's bulrush (*Scirpus torreyi)* (Stuckey 1983).

Although *Glyceria acutiflora* is by no means an abundant plant, its lack of documentation could be attributed in part to its inconspicuous habit and preference for open water and mucky substrate—a difficult habitat to traverse (Figure 1). Its vegetative similarity to the more common small floating mannagrass (*Glyceria borealis*) may also contribute; although, when reproductive material is present, the bifid-tipped palea surpassing the lemma by up to 3mm makes it possible to distinguish between the two even without a hand lens.

Further exploration of the relative abundance of *Glyceria acutiflora* at this new site in Kent County is certainly warranted. Also, its existence in nearby wetland areas will be assessed. Interestingly, close inspection of satellite maps of the area in Kalamazoo County where F. W. Rapp's specimen was purported to have been found (Hanes and Hanes 1947) reveals a large natural area containing a distinct wetland nearby. This site should also be explored for the possible presence of *Glyceria acutiflora*. For plants that are as rare as this taxon every effort should be made to discover and preserve all genetic lineages if long term conservation of the species is to be a realizable goal.

Discussions with the property owners concerning the preservation of the Kent Co. parcel have taken place although no significant measures have developed at this time. Along with efforts to preserve the site, further research into the genetic diversity of this population and its fertilization requirements is warranted in order to assess its long term conservation potential.

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