Note

Round-fruited St. John's-wort (*Hypericum sphaerocarpum*, Hypericaceae) in Canada

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Abstract

Round-fruited St. John's-wort (*Hypericum sphaerocarpum*), a native North American herbaceous, perennial vascular plant, is reported from four sites in southern Ontario, Canada. All four sites are along abandoned railway lines. Although the rich association of native flora suggests native status at one site, *H. sphaerocarpum* is believed to be introduced elsewhere in its Canadian range in Ontario.

Key words: Round-fruited St. John's-wort; *Hypericum sphaerocarpum*; Hypericaceae; Ontario; Canada; range extension; railway

Round-fruited St. John's-wort (*Hypericum sphaerocarpum* Michaux) is native to the midwestern and southern United States from Oklahoma east to southeastern Ohio and from southern Wisconsin south to Mississippi and Alabama (Robson 1996, 2015). Here, we report four records of *H. sphaerocarpum* from southern Ontario, Canada (Figure 1; see "Voucher specimens" below), representing a northeastern extension of the species' range. *Hypericum sphaerocarpum* is not listed for Canada by Scoggan (1978–1979) or Gillett and Robson (1981), and its inclusion in later publications, e.g., Morton and Venn (1990), Newmaster *et al*. (1998), and Robson (2015), is based on the records reported here.

Hypericum sphaerocarpum can be distinguished from other Ontario *Hypericum* species by the combination of its being herbaceous, 10–30 cm tall, having pinnately veined leaves 3.5–7 cm long, flowers <3 cm broad with more than 20 stamens and lacking black spots or streaks on the petals, and styles joined to form a beaked fruit (Robson 1996, 2015).

It was first discovered in Ontario and Canada on 19 September 1983 by M.J.O. along the then-active Canada Southern Railway (CSR), near Essex, Essex County. The species was well established, locally common along the edge of the tracks, and spreading to the adjacent ditch edge. Associates were mainly typical weedy species for this location and habitat: Spreading Dogbane (*Apocynum androsaemifolium* L.), Common Milkweed (*Asclepias syriaca* L.), Wild Carrot (*Daucus carota* L.), Common Teasel (*Dipsacus fullonum* L.), Slender Cottonweed (*Froelichia gracilis* (Hooker) Moquin-Tandon), Butter-and-eggs (*Linaria vulgaris* Miller), Kentucky Bluegrass (*Poa pratensis* L.), Prickly Russian-thistle (*Salsola tragus* L.), Bouncing-bet (*Saponaria officinalis* L.), goldenrod (*Solidago* sp.), and Yellow Goatsbeard (*Tragopogon dubius* Scopoli). The discovery of *F. gracilis* (Amaranthaceae) at this location also represented an addition to the Canadian flora (Oldham and Sutherland 1988). The CSR was abandoned between 2000 and 2010 (C. Cooper pers. comm. 28 January 2018). The site was revisited by M.J.O. on 24 July 1984 and 16 August 2012 and *H. sphaerocarpum* was found to be still present.

The second discovery of *H. sphaerocarpum* in Ontario was on 17 September 1992 by M.J.O. and J.M. Bowles along the Sydenham River near Arkona, Middlesex County. The population was locally common and growing in a moist prairie remnant along an embankment of the abandoned Grand Trunk Railroad (GTR) Sarnia line with a variety of habitat-specific, provincially and regionally rare native species (Oldham and Brinker 2009; Oldham 2017). These included Big Bluestem (*Andropogon gerardii* Vitman), Prairie Straw Sedge (*Carex suberecta* (Olney) Britton), Stiff Gentian (*Gentianella quinquefolia* (L.) Small), Fringed Gentian (*Gentianopsis crinita* (Froelich) Ma), Sharp-fruited Rush (*Juncus acuminatus* Michaux), Wiry Panicgrass (*Panicum flexile* (Gattinger) Scribner), Old Switch Panicgrass (*P. virgatum* L.), Little Bluestem (*Schizachyrium scoparium* (Michaux) Nash), Carpenter's Square Figwort (*Scrophularia marilandica* L.), Small Skullcap (*Scutellaria parvula* Michaux var. *parvula*), Yellow Indiangrass (*Sorghastrum nutans* (L.) Nash), Prairie Cordgrass (*Sporobolus michauxianus* (Hitchcock) P.M. Peterson & Saarela), and Nodding

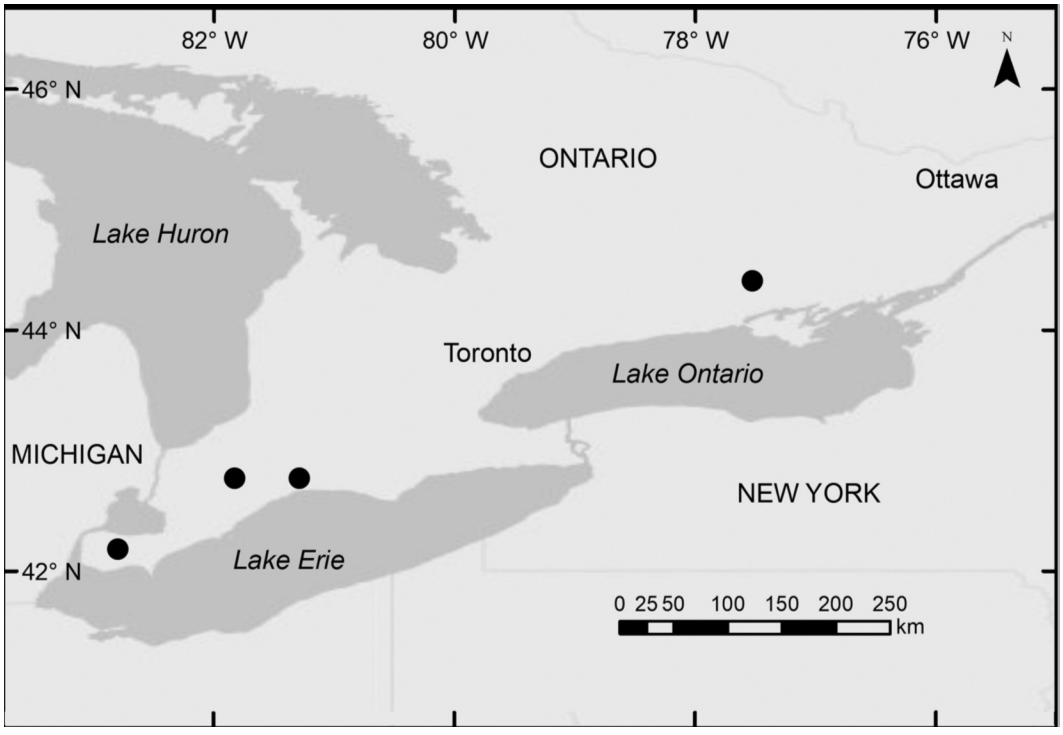

FIGURE 1. New locations for Round-fruited St. John's-wort (*Hypericum sphaerocarpum*) in Ontario, Canada.

Ladies'-tresses (*Spiranthes cernua* (L.) Richard). This population of *H. sphaerocarpum* was considered potentially native to the province by Oldham and Brinker (2009) based on its association with rare and ecologically conservative native species (Oldham *et al.* 1995) of prairie and southern affinity; its location adjacent to a rich floodplain woods containing many other rare native species (Bowles 1992); and its relative proximity (about 175 km) to a presumed native population in southeastern Michigan (Voss and Reznicek 2012).

The third Ontario population to be discovered was found on 27 June 2015 by S. and J. Blaney along a recreational trail occupying the former Pere Marquette Railway near Ivanhoe Station, Hastings County. The site was visited by M.J.O. on 8 July 2015, when the plants were in bud and on 26 July 2015 when they were in flower (Figures 2 and 3). This population was associated with weedy and primarily non-native species typical of the area and habitat, including Yarrow (*Achillea millefolium* L. *sensu lato*), Wild Carrot, Common St. John's-wort (*Hypericum perforatum* L.), Oxeye Daisy (*Leucanthemum vulgare* Lamarck), Garden Bird's-foot Trefoil (*Lotus corniculatus* L.), Tall Goldenrod (*Solidago altissima* L.), Panicled Aster (*Symphyotrichum lanceolatum* (Willdenow) G.L. Nesom), Colt's-foot (*Tussilago farfara* L.), and Tufted Vetch (*Vicia cracca* L.). The Hastings County population is located more than 350 km from the next nearest occurrence and is the most northern and eastern known population of the species (Robson 1996).

The most recent Ontario discovery of *H. sphaerocarpum* in Ontario was made on 1 September 2017, by W.D.V. along the former Canadian Pacific Railway Ontario and Quebec line near Paynes Mills, Elgin County. The site was revisited on 3 September 2017, when fruiting material was collected. This population consisted of approximately 100 plants and was growing directly in railway ballast on the bed of a decommissioned railway. Associated species were typical of similar decommissioned railways and common in the area; they included knapweed (*Centaurea* spp.), Wild Carrot, Small-flowered Evening Primrose (*Oenothera parviflora* L.), Wild Red Raspberry (*Rubus idaeus* L. ssp. *strigosus* (Michaux) Focke), and Tall Goldenrod.

In the core of its native range, *H. sphaerocarpum* occurs in a variety of habitats including wet and dry prairies, forest openings, roadsides, streambanks, cliffs, and fens (Steyermark 1963; Utech and Iltis 1970; Mohlenbrock 1978; Yatskievych 2006; Wilhelm and Rericha 2017). Some sources indicate an association with calcareous substrates (Svenson 1940; Adams 1962; Cooperrider 1989). The only known Michigan population, which is located in Monroe County, occurs in "openings of shrub thickets on the upper banks of a stream" (Voss and Reznicek 2012).

Some authors (e.g., Steyermark 1963; Mohlenbrock and Evans 1972; Mohlenbrock 1978) have recognized

FIGURE 2. Round-fruited St. John's-wort (*Hypericum sphaerocarpum*) along the former Pere Marquette Railway, now a recreation trail, on 26 July 2015. Photo: M.J. Oldham.

a more southern and eastern, bushy-branched variant of *H. sphaerocarpum*, named var. *turgidum* by Svenson (1940). The variety is characterized by having narrower leaves without lateral veins and with revolute margins. More recent authors have generally not recognized varieties in *H. sphaerocarpum*. Robson (2015) suggests that the narrow-leaved, bushy form from eastern parts of the range (var. *turgidum*) merges with the typical form, and he does not recognize infraspecific taxa. Ontario plants are variable with respect to leaf width, venation, and whether the margins are revolute, which could suggest multiple origins for the Ontario populations.

Adventive populations of *H. sphaerocarpum* can apparently persist for some time. The Elgin County population was discovered 46 years after abandonment of the associated rail line and the Hastings County population was discovered 27 years after abandonment of that line. The Essex County population persisted for at least 29 years after its original discovery and for 2–12 years after abandonment of the CSR line. The Middlesex County population persisted for at least seven years after abandonment of the GTR Sarnia line. Some of these rail lines and their embankment habitat date back to the early 1850s (C. Cooper pers. comm. 28 January 2018) and, thus, assuming that *H. sphaerocarpum* and other prairie-affinity species were not already present in nearby remnant prairie areas no longer extant, they could have become established at any time over the last 180–200 years. Whether *H. sphaerocarpum* is native to Canada may never be fully known. Although some evidence (noted above) suggests that the Middlesex County population is native, the presence of three of the four known populations in weedy situations along railway embankments suggests that the other populations are adventive in Canada.

Voucher specimens

Canada, Ontario, Essex Co., Canada Southern Railway line, 2 km northeast of Essex, 42.181°N, 82.799°W, 19 September 1983, *M.J. Oldham 4087* (TRTE; identified by A.A. Reznicek); 24 July 1984, *M.J. Oldham 4390* (MICH, NHIC 03481); 16 August 2012, *M.J. Oldham 40456* (NHIC 03586, TRT).

Canada, Ontario, Middlesex Co., Sydenham River, 5.7 km south-southeast of Alvinston, 42.772°N, 81.835°W, along an embankment of the abandoned Grand Trunk Railroad Sarnia line, 17 September 1992, *M.J. Oldham and J.M. Bowles 14419* (MICH, NHIC

FIGURE 3. Close-up of flowers of Round-fruited St. John's-wort (*Hypericum sphaerocarpum*). Photo: M.J. Oldham.

03535); 13 July 1993, *M.J. Oldham and J.M. Bowles 15136* (NHIC 03484).

Canada, Ontario, Hastings Co., former Pere Marquette Railway now recreation trail, 5 km west of Ivanhoe Station, 44.413°N, 77.528°W, 27 June 2015, *S. Blaney and J. Blaney* (photos iNaturalist: https://www.inaturalist.org/observations/4621216); 8 July 2015, *M.J. Oldham 43039* (CAN, TRT); 26 July 2015, *M.J. Oldham 43092* (CAN, DAO, MICH, NHIC 03379, TRT).

Canada, Ontario, Elgin Co., 2 km southwest of Paynes Mills, along the former Canadian Pacific Railway Ontario and Quebec line, 42.773°N, 81.294°W, 1 September 2017, *W.D. Van Hemessen* (photos iNaturalist: https://www.inaturalist.org/observations/7747872); 3 September 2017, *W.D. Van Hemessen 114* (NHIC 03430).

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