

Square-stalked St. John's-wort, *Hypericum tetrapterum*, in Peel Region, Ontario: a New Non-native Vascular Plant Species for Eastern North America

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The Eurasian Square-stalked St. John's-wort (*Hypericum tetrapterum* Fr.: Hypericaceae) was found growing in an open Eastern White Cedar (*Thuja occidentalis* L.) swamp in Caledon, Regional Municipality of Peel, Ontario. This is the first record for eastern North America; previous North American occurrences have been on the Pacific coast in Vancouver, British Columbia, Canada (1991), and in Wahkiakum County, Washington State, USA (2003).

Key Words: *Hypericum tetrapterum*; Square-stalked St. John's-wort; Hypericaceae; vascular plant; Peel Region; Ontario; Canada; new record; non-native

During July 2015 field surveys for the Credit Valley Conservation Natural Areas Inventory Program, a few hundred plants of Square-stalked St. John's-wort, *Hypericum tetrapterum* Fr. (Hypericaceae or sometimes placed in Clusiaceae or Guttiferae), were discovered growing in a wooded swamp on private property close to provincial Highway 10, approximately 20 km north of Brampton, in Caledon, Regional Municipality of Peel, Ontario. This species has not previously been documented in Ontario (Morton and Venn 1990; Newmaster *et al.* 1998) or elsewhere in eastern North America (Gillett and Robson 1981; Kartesz 2015; Robson 2015).

In its native range, this rhizomatous herbaceous perennial grows in damp to wet habitats, including marshes, streambanks, open ditches, wet meadows, and springs (Robson 2002). *Hypericum tetrapterum* is most easily distinguished from other North American *Hypericum* species by its square stem, which is conspicuously winged on the four corners and by its lanceolate sepals (Figures 1–3). Black glands occur on the yellow petals, anthers, and stem leaves. The clasping leaves have translucent dots. *Hypericum tetrapterum*, also known as St. Peter's Wort, is a common native species in central and southern Europe, western Asia, and northwestern Africa (Robson 2002). It has been introduced into New Zealand (Heenan 2014) and parts of Australia, where it has been declared an invasive weed (Australian Government n.d.).

The first North American report was by Lomer (1997) who found the species in 1991 growing as a weed in a ditch and along a small stream in the University of British Columbia Botanical Garden, Vancouver,

British Columbia. Zika (2004) reported it from Wahkiakum County, Washington, where he found it in 2003 rooted on drift logs in a freshwater intertidal marsh and as a weed in sunny disturbed ground. The species is mentioned by Robson (2015) in the Flora of North America, volume 6, but only in the introduction to the genus *Hypericum*, where it is reported from British Columbia and Washington.

In the Peel Region, Ontario, several nearby populations of *H. tetrapterum*, each made up of a few dozen plants, were found growing in an open Eastern White Cedar (*Thuja occidentalis* L.) swamp. The swamp appeared to have been disturbed in the past, as evidenced by an old non-operational dam at the private property boundary where a small cold water stream flowed. In addition, an abundance of non-native species, such as Coltsfoot (*Tussilago farfara* L.) and Purple Loosestrife (*Lythrum salicaria* L.), and the weedy, native Field Horsetail (*Equisetum arvense* L.), were found throughout the site. The open nature of the swamp suggests that logging, grazing by livestock, or both, have occurred in the past. No recent disturbance was evident.

Hypericum tetrapterum grows in association with many native species, including Royal Fern (*Osmunda regalis* L.), Clinton's Wood Fern (*Dryopteris clintoniana* (D. C. Eaton) Dowell), Water Horsetail (*Equisetum fluviatile* L.), Dwarf Scouring-rush (*Equisetum scirpoides* Michaux), Smooth-sheathed Sedge (*Carex laevivaginata* (Kükenthal) Mackenzie), Bristle-stalked Sedge (*Carex leptalea* Wahlenberg), Fringed Brome (*Bromus ciliatus* L.), Short-tailed Rush (*Juncus brevicaudatus* (Engelmann) Fernald), American Marsh Pennywort (*Hydrocotyle americana* L.), Common Boneset

(*Eupatorium perfoliatum* L.), Spotted Joe Pye Weed (*Eutrochium maculatum* (L.) E. E. Lamont), Bog Goldenrod (*Solidago uliginosa* Nuttall), Glossy-leaved Aster (*Symphotrichum firmum* (Nees) G. L. Nesom), Great Blue Lobelia (*Lobelia siphilitica* L.), and Lesser Clearweed (*Pilea fontana* (Lunell) Rydberg).

One can only speculate why these *H. tetrapterum* populations are found at this location and not elsewhere in eastern North America. The site is not immediately near any human settlements or railways. Pioneer farmers settled in this area starting in 1820 with the first concessions opened along Hurontario Street, now prov-



FIGURE 1. Square-stalked St. John's-wort (*Hypericum tetrapterum*) growing in a moist opening in an Eastern White Cedar swamp, Peel Region, Ontario. Photo taken on 29 July 2015. Photo: C. P. Cecile.



FIGURE 2. Note the winged stem, lanceolate sepals, and black glands on stem and leaves of this Square-stalked St. John's-wort (*Hypericum tetrapterum*). Photo taken in Peel Region, Ontario, on 29 July 2015. Photo: C. P. Cecile.



FIGURE 3. Note the lanceolate sepals and black glands on the anthers of this Square-stalked St. John's-wort (*Hypericum tetrapterum*). Photo taken in Peel Region, Ontario, on 11 August 2015. Photo: M. J. Oldham.

incial Highway 10 (Caledon n.d.). These early settlers came primarily from the British Isles where *H. tetrapterum* is a common native species (Stace 1997).

Further investigation would be needed to ascertain why the related non-native *Hypericum perforatum* has become so widespread in eastern North America while *H. tetrapterum* has not. It is of interest that another Eurasian *Hypericum* species, Hairy St. John's-wort (*H. hirsutum* L.), was recently reported for the first time in North America, also from the Greater Toronto Area (Heydon *et al.* 2011).

Voucher Specimens

Canada, Ontario, PEEL REGIONAL MUNICIPALITY, Town of Caledon, Forks of the Credit Road, west of Highway 10, few hundred plants growing in open canopy Eastern White Cedar swamp in wet organic muck soil, 27 July 2015, *Charles Cecile 139* (HAM, OAC); west of Hurontario Street (Highway 10), south of Forks of the Credit Road, 50–100+ scattered flowering plants in open moist Eastern White Cedar woods, 11 August 2015, *M. J. Oldham and C. P. Cecile 43130* (BABY, CAN, DAO 903346 (barcode 01-010006939 75), MICH 1514513, NHIC, TRT).

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