

# Botanical Notes

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## FIRST REPORT OF *SYMPHYOTRICHUM* *ANTICOSTENSE* × *S. NOVI-BELGII* FROM THE UNITED STATES

In 1998, *Symphyotrichum anticostense* (Fern.) Nesom was re-located in the United States after nearly a century of not known being extant in the country (Haines 2000). The site was along an ice-scoured section of shoreline of the Aroostook River in Caribou, Maine (Aroostook County), upstream of the historical site in Fort Fairfield where numerous collections were made and deposited in regional herbaria around and shortly after the turn of the previous century (usually under the name *Aster junceus*). Despite being known from the St. John River in Canada (Labrecque and Brouillet 1996), this American-aster had not been observed on that river in Maine despite many miles of appropriate habitat and years of searching.

While preparing for field surveys in 1998, I encountered a specimen at MAINE collected from the St. John River identified as *Symphyotrichum boreale* (as *Aster borealis*). In Maine, *S. boreale* is a faithful fen species. While several other plants typical of fens do show up on seepy, high pH substrate on the St. John River (e.g., *Parnassia glauca*), *S. boreale* does not appear to be one of them. The collection—Aug 1982, *Vickery s.n.* (MAINE)—appeared to be *S. anticostense* (Figure 1). However, at that time, I was somewhat equivocal about the specimen and did not annotate it.

The site where the Vickery collection was obtained is well-known for its suite of regionally rare species. I have searched this section of shoreline several times over the past two decades, but often I was not present late enough in the summer to have appropriate flowering material of the American-asters present. This year, on 5 August, given an early flowering of many species due to high

temperatures in the early portion of the growing season, individuals of *Symphyotrichum* were in flower and at an ideal stage for identification.



Figure 1. The *Vickery s.n.* (MAINE) collection of *Symphyotrichum anticostense* from the St. John River in Maine. Credit: University of Maine, Creative Commons 3.0.

Most of the shoreline where Vickery collected the *Symphytotrichum anticostense* is inhabited by *S. novi-belgii* var. *villicaule*. These plants along the shoreline are primarily shorter than typical var. *novi-belgii*, have fewer capitula in the arrays, and have rather densely spreading-pubescent stems. The trichomes of the stem are more or less white, so they appear conspicuous from the darker background of the stem. *Symphytotrichum anticostense*, on the other hand, has nearly glabrous stems. Occasionally there are short lines of a few trichomes extending downward on the stem in decurrence from the leaf margins (and then this is usually only the case on the upper half of the stem). While there are many other characters that distinguish *S. anticostense* from *S. novi-belgii* var. *villicaule* at this site, this served as a relatively good starting point for distinguishing taxa. On this day, a small population of *S. anticostense* was observed very near where Vickery had collected a plant in 1982 (Figure 2). This represents the third United States collection of the globally rare species and the first known occurrence from the St. John River in the United States.



Figure 2. *Symphytotrichum anticostense* collected on the St. John River in Allagash, Maine—5 Aug 2021, Haines and Moore s.n. (GH).

Also of interest at this site were several plants that appeared intermediate between *S. anticostense* and *S. novi-belgii* var. *villicaule*. Compared with *S. anticostense*, the plants showed broader (actually and

relatively) leaves with less rigid leaf blades that were not folded along the midrib in drying (Figure 3). Also, the pubescence of the stem was confined to patches, often in lines of decurrence from the leaf margins (Figure 4). To be clear, portions of the stem were glabrous, very unlike local plants of *S. novi-belgii* var. *villicaule* (Figure 5). Hybrids between *S. anticostense* and *S. novi-belgii* are known (Brouillet et al. 2006), but such hybrids have not been documented in the United States. High resolution images of the plants were provided to Luc Brouillet for confirmation of the identification.



Figure 3. *Symphytotrichum anticostense* × *S. novi-belgii* var. *villicaule* from the St. John River in Maine.



Figure 4. Pubescence of the distal portion of stem of *Symphyotrichum anticostense* × *S. novi-belgii* var. *villicaule*.



Figure 5. Pubescence of the distal portion of stem of *Symphyotrichum novi-belgii* var. *villicaule*.

The hybrid between *Symphyotrichum anticostense* and *S. novi-belgii* is here described.

***Symphyotrichum* × *saramooreae* A. Haines**, nothosp. nov.

**Holotype:** United States. Maine. Aroostook County, Allagash, north shore of St. John River in vicinity of confluence with Walker Brook, downstream of rest area pullout, 5 Aug 2021, *Haines & Moore s.n.* (GH).

**Paratypes:** Canada. Quebec. Grand-Rivière, comté de Gaspé, 8 Août 1931, *Marie-Victorin, Rolland-Germain, and Jacques 44258* (MT; × var. *novi-belgii*). Matapédia, comté de Bonaventure, berges de la Matapédia et de la Ristigouche, 20 Août 1946, *Le Gallo 200* (MT; × var. *novi-belgii*). M.R.C. Bonaventure, Rivière Bonaventure, 4 Août 1985, *Brouillet and Labrecque 1432-3* (MT; × var. *novi-belgii*). M.R.C. Pabok, Grand-Rivière, 24 Août 1988, *Labrecque, Brouillet, et Whetsone 88-164* (MT; × var. *novi-belgii*). M.R.C. Avignon, Matapédia Ouest, sur la Rivière Ristigouche, 23 Août 1988, *Labrecque, Brouillet, and Whetstone 88-63* (MT; × var. *villicaule*). New Brunswick. Northumberland, north branch Renous River, upstream of Rocky Bk, 18 Aug 2007, *Blaney and Goltz 6679* (MT; × var. *novi-belgii*).

**Description:** Rhizomatous, perennial, with leafy stems. Stems nearly glabrous in the lower portion, varying from +/- glabrous in the upper portion or with inconspicuous lines of hairs in decurrence from the leaf blade margins (× *novi-belgii* var. *novi-belgii*) or with hairs evident, in prominent lines of decurrence from the leaf blades to patches of pubescence on one side of the stem (× *novi-belgii* var. *villicaule*). Leaf blades usually ascending to erect, somewhat clasping the stem, narrow-oblongate to narrow-elliptic, 2.5–6.5(–13) mm wide in drying, 8.2–17 times as long as wide, toothed, sometimes remotely, with low, forward pointing teeth, herbaceous, not becoming folded in drying, though the margins sometimes becoming revolute. Capitula relatively few, (1–)3–21(–33) per capitulescence, on ascending to erect, pubescent peduncles (8–)24–52 mm long. Involucre (4.5–)5–8 mm tall. Involucral bracts chartaceous at base and with a green apex, infrequently some infused with anthocyanic pigments, also infrequently some of the outer ones green nearly throughout. Rays 8–13 mm long, blue, (23–)27–35 per capitulum. Disk flowers with lobes 17–22% of the total limb length.

**Etymology:** This nothospecies is named for Sara Kaitlin Moore, my wife and companion on many trips to the wilderness areas of Maine. The name is to commemorate her unique and beautiful person, demonstrate her appreciation for the Standing People, and offer gratitude for her willingness to walk with me in life. She is as rare and lovely as this newly named nothospecies.

**Distribution:** This hybrid American-aster is known from the United States in northern Maine and in Canada within the provinces of New Brunswick and Quebec.

Identification of *Symphyotrichum*  $\times$ *saramooreae* (Figure 6) is not complicated in the field where the range of measurements and shapes of each putative parent can be examined and assessed for intermediacy. Given that each of the orthospecies contributing to the genome of *S.*  $\times$ *saramooreae* is capable of variation (especially *S. novi-belgii*), providing a range of measurements is less valuable and potentially misleading at any given site. For example, the primary leaf blades of *S. anticostense* at the type location for *S.*  $\times$ *saramooreae* were 1.9–2.8 mm wide in drying. Those of the hybrid were 3.8–6 mm wide; therefore, these were easily distinguishable from *S. anticostense*. However, other collections of *S. anticostense* from Maine (specimens at GH!, MAINE!, VT!) have leaf blades to 6 mm in width. Therefore, it is the observations from each site that will be critical to determining intermediacy.



Figure 6. *Symphyotrichum*  $\times$ *saramooreae* from an ice-scoured shoreline on the St. John River.

While leaf and stem characteristics appear to be the most valuable for identification, the involucre bracts may also be helpful with the identification of *Symphyotrichum*  $\times$ *saramooreae*. On most plants of *S. novi-belgii* var. *villicaule* at the type locality, the outer involucre bracts were green throughout, sometimes quite foliaceous, and even spreading away from the capitulum (i.e., loose); whereas those of *S. anticostense* and *S.*  $\times$ *saramooreae* were mostly chartaceous at the base with a green tip and appressed. Only an occasional bract was green throughout in the hybrid. While this character does not hold up throughout the range of the hybrid, it was nonetheless valuable at this specific site.

*Symphyotrichum*  $\times$ *saramooreae* exhibits variation that is dependent on the variety of *S. novi-belgii* involved in the hybridization event. Those with variety *villicaule* have stem pubescence as described at the type locality. Those with variety *novi-belgii* have few hairs (if any) on the upper portion of the stem and, when present, only in narrow lines of decurrence from the leaf blade bases.

The latter hybrids are somewhat more difficult to distinguish and leaf blade characteristics become much more important for determinations.

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### OSHUNA, A NEW GENUS FOR THE WATER-HYACINTH

It has come to my attention that the genus *Piaropus* Raf. has the same type as the genus *Eichhornia* Kunth (Kanchi Gandhi, personal communication). In brief, this stems from the fact that Britton (1918) cited *Pontederia auzerea* (Sw.) Kunth as the type of *Piaropus*, which is also the type of the genus *Eichhornia* (a more extended discussion will be published at a later date by different authors). In a naming system in which *Piaropus crassipes* is placed in a separate genus from *Eichhornia* (see Haines 2020 for discussion and rationale), a new genus name is required for this species. In Pellegrini et al. (2018), a new subgenus (*Oshunae*) was created for this species. Raising this to the rank of genus is appropriate and necessary to make the naming system of Haines (2020) complete for the known species of *Pontederia s.l.*

*Oshuna*, nom. et stat. nov.

**Type:** *Pontederia crassipes* Mart.

**Based on:** *Pontederia* subgenus *Oshunae* M.Pell. & C.N.Horn. *PhytoKeys* 108: 61. 2018.

The genus *Oshuna*, which, like *Pontederia* subgenus *Oshunae*, has its name derived from the Yoruba word that represents the mother and guardian of freshwater bodies (Pellegrini et al. 2018), has a single species.

***Oshuna crassipes* (Mart.) A. Haines, comb. nov.**

**Basionym:** *Pontederia crassipes* Mart., Sp. Pl. 1: 9. 1823.

**Lectotype** (designated by Horn 1994): Brazil, Bahia, Provinciae Minas Gerais, in stagnis ad fl. St. Francisci prope Malhada, s.dat., *Martius 60* (M).

**Synonyms:** *Piaropus mesomelas* Raf., Fl. Tellur. 2: 81. 1837. *Eichhornia crassipes* (Mart.) Solms, Monogr. Phan. 4: 527. 1883. *Piaropus crassipes* (Mart.) Britt., Ann. New York Acad. Sci. 7: 241. 1893.

With the genus *Oshuna* named and the combination *Oshuna crassipes* (Figure 1) made, the taxonomic system that maintains *Pontederia* as distinct from *Cabania*, *Eichhornia*, and *Monochoria* (proposed in Haines 2020) is preserved.



Figure 1. Vegetative habit of *Oshuna crassipes*.

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