

NOTEWORTHY COLLECTIONS

INDIANA

Brachyelytrum aristosum (Michx.) P. Beauv. ex Trel. (Poaceae). Northern shorthusk, bearded short-husk or long-awned wood grass.

Previous knowledge. *Brachyelytrum aristosum* is a perennial grass of moist forests, steep wooded slopes, roadsides and fairly disturbed forest edges (Fernald 1950; Saarela et al. 2003; Stephenson & Saarela 2007). Within North America, *B. aristosum* is known from Ontario to Newfoundland and south to Minnesota, Michigan and Pennsylvania; it has also been observed in northwest Indiana, northeast Ohio and south through the Appalachians to the intersection of Tennessee, North Carolina and Georgia (Saarela et al. 2003; Stephenson & Saarela 2007; USDA NRCS 2009). Prior to this collection, only two collections of *B. aristosum* were known from Indiana, both from Porter County. The first is a 1924 collection made at Keiser stored in the United States National Herbarium at the Smithsonian Institution (*Lyon s.n.*) (Saarela et al. 2003). The second is a 2007 collection made in sandy woods in Indiana Dunes State Park (*M. Homoya 07-07-07-78, with R. Hedge*) (Homoya, pers. comm.). Common synonyms for this species include *B. aristosum* var. *glabratum* Vasey and *B. erectum* var. *septentrionale* Babel (Saarela et al. 2003; Tropicos 2009).

A native of northern North America, *Brachyelytrum aristosum* is a species of concern in Tennessee, where it is listed as Special Concern (USDA NRCS 2009). It is considered Globally Secure (G4G5) and locally secure throughout much of its range, but is considered very rare and imperiled (S2) in Tennessee (Crabtree 2008).

Significance of the report. In many older botanical works, *Brachyelytrum aristosum* is not taxonomically split from *B. erectum* (Schreb.) P. Beauv. or is recognized only at the varietal level. Deam (1940) did not note *B. aristosum* in Indiana, and Swink & Wilhelm (1994) made no mention of *B. aristosum* in the Indiana counties of the Chicago Region, although they did note the presence of specimens intermediate between *B. erectum* and *B. aristosum* in adjacent Berrien County, Michigan (Stephenson 1971). Saarela et al. (2003) provided evidence that *B. aristosum* and *B. erectum* are distinct species. Few collections of *B. aristosum* from Indiana exist, although this typically northern species is known to occur in states to the southeast of Indiana. This collection represents a new record for LaPorte County, Indiana, and raises interest as to the full geographical range of the species within the state. Populations of *B. aristosum* are being monitored and tracked by the Indiana Department of Natural Resources, and if warranted, the species will be added to the Indiana list of endangered, threatened and rare plants (Homoya, pers. comm.).

Diagnostic characters. In terms of gross morphology, *Brachyelytrum aristosum* looks similar to *B. erectum*. However, the lemmas of *B. aristosum* are

scabrous with hairs up to 0.2 mm long, whereas those of *B. erectum* are hispid with hairs 0.2 to 0.9 mm long (Saarela et al. 2003; Stephenson & Saarela 2007). All veins of the lemmas of *B. aristosum* are of equal proportions; the mid-veins of the lemmas of *B. erectum* are more prominent than the lateral veins (Saarela et al. 2003; Stephenson & Saarela 2007). In addition, the anthers of *B. aristosum* are 2 to 3.5 mm long, whereas those of *B. erectum* are 3.5 to 6 mm long (Saarela et al. 2003; Stephenson & Saarela 2007).

Specimen citations. LAPORTE CO.: Sebert County Park, 6 miles northeast of Michigan City, Indiana, on the south side of CR 925 N, ca. 0.6 mile west of CR 300 W. Uncommon in upland forest in southeastern portion of site. Associated species: *Acer rubrum*, *Actaea pachypoda*, *Arisaema triphyllum*, *Hamamelis virginiana*, *Lindera benzoin*, *Polygonatum pubescens*, *Prunus serotina*, *Sassafras albidum*, *Viburnum acerifolium*, *Vitis riparia*, 13 July 2008, SAN 487 (MOR). Same location, uncommon in mesophytic forest in southern portion of site. Associated species: *Acer rubrum*, *Arisaema triphyllum*, *Carex* sp., *Carpinus caroliniana* var. *virginiana*, *Circaea lutetiana* var. *canadensis*, *Lindera benzoin*, *Liriodendron tulipifera*, *Parthenocissus quinquefolia*, *Prenanthes* sp., *Quercus rubra*, *Smilacina racemosa*, *Solidago rugosa*, 26 July 2008, SAN 522 (MOR). Identifications verified by M. Homoya, Indiana Department of Natural Resources—Division of Nature Preserves.

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INDIANA

Myosotis arvensis (L.) Hill (Boraginaceae). Field forget-me-not, field scorpion-grass or common forget-me-not.

Previous knowledge. *Myosotis arvensis* is an annual or biennial herb native to Eurasia that is weedy in waste places, clearings and fields, shores, lawns,

old gardens and along wooded trails and roadsides, often in sandy soil (Deam 1940; Fernald 1950; Gleason & Cronquist 1991; Swink & Wilhelm 1994; Voss 1996). Within North America, *M. arvensis* occurs throughout the southern half of Canada and much of the northern half of the United States southeast to Tennessee and South Carolina, with the exception of North Dakota, South Dakota and Nebraska (USDA NRCS 2009). Prior to this collection, only three Indiana records of *M. arvensis* have been recorded. Deam (1940) noted that it was reported in 1892 by Benedict and Elrod on sandy ridges and in sandy fields in Cass County, but he excluded it from the flora because it had not been reported since that time. Thomas et al. (2005) reported it from Harrison County along the Ohio River based on a 2003 collection (*W.E. Thomas 953* [JEF]). A third collection was made in 2002 from Posey County by Allison Cusick (*Cusick 36080* [MO]) (Yatskievych, pers. comm.).

Significance of the report. Although *Myosotis arvensis* is known from Indiana and all surrounding states, this collection represents one of only three known extant locations for this species in the state. *Myosotis arvensis* does not show potential to become invasive, but this collection adds to the existing knowledge of the natural history of the species and raises questions about the origin and introduction of the species at this site.

Diagnostic characters. Many species in the genus *Myosotis* can look similar. *Myosotis arvensis* is separated from *M. scorpioides* L. and *M. laxa* Lehm. in having calyx hairs that are loose or spreading and hooked or gland tipped as opposed to straight, appressed and eglandular (Fernald 1950). *Myosotis arvensis* has nearly regular calyces and usually blue corollas, whereas *M. verna* Nutt. and *M. macrosperma* Engelm. have unequally cleft, 2-lipped calyces and small, white corollas (Fernald 1950). The pedicels of *M. arvensis* are as long as or longer than the calyces; in *M. stricta* Link ex Rohm. & Schult. and *M. discolor* Pers. they are shorter than the calyces at maturity (Fernald 1950). In *M. arvensis* the limb of the corolla is 1.5 to 4 mm broad and spreading-ascending; *M. sylvatica* Ehrh., the species with which *M. arvensis* can most easily be confused, has corolla limbs 5 to 8 mm broad and flat (Fernald 1950). Swink & Wilhelm (1994) state that the pedicels of *M. arvensis* are subequal to exceeding the calyces, whereas those of *M. sylvatica* are shorter than the calyces. Voss (1996) notes that distinguishing between these two species using abundance of hairs, nutlet size, and calyx characters is difficult using pressed material.

Specimen citation. ST. JOSEPH CO.: St. Patrick's County Park, 17 May 2008, *SAN 247*, collected with *D. Marr*, *V. Riemenschneider* and *A. Schnabel* (MOR).

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MICHIGAN

Cardamine impatiens L. (Brassicaceae). Narrowleaf bittercress or touch-me-not bitter-cress.

Previous knowledge. *Cardamine impatiens*, an annual or biennial herb native to Eurasia, occurs in eastern North America in wet and mesic woods, along rivers and streams, in thicket margins and in shaded grasslands and wet meadows, often on calcareous substrates (Fernald 1950; Voss 1985; Glenn & Barringer 2004). It has also been observed along roadsides, footpaths and in lawns (Glenn & Barringer 2004). *Cardamine impatiens* is invasive in North America, where it occurs in the Canadian provinces of Ontario and New Brunswick and throughout the northeastern United States (with the exceptions of Maryland and Rhode Island) south to North Carolina and west to Kentucky and Michigan (USDA NRCS 2009).

Cardamine impatiens is considered a noxious weed and is banned from introduction into Connecticut and Massachusetts (USDA NRCS 2009).

Significance of the report. Before this collection, the known distribution of *Cardamine impatiens* in Michigan was limited to the vicinity of Ann Arbor in Washtenaw County (Voss 1985; USDA NRCS 2009) and Oakland County (Reznicek, pers. comm.), more than 150 miles from Berrien County. The location of this collection is just 5 miles north of the Indiana-Michigan state line; *C. impatiens* is currently known in Indiana only from Clark County, along the Ohio River (*W.E. Thomas 2742* [JEF]) (Thomas, pers. comm.). Voss (1985) noted that this species doubtless would become more widespread. Given its invasive potential in the Great Lakes states, it is important to track the continued spread of *C. impatiens* and to make natural resource managers aware of its presence.

Diagnostic characters. *Cardamine impatiens* is distinctly different from related species (Figure 1). It is most similar to *C. flexuosa* With., *C. hirsuta* L., *C. parviflora* L., *C. pennsylvanica* Muhl. ex Willd. and *C. pratensis* L., all of which have compound or highly dissected leaves. *Cardamine impatiens* can be distinguished from *C. pratensis* by length of petals (absent to 2.5 mm long in *C. impatiens*, 8 to 15 mm long in *C. pratensis*) (Fernald 1950). *Cardamine flexuosa*, *C. hirsuta*, *C. pennsylvanica* and *C. parviflora* all lack the sagittate-auriculate leaf bases present in *C. impatiens*, and the leaflets of these four species are mostly blunt (as opposed to often acuminate in *C. impatiens*) (Fernald 1950).

Specimen citations. BERRIEN CO.: Life Action Ministries Woods, just west of Niles-Buchanan Road and US-31, 41°49'N, 86°19'W. Common in



FIGURE 1. *Cardamine impatiens*, Berrien County, Michigan. Photo by Scott Namestnik.

walking path through somewhat degraded mesic woods leading towards St. Joseph River; also in woods adjacent to trail. Associated species: *Acer saccharum*, *Asplenium platyneuron*, *Carex cephalophora*, *Carex grisea*, *Carex rosea*, *Carex sparganioides*, *Carex swanii*, *Carya cordiformis*, *Circaea lutetiana* var. *canadensis*, *Cryptotaenia canadensis*, *Erigeron annuus*, *Festuca elatior*, *Fragaria virginiana*, *Fraxinus pennsylvanica* var. *subintegerrima*, *Geum canadense*, *Juncus tenuis*, *Liriodendron tulipifera*, *Lonicera maackii*, *Lonicera* sp., *Panicum* sp., *Parthenocissus quinquefolia*, *Phryma leptostachya*, *Poa compressa*, *Prunus serotina*, *Ranunculus recurvatus*, *Rosa multiflora*, *Taraxacum officinale*, *Trifolium repens*, *Veronica officinalis*, *Viola sororia*, *Viola striata*, 7 June 2008, SAN 305 (MO), SAN 306 (MICH), SAN 308 (MOR), SAN 309 (ND).

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WISCONSIN

Canadanthus modestus (Lindl.) G.L. Nesom (Asteraceae). Giant mountain aster, great northern aster, great northern bog aster, great western bog aster, northwestern sticky aster or Canada-aster.

Previous knowledge. *Canadanthus modestus*, a perennial herb of wet areas in cold climates, is most commonly found in moist woodlands, alder thickets, open fields, cedar swamps, montane forests and boreal forests, as well as along streams, on lake shores and near bogs (Fernald 1950; Semple & Heard 1987; Gleason & Cronquist 1991; Voss 1996; Brouillet 2006). *Canadanthus modestus* ranges from Alaska to Oregon and east across most of the northern tier of the contiguous United States to the Great Lakes and much of Canada to New Brunswick (Brouillet 2006; NatureServe 2008; USDA NRCS 2008). Prior to this newly reported population, *C. modestus* was known to occur in Alaska, Washington, Oregon, Idaho, Montana, Minnesota, North Dakota and Michigan, and the Canadian provinces of Yukon, British Columbia, Alberta, Saskatchewan, Manitoba, Quebec and New Brunswick (Brouillet 2006; NatureServe 2008; USDA NRCS 2008). A common synonym for this species is *Aster modestus* Lindl. (Brouillet 2006).

Canadanthus modestus is a species of concern in Michigan, where it is listed as Threatened (USDA NRCS 2008). Although considered Globally Secure (G5), it is considered Vulnerable (S3) in Yukon, Imperiled (S2) in Saskatchewan and Manitoba and Critically Imperiled (S1) in Quebec, New Brunswick and Michigan (NatureServe 2008).

Significance of the report. A search of Wisconsin herbaria yielded two records from the state purporting to be *Canadanthus modestus*, but both turned out to have been misidentified, making this collection the first of this species from Wisconsin. This discovery fills a gap in the North American range of *C. modestus*, as it is known from all surrounding states and provinces bordering Lake Superior. This collection also adds further understanding to the natural history and habitat requirements of *C. modestus*. Now that *C. modestus* has been documented in Wisconsin, it can be added to the Wisconsin Natural Heritage Working List as a species of concern, and its populations can be monitored and tracked by the Wisconsin Department of Natural Resources.

Diagnostic characters. *Canadanthus modestus* is described as having slightly to strongly auriculate-clasping leaves (the lower brown and deciduous at anthesis), densely spreading pubescent and stipitate-glandular peduncles, densely stipitate-glandular phyllaries, pale to dark purple or rose ray florets, whitish to pale yellow disc florets and obconic-fusiform, compressed, dark-nerved, pubescent and eglandular cypselae (Brouillet 2006; Gleason & Cronquist 1991; Semple & Heard 1987) (Figure 2). It appears similar to *Symphotrichum puniceum* (L.) A. Löve & D. Löve var. *puniceum*, *S. novae-angliae* G. L. Nesom, and *S. oblongifolium* (Nutt.) G. L. Nesom. *Symphotrichum puniceum* var. *puniceum* is eglandular throughout (Gleason & Cronquist 1991). *Symphotrichum novae-angliae*, to which *C. modestus* is probably most simi-



FIGURE 2. *Canadanthus modestus*, Douglas County, Wisconsin. Photo by Scott Namestnik.

lar morphologically, has leaves that are usually more strongly clasping the stem than those of *C. modestus* and also has more ray flowers per head (45–100 versus 20–65) (Gleason & Cronquist 1991; Brouillet 2006). *Symphotrichum oblongifolium* has smaller flower heads and involucres (5–8 mm versus 7–11 mm) and thicker leaves and phyllaries than *C. modestus*. In addition, the phyllaries of *S. oblongifolium* are chartaceous at the base, while those of *C. modestus* are herbaceous throughout (Gleason & Cronquist 1991).

Specimen citation. DOUGLAS CO.: ATC Mitigation Site, 46°39'10.08"N, 92°7'49.69"W. Rare in moist woods of quaking aspen, in partial shade and clay soil. Five small groups of plants observed, with stems arising singly from base of plant. Flowering. Deer browsing of some plants noted. Associated species: *Alnus rugosa*, *Athyrium filix-femina*, *Calamagrostis canadensis*, *Cornus stolonifera*, *Dryopteris cristata*, *Epilobium coloratum*, *Equisetum sylvaticum*, *Galium asprellum*, *Impatiens capensis*, *Mentha arvensis* var. *villosa*, *Polygonum sagittatum*, *Populus tremuloides*, *Ribes hirtellum*, *Rubus idaeus*

ssp. *strigosus*, *Rubus pubescens*, *Salix petiolaris*, *Salix pyrifolia*, *Stellaria longifolia*, 3 September 2008, SAN 620, collected with P. Hlina, N. Kalkbrenner and G. Walton (WIS). Identification verified by T. Cochrane (WIS).

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