

VARIETAL NOMENCLATURE OF *SYMPHYOTRICHUM DUMOSUM* (ASTERACEAE: ASTERAEAE)

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ABSTRACT

The following new combination is proposed: ***Symphytotrichum dumosum* var. *coridifolium***. (Michx.) Semple, Horsburgh, & Haggitt, **comb. nov.** Based on detailed examination of type material and other specimens from BM, GH, MICH, NY, OAC, P-MICHX, TRT, USF, UWO, and WAT, the following varieties of *S. dumosum* also appear to warrant recognition: var. *dumosum*, var. *strictior*, and var. *subulifolium*. Other proposed varietal names belong in synonymy.

Symphytotrichum dumosum (L.) Nesom (Asteraceae: Astereae — Bushy Aster) is a common eastern North American blue to white rayed herbaceous perennial, blooming in late summer through the fall. It can be similar to the noticeably larger headed *S. simmondsii* (Small) Nesom, native to the outer coastal plain from North Carolina to southern Florida to southern Alabama. *Symphytotrichum dumosum* can be confused with forms of *S. racemosum* (Elliott) Nesom, which has smaller white-rayed heads usually borne on short to very short peduncles. In the southern Great Lakes area, *S. dumosum* can be similar to robust *S. boreale* (Torrey & Gray) Löve & Löve and small plants of *S. lanceolatum* (Willd.) Nesom.

Torrey & Gray (1841) presented the first detailed infraspecific classification of *Symphytotrichum dumosum* under the name *Aster dumosus* L. — they recognized 6 varieties: var. *coridifolius* (Michx.) Torrey & Gray, var. *gracilentus* Torrey & Gray, var. *strictior* Torrey & Gray, var. *subulifolius* Torrey & Gray, and var. *verus* Torrey & Gray (= var. *dumosus*). Gray (1884) recognized only three varieties in *A. dumosus* — var. *dumosus*, var. *coridifolius*, and var. *subulifolius*.

Fernald (1909) proposed recognizing a hairy-stemmed race as var. *dodgei* Fernald, consisting of densely hairy-stemmed plants similar to var. *strictior* but only from islands at the mouth of the St. Clair River on the Michigan-Ontario border. Small (1913) added two new species from south Florida to the complex: *Aster simmondsii* Small and *A. sulznerae* Small. Wiegand (1928) recognized var. *dumosus*, var. *coridifolius*, var. *dodgei*, var. *strictior*, and var. *subulifolius* and proposed two new taxa — var. *gracilipes* Wiegand and var. *pergracilis* Wiegand. Small (1933, contributed by Alexander) split the complex up into five species: *A. dumosus*, *A. coridifolius* Michx., *A. gracilipes* (Wieg.) Alexander in Small, *A. pinifolius* Alexander in Small, and *A. simmondsii* Small. Fernald (1950) followed Gray (1884) but also recognized var. *dodgei*.

Cronquist (1968) noted that *Aster dumosus* included several “poorly defined and doubtfully valid varieties” and considered var. *dodgei* to possibly be an interspecific hybrid. Radford et al. (1968) merely listed varietal names in synonymy, as did Cronquist (1980), who also included *A. pinifolius* Alexander in synonymy. Cronquist (1980) noted in a separate paragraph under *A. dumosus* that *A. fontinalis* Alexander might be a distinct species or variety and that it had traits suggesting introgression from *A. patens*. Separately in the introduction to *Aster*, Cronquist (1980) noted that there was a “considerable group of specimens from central and southern Florida” that did not fit into the species he included in the generic treatment. Many of these were noted to approach *A. dumosus*, but had narrower and more pointed involucre bracts or broad lower leaves or short, less bracteate peduncles. Cronquist noted that these collectively had been treated as *S. simmondsii*, which he did not cover in the treatment.

Nesom (1994) proposed a number of combinations, transferring var. *dodgei*, var. *gracilipes*, var. *strictior*, and var. *subulifolius* to *Symphyotrichum dumosum*; he treated *A. coridifolius* and *A. dumosus* var. *coridifolius* as synonyms of var. *dumosum*. Nesom (1997) proposed a new name for *A. pinifolius*, *Symphyotrichum kralii* Nesom, based on Kral's treatment (1983) of the species as distinct. Nesom (1997) also concluded that *S. dumosum* var. *dodgei* belonged in synonymy under var. *strictior*.

Semple et al. (2002), following the earlier treatment of the bushy aster in the second edition of asters in Ontario (Semple et al. 1996), discussed the varieties of *Symphyotrichum dumosum* and noted that the narrowly distributed var. *dodgei* was either just a growth form of var. *strictior* or a hybrid between var. *strictior* and *S. boreale*. Brouillet et al. (2006) also did not formally recognize any varieties in *S. dumosum*, noting that additional study was needed. They placed *S. kralii* and *A. pinifolius* in synonymy under *S. simmondsii* following observations made in the course of an unpublished multivariate study of the complex. They also treated *Symphyotrichum fontinale* (Alexander in Small) Nesom as a member of subg. *Virgulus* near *S. patens* (Ait.) Nesom and thus not closely related to *S. dumosum* in subg. *Symphyotrichum*.

The nomenclatural results of a detailed studies of the morphology and cytogeography of the *Symphyotrichum dumosum* complex are presented in this paper. Publication of the cytogeographic study has been long delayed pending clarification of the infraspecific taxonomy of the species. A multivariate morphometric analysis of all proposed varieties was initiated in 2005 and worked on for several years subsequent and will be reported separately.

MATERIALS AND METHODS

Herbarium specimens of *Symphyotrichum dumosum* and *S. simmondsii* were examined at or borrowed from BM, BRIT, GH, MICH, NY, OAC, P-MICHX, TRT, USF, UWO, and WAT (Thiers, continuously updated). Type specimens of all proposed varietal names except those of Pursh were examined as part of the investigation of the *S. dumosum* complex. Collections made by J.C.S. over nearly three decades provided critical data on ploidy level variation within races of *S. dumosum* and *S. simmondsii*.

RESULTS AND DISCUSSION

Four varieties warrant recognition within *Symphyotrichum dumosum*, which includes diploids $2n = 16$ and tetraploids $2n=32$. *Symphyotrichum simmondsii* is a distinct species known throughout its range only at the octoploid level $2n=64$. The following nomenclature for *S. dumosum* complex is accepted.

1. *Symphyotrichum dumosum* (L.) Nesom, *Phytologia* 77: 280. 1994. *Aster dumosus* L., *Sp. Pl.* 2: 873. 1753 (non Hoffm. 1803; non Nees 1818; non DC. 1836). **LECTOTYPE** (Semple in Jarvis & Turland, eds. 1998): Hort. Clifford 408 no.10: (BM!). Previous syntype: 997.24 (LINN!).

1a. *Symphyotrichum dumosum* var. **dumosum**

?*Aster dumosus* var. *violaceus* Pursh, *Fl. Amer.* Sept. 2: 546. 1814. **TYPE**: not seen, possibly = var. alpha Aiton

Aster dumosus var. *verus* Torrey & Gray, *Fl. N. Amer.* 2: 128. 1841.

The typical variety is confined to the northeastern USA from southern New England to Virginia. It occurs at the diploid and tetraploid level.

1b. *Symphyotrichum dumosum* var. *strictior* (Torrey & Gray) Nesom, *Phytologia* 77: 280. 1994.

Aster dumosus var. *strictior* Torrey & Gray, *Fl. N. Amer.* 2: 128. 1841 (non Wood, *Class-book Bot.* 1845). **Michigan.** Fort Gratiot, *Dr. Pitcher s.n.* **LECTOTYPE** (designated here, annotated as "type" by A.G. Jones in 1984): GH!; isolectotype(?): NY-Torrey Herb.).

Aster dumosus var. *dodgei* Fern., *Rhodora* 11: 31. 1909. *Symphyotrichum dumosum* var. *dodgei* (Fern.) Nesom, *Phytologia* 77: 280. 1994. **LECTOTYPE** (designated here following annotation on sheet by A.G. Jones in 19770): **Michigan.** St. Clair Co.: Very common on Hersen Island, and all islands formed at the mouth of the St. Clair River, 17 Sep 1908, *Dodge 85* (GH!). Previous syntype: **Michigan.** St. Clair Co.: Hersen Is., damp and marshy ground, 17 Sep 1908, *Dodge 84* (GH!).

Aster dumosus f. *monocephalus* Farwell, *Papers Mich. Acad. Sci.* 1: 100. 1923. **TYPE: Michigan.** Marshy borders of Marl Lake, 18 Sep 1920, *Farwell 5704a* (holotype: not seen; isotype: GH!, depauperate plant or = *S. boreale*).

The var. *strictior* is primarily a Great Lakes endemic with outlier populations further east. It is known only at the tetraploid level and usually has whitish ray florets. Densely hairy-stemmed plants have been treated as var. *dodgei*, but these are just the most hairy individuals in a continuum. Such plants occur in the delta around the mouth of the St. Claire River connecting Lake Huron to Lake St. Claire, the small shallow lake between Lake Huron and Lake Erie. While the most pubescent individuals are distinct, the continuum in hair density makes setting limits of var. *dodgei* arbitrary; thus it is placed in synonymy under the var. *strictior*. Of note, hairy-stemmed individuals also occur infrequently in var. *dumosum* and var. *coridifolium*.

1c. *Symphyotrichum dumosum* var. *coridifolium* (Michx.) Semple, M. Horsburgh, & M.L. Haggitt, comb. nov. *Aster coridifolius* Michx., *Fl. Bor. Amer.* 2: 112. 1803. *Aster dumosus* var. *coridifolius* (Michx.) Torrey & Gray, *Fl. N. Amer.* 2: 128. 1841. **LECTOTYPE** (A. Jones, *Bull. Natn. Hist. Nat. Paris*, 4e ser. 8, 1986, section B, *Adansonia* no. 4: 396. 1986): "In aridis sylvarum Carolinae inferioris," *Michaux s.n.* (P-MICHX!; isolectotypes: P, P-MICHX!).

Aster dumosus L. var. *gracilentus* Torrey & Gray, *Fl. N. Amer.* 2: 128. 1841. **LECTOTYPE** (designated here, following the annotation of A.G. Jones in 1984): **Alabama.** *Gates s.n.* (GH!; isolectotype: NY!).

Aster foliosus [β] *coridifolius* Torrey & Gray, *Fl. N. Amer.* 2: 128. 1841 (in syn.). Attributed incorrectly to Nuttall (1818), who listed *A. coridifolius* as a synonym of his species no. 14 *A. foliosus* β.

Var. *coridifolium* is the common widely distributed southeastern USA race of the species. It occurs from Maryland south to central Florida and west to southern Missouri and east Texas. Diploids and tetraploids occur in the variety. Michaux's type and plants included here in the variety have branch leaves that are patent to often strongly reflexed. Other varieties have branch leaves that are ascending to patent. Individuals of the variety can be confused with morphs of *S. racemosum* var. *subdumosum*.

1d. *Symphyotrichum dumosum* var. *subulifolium* (Torrey & Gray) Nesom, *Phytologia* 77: 280. 1994. *Aster dumosus* var. *subulaefolius* Torrey & Gray, *Fl. N. Amer.* 2: 128. 1841. **LECTOTYPE** (Jones 1986): **Texas.** San Felipe de Austin, 1835, *Drummond* [156] GH!; isolectotypes: BM!, K-2 sheets!, P). **SYNTYPES:** Louisiana. *Leavenworth s.n.* (GH!, P).

Aster dumosus var. *gracilipes* Wieg., *Rhodora* 30: 166. 1928. *Aster gracilipes* (Wiegand) Alexander in Small, *Man. S.E. Fl.* 1389. 1933. *Symphyotrichum dumosum* var. *gracilipes* (Wiegand) Nesom, *Phytologia* 77: 280. 1994. **TYPE: Florida.** Pine barrens near Jacksonville, 1 Nov 1894, *Curtis 5345* (holotype: CU; isotypes: FSU, GH!, NY!).

Aster dumosus var. *pergracilis* Wiegand, *Rhodora* 30: 166. 1928. *Symphyotrichum dumosum* var. *pergracile* (Wiegand) Nesom, *Phytologia* 77: 280. 1994. **TYPE: South Carolina.** Santee Canal, damp places, Oct, *Ravenel s.n.* (holotype: GH!; "around ...?.. in the Pine land, s.d." possible isotype: GH!) The isotype (GH) looks very similar to the holotype of var. *subulaefolium* except for head size. Gray annotated the IT as var. *subulaefolius*.

Var. *subulifolium* occurs on the outer coastal plain from Brunswick Co., North Carolina, south to the Florida Keys and west eastern Texas and north to southeastern Oklahoma. It can be similar to forms of *S. simmondsii* but has smaller heads. Diploids and tetraploids occur in the variety. Intermediates between var. *subulifolium* and var. *coridifolium* occur in areas where the ranges overlap.

2. *Symphyotrichum simmondsii* (Small) Nesom, *Phytologia* 77: 291. 1994. *Aster simmondsii* Small, Fl. Miami 190. 200. 1913. **TYPE: Florida.** Dade Co.: N of Long Key, Everglades [W of Homestead], 18-26 Jan 1909, *Small & Carter* 2892 (holotype: NY!).

Aster sulznerae Small, Fl. Miami. 190, 200. 1913. **TYPE: Florida.** banks of the Miami River, 3 Apr 1904, *Britton* 436 (holotype: NY!). Long (1970) placed the two taxa in synonymy under *Aster dumosus* var. *subulaefolius*.

Aster pinifolius Alex. in Small, Man. SE. Fl. 1387. 1933 (non Nees 1818; nec F. Mueller, *Fragm. Phytogr. Austr.* 1866. *Symphyotrichum kralii* Nesom, *Phytologia* 82: 284. 1997 (replacement name for *Aster pinifolius* Small).. **TYPE: Florida.** Dade Co.: Everglades W of Coconut Grove, 22 Nov 1916, *Small* 7958 (holotype: NY!).

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