



Stantec

Botanical Notes

ISSN 1541-8626

An irregularly published newsletter dedicated to dispersing taxonomic and ecological information useful for plant identification and conservation primarily in New England

Available online at <http://www.scribd.com/StantecInc>

Number 13. 8 September 2010

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NEW COMBINATIONS IN THE NEW ENGLAND TRACHEOPHYTE FLORA

Many plant species are considered to be comprised of two or more infraspecific taxa (subspecies or varieties). In some cases, these infraspecific entities have been named both as subspecies and as varieties by different authors. Therefore, authors of regional floras need to choose between names of different rank. This paper is not intended to be a treatise on the use of infraspecific names by different authors. Nevertheless, it is clear that subspecies and variety are not used consistently among taxonomists (their use is varying even here in North America). There has been much subjectivity in the naming of taxa and this has led to the formation of arbitrary nomenclatural systems. Though certain questions still remain, such as how much morphological or genetic variation should be included in various taxonomic categories, the consistent use of certain principles can make naming systems more objective and scientifically defensible. These principles include the use of monophyletic taxa for higher ranks (i.e., above species) and circumscription of closely related taxa of similar rank in a manner that encompasses consistent amounts of morphological, genetic, and/or chronological variation (when known).

For a new tracheophyte flora of New England (*Flora Novae Angliae*; Haines, *in prep.*, administered by the New England Wild Flower Society), I have decided to

use a set of criteria to determine which infraspecific category to use for taxa that can be divided below the rank of species. Subspecies will be utilized for infraspecific taxa that possess both (1) morphological differences and (2a) are known to be largely or completely allopatric (at least prior to European contact) and/or (2b) have differences in ploidy level. Variety will be used for those infraspecific taxa that possess morphological differences but are sympatric over a large portion of their range and possess the same ploidy level (i.e., same number of sets of chromosomes).

Even with a set of rules to guide authors in the choice of infraspecific rank, some plants will not be easily assignable to category. For example, *Dichanthelium acuminatum* (Sw.) Gould & C.A. Clark contains ten infraspecific taxa according to Freckmann and Lelong (2003a), some of which are known to be allopatric and completely isolated from other elements of the species. However, other infraspecific entities within the same species are sympatric over a large region and are known to intergrade morphologically (perhaps indicating absence of reproductive barriers). In these circumstances, I will follow the suggested treatment of the authors within the groups (in this case, Freckmann and Lelong chose subspecies for each element).

The following combinations are made in the New England tracheophyte flora to create subspecific and varietal ranks following the aforementioned guidelines.

A brief explanation follows each taxon. Some of the following newly combined taxa do not occur in New England; however, the typical infraspecific taxon of that species does (and therefore a need for the combination exists).

***Anticlea elegans* (Pursh) Rydb. subsp. *glaucus* (Nutt.)**

A. Haines, comb. nov.

Basionym: *Melanthium glaucum* Nutt., The Genera of North American Plants 1: 232. 1818.

Synonyms: *Anticlea elegans* (Pursh) Rydb. var. *glaucus* (Nutt.) Zomlefer & Judd; *Anticlea glauca* (Nutt.)

Kunth; *Zigadenus elegans* Pursh. var. *glaucus* (Nutt.) Preece ex Cronq.

Anticlea elegans is a wide-ranging species of North America with two subspecies: a western subsp. *elegans* and an eastern subsp. *glaucus*. The two taxa differ in leaf bloom, apex shape, and texture, inflorescence form, bract morphology, tepal color, and capsule shape (Fernald 1935a). Subspecies *elegans* and subsp. *glaucus* are almost entirely allopatric, occurring together in a small area in the region of Minnesota and North Dakota.

***Bidens tripartita* L. subsp. *comosa* (Gray) A. Haines**,
comb. et stat. nov.

Basionym: *Bidens connata* Muhl. ex Willd. var. *comosa* Gray; Manual of the Botany of the Northern United States, including the district east of the Mississippi and north of North Carolina and Tennessee, 5th edition, Ivison, Blakeman, and Taylor, New York, NY: 261. 1867.

Synonym: *Bidens comosa* (Gray) Wieg.

Some authors have considered *Bidens tripartita* L. of Europe to be conspecific with North American *B. comosa* (e.g., Gleason and Cronquist 1991). Though these two taxa are very similar, they can be separated on the basis of morphology. Fernald (1950a) listed several characters to distinguish these two species. However, some of them do not withstand scrutiny when enough material of the species of interest is compared. Details of the involucre do provide help in recognizing the North American element (*comosa*) from the European element (*tripartita*). The following key summarizes those differences.

1a. Foliaceous (i.e., outer) involucre bracts prominently ciliate with cilia 0.1–0.8 mm long, the longer ones longer than 0.3 mm, numbering 1–5 per mm and often forming a continuous, cartilaginous margin

..... ***B. tripartita* subsp. *tripartita***

1b. Foliaceous involucre bracts sparsely ciliate with cilia 0.1–0.4 mm long, numbering 0–2(–3) per mm, not forming a cartilaginous margin

..... ***B. tripartita* subsp. *comosa***

These two taxa are very similar morphologically and appear to have a close relationship (Voss 1996). The rank of subspecies is appropriate to call attention to the subtle morphological distinctions coupled with the geographic separation. It is worth noting that *Bidens connata* is frequently confused with *B. tripartita* in regional herbaria; however, that species has a very different corolla and anther morphology (Roberts 1982).

***Calypso bulbosa* Britt. subsp. *americana* (R. Br.) A. Haines**, comb. et stat. nov.

Basionym: *Calypso americana* R. Br. in Ait.; Hortus Kewensis, 2nd edition, volume 5: 208. 1813.

Synonyms: *Calypso bulbosa* Britt. var. *americanum* (R. Br. in Ait.) Luer; *Orchidium americanum* (R. Br.) Steud.

Calypso bulbosa has three infraspecific entities: a wide-ranging taxon of northern North America, extending south in the Rocky Mountains (*americana*), a taxon confined to extreme western North America (*occidentalis*), and a taxon of Europe and Asia (*bulbosa*). Some of these elements are completely separated geographically, and Calder and Taylor (1965) proposed subspecific rank for the taxon confined to western North America (as subsp. *occidentalis* (Holz) Calder & Taylor). The combination made here allows the subspecific rank to be used for each of the three infraspecific taxa within this species.

***Carex lucorum* Willd. ex Link subsp. *australucorum* (Rettig) A. Haines**, comb. et stat. nov.

Basionym: *Carex lucorum* Willd. ex Link var. *australucorum* Rettig; Sida 13: 449. 1989.

Holotype: United States. North Carolina, Buncombe County, Bat Cave, along North Carolina Hwy 9, 5.0 miles north of its junction with U.S. Highway 74, 6 May 1986, Rettig 1554 (GA; isotype GH!).

The two infraspecific taxa of *Carex lucorum* are separated on the basis of leaf blade width (the leaves of subsp. *lucorum* are usually wider than those of subsp. *australucorum*; Crins and Rettig 2002). They are almost completely allopatric, with subsp. *lucorum* occurring primarily north of Kentucky and West Virginia and subsp. *australucorum* occurring primarily south of Virginia. The rank of subspecies is used here to reflect the geographic separation.

***Carex pedunculata* Muhl. ex Willd. subsp. *erythrobasis* (H. Léveillé & Vaniot) A. Haines, comb. et stat. nov.**

Basionym: *Carex erythrobasis* H. Léveillé & Vaniot; Repertorium Specierum Novarum Regni Vegetabilis 5: 240. 1908.

Synonym: *Carex pedunculata* Muhl. ex Willd. var. *erythrobasis* (H. Léveillé & Vaniot) T. Koyama

Carex pedunculata occurs in North America (subsp. *pedunculata*) and in eastern Asia (subsp. *erythrobasis*). The complete geographic separation of these two taxa warrants recognition at the subspecific rank.

***Cerastium nutans* Raf. subsp. *obtectum* (Kearney & Peebles) A. Haines, comb. et stat. nov.**

Basionym: *Cerastium nutans* Raf. var. *obtectum* Kearney & Peebles; Journal of the Washington Academy of Sciences 29: 475. 1939. Nom. nov., based on *Cerastium sericeum* S. Wats.; Proceedings of the American Academy of Arts and Sciences 20: 354. 1885.

Synonym: *Cerastium diehlii* M.E. Jones

Morton (2005) recently upheld the two infraspecific taxa of *Cerastium nutans* (as var. *nutans* and var. *obtectum*). Subspecies *nutans* occurs throughout much of North America (notably excepting southwestern United States) and is characterized by non-marcescent leaves, a lesser degree of tomentum on stems and leaf blades, and, on average, smaller flowers and fruits (though measurements of the latter two characters overlap). Subspecies *obtectum* occurs in the southwestern United States and south into Mexico (i.e., it is completely allopatric with subsp. *nutans*) and is characterized by frequently marcescent leaves, a greater degree of tomentum on stems and leaf blades, and, on average, larger flowers and fruits.

***Clematis occidentalis* DC. subsp. *dissecta* (C.L. Hitchc.) A. Haines, comb. et stat. nov.**

Basionym: *Clematis columbiana* (Nutt.) Torr. & Gray var. *dissecta* C.L. Hitchc.; University of Washington Publications in Biology 17: 341. 1964. (Vascular Plants of the Pacific Northwest, volume 2)

Holotype: United States. Washington, Chelan County, slopes of Mission Peak, 4 Jul 1940, *Thompson 14933* (WTU).

Synonyms: *Clematis occidentalis* DC. var. *dissecta* (C.L. Hitchc.) J.S. Pringle

Clematis occidentalis subsp. *dissecta* is restricted to the Wenatchee Range and adjacent peaks of the Cascade Mountains in Washington. It is distinguished by its non-vining or shortly vining habit and leaves with terminal leaflets usually lobed, sometimes ternately so (subsp.

grosseserrata and subsp. *occidentalis* are trailing or climbing plants and have usually unlobed terminal leaflets). Subspecies *occidentalis* is confined to the northeastern United States and adjacent Canada whereas subsp. *grosseserrata* is confined to western North America (Rocky Mountains). Given the allopatric nature of the taxa, recognition as geographical subspecies is appropriate.

***Cynoglossum virginianum* L. subsp. *boreale* (Fern.) A. Haines, comb. et stat. nov.**

Basionym: *Cynoglossum boreale* Fern.; Rhodora 7: 250. 1905.

Lectotype (here designated): Quebec. Bonaventure County, Little Cascapedia River, sandy alluvium, beneath larches, 17 Jul 1905, *Williams, Collins, & Fernald s.n.* (GH!, specimen with label in upper right corner).

Synonym: *Cynoglossum virginianum* L. var. *boreale* (Fern.) Cooperrider

Cynoglossum virginianum has two infraspecific taxa—a southern taxon (*virginianum*) and a northern taxon (*boreale*). The two taxa are separated on details of leaf base morphology, calyx size, corolla size and lobe shape, and mericarp size (Fernald 1905). They are completely allopatric and can be recognized as geographic subspecies. Fernald (1905) did not designate a type when he named this species. At the Gray Herbarium are two specimens with the words “type” written on them. They are duplicate collections from the Little Cascapedia River (which is the first specimen cited by Fernald in his protologue). One of these collections has the herbarium label in the upper right corner, the other collection has the label in the lower right corner. The collection with the label in the upper right corner is more mature and has fully-formed fruits. Therefore, it is chosen here as the lectotype.

***Cyperus lupulinus* (Spreng.) Marcks var. *macilentus* (Fern.) A. Haines, comb. nov.**

Basionym: *Cyperus filiculmis* Vahl var. *macilentus* Fern.; Rhodora 8: 128. 1906.

Holotype: United States. Maine, Penobscot County, Orono, valley of the main Penobscot River, in sandy soil, 26 Jul 1895, *Fernald 343* (GH).

Synonym: *Cyperus lupulinus* (Spreng.) Marcks subsp. *macilentus* (Fern.) Marcks; *Cyperus macilentus* (Fern.) Bickn.

Cyperus lupulinus consists of two infraspecific taxa—var. *lupulinus* and var. *macilentus*—that are sympatric over a large portion of their ranges, though var. *macilentus* extends slightly further northward and is more restricted eastward (Tucker et al. 2002). The two taxa differ in spikelet size and number of flowers, floral

scale color, and anther size. Given their sympatric nature, they are here regarded as varieties.

***Eleocharis palustris* (L.) Roemer & J.A. Schultes subsp. *vigens* (L.H. Bailey) A. Haines, comb. et stat. nov.**

Basionym: *Eleocharis palustris* (L.) Roemer & J.A. Schultes var. *vigens* L.H. Bailey; Journal of the New York Microscopical Society 5: 104. 1889.
Lectotype: United States. Vermont, Franklin County, Highgate Highgate Springs, Shores of Lake Champlain, 27 Aug 1813, *Jesup s.n.* (GH!).

The taxonomy of *Eleocharis palustris* has been debated at length by many authors. Evidence indicates two taxa can be confidently recognized in North America. These two taxa differ in ploidy level and morphology. Subspecies *palustris* is a variable diploid with an achene body 1.1–1.5(–1.6) mm tall, floral scales 3–4 mm long, anthers 1–2 mm long, and stem stomates mostly 39–48 µm long. Subspecies *vigens* is a probable tetraploid with an achene body 1.6–2 mm tall, floral scales 3.5–4.5 mm long, anthers 1.7–3 mm long, and stem stomates 52–65 µm long.

***Kalmia angustifolia* L. subsp. *carolina* (Small) A. Haines, comb. et stat. nov.**

Basionym: *Kalmia carolina* Small, Flora of the Southeastern United States: 886. 1903
Holotype: United States. North Carolina, Flat Rock, 12–16 Jun 1858, *Gibbes s.n.* (NY).
Synonyms: *Kalmia angustifolia* L. var. *carolina* (Small) Fern.

Kalmia angustifolia has two infraspecific taxa—a northern taxon (*angustifolia*) and a southern taxon (*carolina*). The two taxa are almost completely allopatric, overlapping only in southeastern Virginia (Liu et al. 2009). They differ in calyx and leaf blade indument.

***Linum medium* (Planch.) Britt. subsp. *texanum* (Planch.) A. Haines, comb. et stat. nov.**

Basionym: *Linum virginianum* L. var. *texanum* Planch.
Holotype: United States. Texas, Austin County, San Felipe, *Drummond Third Coll.* 38 (K).
Synonyms: *Cathartolinum medium* (Planch.) Small var. *texanum* (Planch.) Moldenke; *Linum medium* (Planch.) Britt. var. *texanum* (Planch.) Fern.; *Linum striatum* Walt. var. *texanum* (Planch.) Boivin

Linum medium has two infraspecific taxa that differ in ploidy level (Gleason and Cronquist 1991). Subspecies *medium* is tetraploid with $2n=72$. It is primarily restricted to the eastern Great Lakes region. Subspecies *texanum* is diploid. It occupies a large area of the eastern

half of North America as far south as the Bahamas (note that the two subspecies are nearly allopatric with only a small area of sympatry). The two subspecies differ in several morphological characters, most notably the leaf blade shape and width and fruit morphology (Fernald 1935b).

***Lythrum alatum* Pursh subsp. *lanceolatum* (Ell.) A. Haines, comb. et stat. nov.**

Basionym: *Lythrum lanceolatum* Ell.; A Sketch of the Botany of South-Carolina and Georgia 1: 544. 1821.
Holotype: Hab. in humidis. Flor. Jun. Jul. (US).
Synonym: *Lythrum alatum* Pursh var. *lanceolatum* (Ell.) Torr. & Gray ex Rothrock

Lythrum alatum is a widespread member of the genus with two clearly defined infraspecific taxa—a northern plant with slender stems and round- to cordate-based leaf blades (*alatum*) and a southern plant with robust stems and tapering leaf bases (*lanceolatum*; Graham 1975). The two taxa show nearly complete geographic separation except along a line of contact in the southern states and a few disjunct collections (e.g., Florida, but these may represent introductions). Given its relative allopatric nature, recognition as a geographic subspecies is appropriate.

***Milium effusum* L. subsp. *cisatlanticum* (Fern.) A. Haines, comb. et stat. nov.**

Basionym: *Milium effusum* L. var. *cisatlanticum* Fern.; Rhodora 52: 218. 1950.
Holotype: Canada. Newfoundland. Highlands of St. John, Doctor Hill, Deep Gulch, thickets on quartzite ledges and gravel along brook, 30 Jul 1929, *Fernald, Long, & Fogg 1332* (GH).

Fernald (1950b) and Crins (2007) have summarized the differences between the North American form and the Eurasian form (subsp. *effusum*). The North American taxon differs primarily in the color of living leaves (glaucous vs. green), longer spikelets, fewer branches at the nodes of the panicle, and longer fruits. The complete geographic separation warrants recognition at the subspecific rank.

***Panicum philadelphicum* var. *campestre* (Gatt.) A. Haines, comb. nov.**

Basionym: *Panicum capillare* var. *campestre* Gatt.; The Tennessee Flora: 94. 1887.
Holotype: United States. Tennessee, cedar glades near Nashville, Sep, *Gattinger s.n.* (US; image seen!).
Synonyms: *Panicum gattingeri* Nash in Small; *Panicum philadelphicum* Bernh. ex Trin. subsp. *gattingeri* (Nash in Small) Freckmann & Lelong

Panicum gattingeri has been variously treated as a species, subspecies, and variety. Most recently, Freckman and Lelong (2003b) considered it an infraspecific taxon of *P. philadelphicum* (as subsp. *gattingeri*). Darbyshire and Cayouette (1995) treated it as a species, but their data show that *P. gattingeri* and *P. philadelphicum* are morphologically similar and closer to each other than to any other member of the *P. capillare* complex (i.e., treating *P. gattingeri* at a rank lower than species would be appropriate). Given their broad area of overlap and similar chromosome number, they are best considered as varieties.

***Phragmites americanus* (Saltonstall, P.M. Peterson, & Soreng) A. Haines, comb. et stat. nov.**

Basionym: *Phragmites australis* (Cav.) Trin. ex Steud. subsp. *americanus* Saltonstall, P.M. Peterson, & Soreng; Sida 21: 683–692.

Holotype: United States. Montana, Fergus County, near the mouth of Dog Creek, 12 Sep 1883, *Scribner 378* (US; image seen!).

Recent systematic studies have revealed that some populations of *Phragmites* occurring in North America are native (Saltonstall et al. 2004 and papers cited therein). These native populations can be distinguished from introduced ones using a suite of morphological characters, including ligule length, glume length, lemma length, persistence of leaf sheaths, stem internode color, and clone stem density. These characters have been examined in various parts of North America and have been found to be reliable (e.g., Catling et al. 2007). In addition, leaf blade color, inflorescence density, rhizome diameter, rhizome color, and ecology appear also to separate populations of native vs. introduced races. Though some of the differences are subtle, others are easily observed with the unaided eye. Given the number of differences that exist in vegetative and reproductive characters, as well as documented genetic and (originally) distributional differences, it is more appropriate to treat these two taxa as species. Therefore, New England can be considered to harbor two species of common reed—a native (*P. americanus*) and a non-native (*P. australis*).

***Polygala cruciata* L. subsp. *aquilonia* (Fern. & Schub.) A. Haines, comb. et stat. nov.**

Basionym: *Polygala cruciata* L. var. *aquilonia* Fern. & Schub.

Holotype: United States. Connecticut, Fairfield County, inner edge of salt-meadows, 30 Aug 1896, *Eames s.n.* (GH!).

Polygala cruciata has two morphologically distinct infraspecific taxa that show a high degree of allopatry. In areas where they overlap (e.g., eastern Virginia) they

maintain their distinctions and generally prefer different natural communities (i.e., they show ecological isolation; Fernald and Schubert 1948). The northern taxon (*aquilonia*) has broader leaf blades, shorter peduncles, and narrower racemes compared with the southern taxon (*cruciata*). Recognition of these taxa as geographic subspecies is appropriate.

***Rumex persicarioides* L. var. *fueginus* (Phil.) A. Haines, comb. nov.**

Basionym: *Rumex fueginus* Phil., *Anales de la Universidad de Chile* 91: 493. 1895.

Synonym: *Rumex maritimus* L. subsp. *fueginus* (Phil.) Piper & Beattie; *Rumex maritimus* L. var. *fueginus* (Phil.) Dusen

North America has two native members of the *Rumex maritimus* complex—*R. fueginus* and *R. persicarioides*. *Rumex maritimus*, native to Eurasia, has also been introduced. Native North American members of this complex have been subsumed under *R. maritimus* (with or without formal rank) by most authors. However, they differ from *R. maritimus* in several important ways. *Rumex maritimus* has few or no papillae on leaf blades and inflorescence branches, cuneate leaf bases, and smooth or obscurely marked tubercles. The North American members of this complex have abundant papillae on abaxial leaf blade surfaces and inflorescence branches, usually truncate to subcordate leaf bases, and reticulate-pitted tubercles. It is entirely appropriate to treat these two groups as separate species. Recently, Mosyakin (2005) treated the North American taxa as separate species. It should be stressed that these two taxa consistently differ only in tubercle morphology. The often cited differences in marginal teeth on the inner tepals, though often of different length, do overlap entirely in their measurements (i.e., they cannot be used with certainty to identify taxa). Given the limited morphological differences, recognition of these taxa as varieties is appropriate (following Mitchell 1978). The name *Rumex persicarioides* has priority (1753 vs. 1895) and takes the name of the species.

***Sparganium emersum* Rehmann var. *acaule* (Beeby ex Macoun) A. Haines, comb. nov.**

Basionym: *Sparganium simplex* Huds. var. *acaule* Beeby ex Macoun; Geological and Natural History Survey of Canada, Catalogue of Canadian Plants, Part 5, Acrogens: 367. 1890.

Synonyms: *Sparganium chlorocarpum* Rydb. var. *acaule* (Beeby ex Macoun) Fern.; *Sparganium emersum* Rehmann subsp. *acaule* (Beeby ex Macoun) C.D.K. Cook & M.S. Nicholls

Sparganium emersum var. *acaule* is the common variety of this species found in eastern North America. It

occupies largely a subset of the the range of the more wide-ranging var. *emersum* (which occurs also in Eurasia). Intermediates between var. *acaule* and var. *emersum* are known (Cook and Nicholls 1986). However, its geographic restriction (relative to the typical variety) and usual differences in vegetative, floral, and fruiting morphology suggest it should be recognized at some rank.

***Spergularia canadensis* (Pers.) G. Don subsp. *occidentalis* (R.P. Rossb.) A. Haines, comb. et stat. nov.**

Basionym: *Spergularia canadensis* (Pers.) G. Don var. *occidentalis* R.P. Rossb.; *Rhodora* 42: 116. 1940.

Holotype: United States. Washington, Pacific County, brackish clay near mouth of Palix River, Wallipa Bay, 15 miles south of Raymond, 26 Jun 1938, *Roszbach & Roszbach* 645 (GH).

Roszbach (1940) erected *Spergularia canadensis* var. *occidentalis* for those collections of the species from British Columbia south along the coast to California with more erect habit, more glandular trichomes in the inflorescence, larger stipules, and shorter capsules relative to the sepals than in typical *Spergularia canadensis*. Given that var. *occidentalis* is restricted to the west coast, whereas var. *canadensis* is found on the northeast coast and northwest coast but then primarily north of var. *occidentalis* (i.e., they are almost completely allopatric), they are recognized here as geographical subspecies.

***Swida amomum* (P. Mill.) Small var. *schuetzeana* (C.A. Mey.) A. Haines, comb. nov.**

Basionym: *Cornus sericea* L. var. *schuetzeana* C.A. Mey.; *Mémoires de l'Académie Impériale des Sciences de Saint-Petersbourg* 6: 23. 1845.

Synonyms: *Cornus amomum* P. Mill. subsp. *obliqua* (Raf.) J.S. Wilson; *Cornus amomum* P. Mill. var. *schuetzeana* (C.A. Mey.) Rickett; *Cornus obliqua* Raf.; *Cornus sericea* L. var. *schuetzeana* C.A. Mey.; *Swida obliqua* (Raf.) Moldenke

Swida amomum has generally been regarded as having two varieties—a plant with leaf blades that are larger and relatively broader and have (on average) more pairs of lateral veins, lack papillae on the abaxial surface, and usually have red-brown hairs (*amomum*) and a plant with leaf blades that are smaller and relatively narrower and have (on average) fewer pairs of lateral veins, have papillae on the abaxial surface, and have usually white hairs (*obliqua* or *schuetzeana*). With the recognition of segregate genera, there is no varietal name for the latter plant in the genus *Swida*, to which this taxon belongs when *Cornus* is recognized in the narrow sense. Morphology, phylogeny, patterns of hybridization, and

phytogeography provide rationale for recognizing multiple genera (Fan and Xiang 2001, Xiang et al. 2006).

***Symphyotrichum concolor* (L.) Nesom subsp. *devestitum* (S.F. Blake) A. Haines, comb. et stat. nov.**

Basionym: *Aster concolor* L. var. *devestitus* S.F. Blake; *Rhodora* 32: 145. 1930.

Holotype: United States. Florida, Bay County, Lynn Haven, dry sandy open soil, 13 Oct 1921, *Billington* 80 (US; image seen!).

Synonym: *Symphyotrichum concolor* (L.) Nesom var. *devestitum* (S.F. Blake) Semple

This taxon is morphologically separated from the typical subspecies on the basis of indument (it has glabrous or sparsely pubescent apical leaf blades and involucre bracts, whereas subsp. *concolor* has moderately to densely pubescent apical leaf blades and involucre bracts). Subspecies *devestitum* also displays larger involucres, likely a result of the higher ploidy level (see below). These two taxa are largely allopatric given that subsp. *devestitum* is currently known to occur only in Florida, and subsp. *concolor* extends north along the coastal plain to Massachusetts. Also of note is that they differ in chromosome number—subsp. *concolor* is $2n=8$ and subsp. *devestitum* is $2n=16$ (Brouillet et al. 2006).

***Symphyotrichum praealtum* (Poir.) Nesom subsp. *angustior* (Wieg.) A. Haines, comb. et stat. nov.**

Basionym: *Aster praealtus* Poir. var. *angustior* Wieg.; *Rhodora* 35: 24. 1933.

Holotype: United States. Massachusetts, Chelsea Beach Island (Oak Island), 5 Oct 1850, *Boott s.n.* (GH).

Synonym: *Symphyotrichum praealtum* (Poir.) Nesom var. *angustior* (Wieg.) Nesom

Symphyotrichum praealtum contains several elements that differ in morphology, distribution, and chromosome number (Wiegand 1933, Semple et al. 2002). Subspecies *angustior* differs morphologically from the typical subspecies in its linear to narrow-lanceolate leaf blades mostly 11 or more times as long as wide (vs. lanceolate to elliptic-lanceolate and mostly 6–10 times as long as wide). Subspecies *angustior* is found in the north- and central-eastern United States, whereas subsp. *praealtum* is a species of the southern, southeastern, midwestern, and Great Lakes regions of the United States and adjacent Ontario. Subspecies *angustior* is octoploid, whereas the typical subspecies is tetraploid (Semple et al. 2002). Given subsp. *angustior* is more or less allopatric with subsp. *praealtum* and possesses a different ploidy level, it is here recognized as a subspecies.

***Triosteum ×eamesii* (Wieg.) A. Haines**, stat nov.
 Basionym: *Triosteum angustifolium* L. var. *eamesii*
 Wieg.; Rhodora 25: 202. 1923.
 Holotype: United States. Connecticut, Fairfield County,
 Stratford, 1902, *Eames s.n.* (GH!).

This taxon was described from material collected by E.H. Eames and others from southwestern Connecticut. It was noted by Wiegand (1923) to be intermediate between *Triosteum angustifolium* and *T. aurantiacum*, but a hypothesis of hybrid origin was abandoned because the former parent was not known to occur in the vicinity. It resembles *T. angustifolium* in its short sepals and long-pubescent stems. However, it has leaf blades mostly 2.2–3.2 times as long as wide that are moderately puberulent abaxially and dried stems (3–)4–7 mm thick at the midpoint (vs. leaf blades mostly 3.5–7 times as long as wide that are sparsely pubescent abaxially and dried stems 2–2.7 mm thick at the midpoint in *T. angustifolium*). All of these measurements are consistent with a hybrid origin between *T. angustifolium* and *T. aurantiacum* given that the latter has relatively broader leaves, more densely pubescent abaxial leaf blade surfaces, and stouter stems than *T. angustifolium*.

Literature Cited

- Brouillet, L., J.C. Semple, G.A. Allen, K.L. Chambers, and S.D. Sundberg. 2006. *Symphyotrichum*. Pages 465–539 in Flora of North America Editorial Committee, editors. Flora of North America, volume 20. Oxford University Press, New York, NY.
- Calder, J.A., and R.L. Taylor. 1965. New taxa and nomenclatural changes with respect to the flora of the Queen Charlotte Islands, British Columbia. Canadian Journal of Botany 43: 1387–1400.
- Catling, P.M., G. Mitrow, and L. Black. 2007. Analysis of stem color and correlated morphological characters for grouping *Phragmites* (Poaceae) taxa in eastern Ontario. Rhodora 109: 125–136.
- Crins, W.J. 2007. *Milium*. Pages 778–780 in Flora of North America Editorial Committee and M.E. Barkworth, K.M. Capels, S. Long, L.A. Anderton, and M.B. Piep, editors. Flora of North America, volume 24. Oxford University Press, New York, NY.
- _____, and J.H. Rettig. 2002. *Carex* section *Acrocystis*. Pages 532–545 in Flora of North America Editorial Committee, editors. Flora of North America, volume 23. Oxford University Press, New York, NY.
- Cook, C.D.K., and M.S. Nicholls. 1986. A monographic study of the genus *Sparganium* (Sparganiaceae). Part 1. Subgenus *Xanthosparganium* Holmberg. Botanica Helvetica 96: 213–268.
- Darbyshire, S.J., and J. Cayouette. 1995. Identification of the species in the *Panicum capillare* complex (Poaceae) from eastern Canada and adjacent New York state. Canadian Journal of Botany 73: 333–348.
- Fan, C., and Q.-Y. Xiang. 2001. Phylogenetic relationships within *Cornus* (Cornaceae) based on 26S rDNA sequences. American Journal of Botany 88: 1131–1138.
- Fernald, M.L. 1905. A northern *Cynoglossum*. Rhodora 7: 204–205.
- _____. 1935a. Critical plants of the upper Great Lakes region of Ontario and Michigan. Rhodora 37: 238–262.
- _____. 1935b. Midsummer vascular plants of southeastern Virginia. Rhodora 37: 423–454.
- _____. 1950a. Gray's Manual of Botany, 8th edition. Van Nostrand Reinhold Company, New York, NY.
- _____. 1950b. The North American variety of *Milium effusum*. Rhodora 52: 218–222.
- _____, and B.G. Schubert. 1948. Contributions from the Gray Herbarium of Harvard University—No. CLXVII. Studies of American types in British herbaria. Rhodora 50: 149–176.
- Freckmann, R.W., and M.G. Lelong. 2003a. *Dichanthelium*. Pages 406–450 in Flora of North America Editorial Committee and M.E. Barkworth, K.M. Capels, S. Long, and M.B. Piep, editors. Flora of North America, volume 25. Oxford University Press, New York, NY.
- _____. 2003b. *Panicum*. Pages 450–488 in Flora of North America Editorial Committee and M.E. Barkworth, K.M. Capels, S. Long, and M.B. Piep, editors. Flora of North America, volume 25. Oxford University Press, New York, NY.
- Gleason, H.A., and A.C. Cronquist. 1991. Manual of Vascular Plants of Northeastern United States and Adjacent Canada, 2nd edition. New York Botanical Garden, Bronx, NY.
- Graham, S.A. 1975. Taxonomy of the Lythraceae in the southeastern United States. Sida 6: 80–103.

Liu, S., K.E. Denford, J.E. Ebinger, J.G. Packer, and G.C. Tucker. 2009. *Kalmia*. Pages 480–485 in Flora of North America Editorial Committee, editors. Flora of North America, volume 8. Oxford University Press, New York, NY.

Mitchell, R.S. 1978. *Rumex maritimus* L. versus *R. persicarioides* L. (Polygonaceae) in the western hemisphere. *Brittonia* 30: 293–296.

Morton, J.K. 2005. *Cerastium*. Pages 74–93 in Flora of North America Editorial Committee, editors. Flora of North America, volume 5. Oxford University Press, New York, NY.

Mosyakin, S.L. 2005. *Rumex*. Pages 489–533 in Flora of North America Editorial Committee, editors. Flora of North America, volume 5. Oxford University Press, New York, NY.

Roberts, M.L. 1982. Systematic Studies of North American *Bidens* section *Bidens* (Compositae). Ph.D. thesis, Ohio State University, Columbus, OH.

Rosbach, R.P. 1940. *Spergularia* in North and South America. *Rhodora* 42: 57–83, 105–143, 158–193, 203–213.

Semple, J.C., S.B. Heard, and L. Brouillet. 2002. Cultivated and native asters of Ontario (Compositae: Astereae). University of Waterloo Biology Series Number 41.

Tucker, G.C., B.G. Marks, and J.R. Carter. 2002. *Cyperus*. Pages 141–191 in Flora of North America Editorial Committee, editors. Flora of North America, volume 23. Oxford University Press, New York, NY.

Voss, E.G. 1996. Michigan Flora, part III. Cranbrook Institute of Science Bulletin 61 and University of Michigan Herbarium.

Wiegand, K.M. 1933. *Aster paniculatus* and some of its relatives. *Rhodora* 35: 16–38.

_____. 1923. Notes on *Triosteum perfoliatum* and related species. *Rhodora* 25: 199–203.

Xiang, Q.-Y., D. Thomas, W. Zhang, S. Manchester, and Z. Murrell. 2006. Species level phylogeny of the genus *Cornus* (Cornaceae) based on molecular and morphological evidence—implications for taxonomy and tertiary intercontinental migration. *Taxon* 55: 9–32.

Acknowledgments: Thomas Vining and David Werier provided useful comments on the manuscript. Kanchi Gandhi assisted with some nomenclatural questions.

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