MISCELLANEOUS NOMENCLATURAL CHANGES IN ASTEREAE (ASTERACEAE)

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ABSTRACT

The following new name and combinations are proposed: ***Heterotheca subaxillaris*** subsp. ***latifolia***, ***Solidago*** subsect. ***Multiradiatae***, and ***Symphyotrichum concolor*** var. ***devestitum***.

RESUMEN

Se proponen un nombre nuevo y varias combinaciones: **Heterotheca subaxillaris** subsp. **latifolia**, **Solidago** subsect. **Multiradiatae**, y **Symphyotrichum concolor** var. **devestitum**.

The proposed new name and combinations were determined to be needed during work to prepare the treatments of *Heterotheca* (Semple 2005), *Solidago* (Semple & Cook 2005) and *Symphyotrichum* (Brouillet et al. 2005) for the Flora North America project.

Heterotheca subaxillaris (Lam.) Britt. & Rusby subsp. **latifolia** (Buckley) Semple, comb. et stat. nov. BASIONYM: *Heterotheca latifolia* Buckley, Proc. Acad. Sci. Phila. 13:459. 1862. *Heterotheca subaxillaris* (Lam.) Britt. & Rusby var. *latifolia* (Buckley) Gandhi & Thomas, Sida Bot. Misc. 4:110. 1989. TYPE: TEXAS. Llano Co.: *Buckley s.n.* (HOLOTYPE: PH, not seen).

The weedy *Heterotheca subaxillaris* complex has been treated as a single species without varieties (Nesom 1990) and as four separate species: *H. chrysopsides* DC., *H. latifolia*, *H. psammophila* Wagenknecht, and *H. subaxillaris* (Semple 1996 and earlier authors). Harms (1964) presented data supporting Wagenknecht's (1960) division of the complex into four species and provided a general range map of the four taxa. Nesom (1990) opted to merge all four species into a single undivided species because he did not find taxonomically significant differences between the four putative species. Semple (1996) continued to followed Wagenknecht and Harms. However, after considerable study of members of the complex, I have adopted Nesom's position that only one species should be recognized (Semple 2005). Nonetheless, while much of the supposed differences between regional taxon do not appear to be supported, some phytogeographic patterns in variation occur within the complex and two infraspecific taxa can be recognized based on differences in phyllary traits. Typical *Heterotheca subaxillaris* is for the most part confined to the outer coastal plain from New York to northern Mexico, where they can occur further inland. These plants

have a well developed tuft of larger hairs near the phyllary tips (Figs. 1A–H) and are treated here as subsp. *subaxillaris*. This combination of distinctive morphology plus the geographic isolation of much of the range of the morphotype warrant subspecies level recognition following Semple (1974). In contrast, plants of subsp. *latifolia* have phyllaries without such large hairs concentrated near the tip (Figs. 1I–L). Mid series phyllaries of subsp. *subaxillaris* on average are slightly wider (0.62 mm wide) compared to the average width of those of subsp. *latifolia* (0.57 mm wide) with the narrowest occurring in Arizona and New Mexico plants ("psammophila"). However, the ranges in widths overlap so much that the trait cannot be used as a diagnostic difference.

Within each subspecies there appear to be patterns to the phyllary variation but these are not sufficiently strong that additional infraspecific taxa can be justifiably recognized at this time. There is a general geographic trend to the variation in tufted hairs in subsp. *subaxillaris*. Plants with the most hairs in the apical tuft occur from Mexico to Florida (Figs. 1A–D), while the number of hairs generally decreases from Florida to New Jersey and New York (Figs. E–H). Plants with a few hairs near the apex occur scattered across the range of the species and may represent introductions of subsp. *subaxillaris* or the occasional more hairy than normal individual of subsp. *latifolia*. Plants occurring in an arch from Arizona and adjacent New Mexico through Mexico into trans-Pecos Texas tend to be more densely glandular than plants from elsewhere in the range (Fig. 1L) in the United States; these have been treated as *H. psammophila* Wagnknecht. Plants from northeastern Mexico tend to have more glands and more hairs on the mid series phyllaries and are more likely to be weakly perennial; these have been treated as *H. chrysopidis*. Plants treated previously as *H. latifolia* tend to have fewer hairs and fewer glands on the phyllaries than other members of subspecies *latifolia*. These occur across the southern prairies and through the south eastern U.S. on the Piedmont as shown in Harms (1965), although the weedy nature of the species appears to be facilitating dispersal into the range of subsp. *subaxillaris* on occasion. Additional study may find new evidence supporting recognition at varietal or subspecies level for the *psammophila* and *chrysopsides* morphs, but my recent efforts have not discovered such evidence.

Solidago subsect. **Multiradiatae** Semple, subsect. nov. TYPE: *Solidago multiradiata* L. *Solidago* ser. *Multiradiatae* Juz., Fl. URSS 25:47. 1959. nom. invalid, no Latin diagnosis. *Solidago* subsect. *Multiradiatae* (Juz.) Semple, Sida 20:1605. 2003. non valid name. TYPE: *Solidago multiradiata* Aiton (**Fig. 2A**).

Solidagini sect. *Solidago* accedens sed capitulescentiis corymbiformis rotundatis differt.

Members of subsect. *Multiradiatae* are distinguished from other species in sect. *Solidago* by having a somewhat rounded-corymbiform capitulescence. Other North America members of the section have variously paniculiform

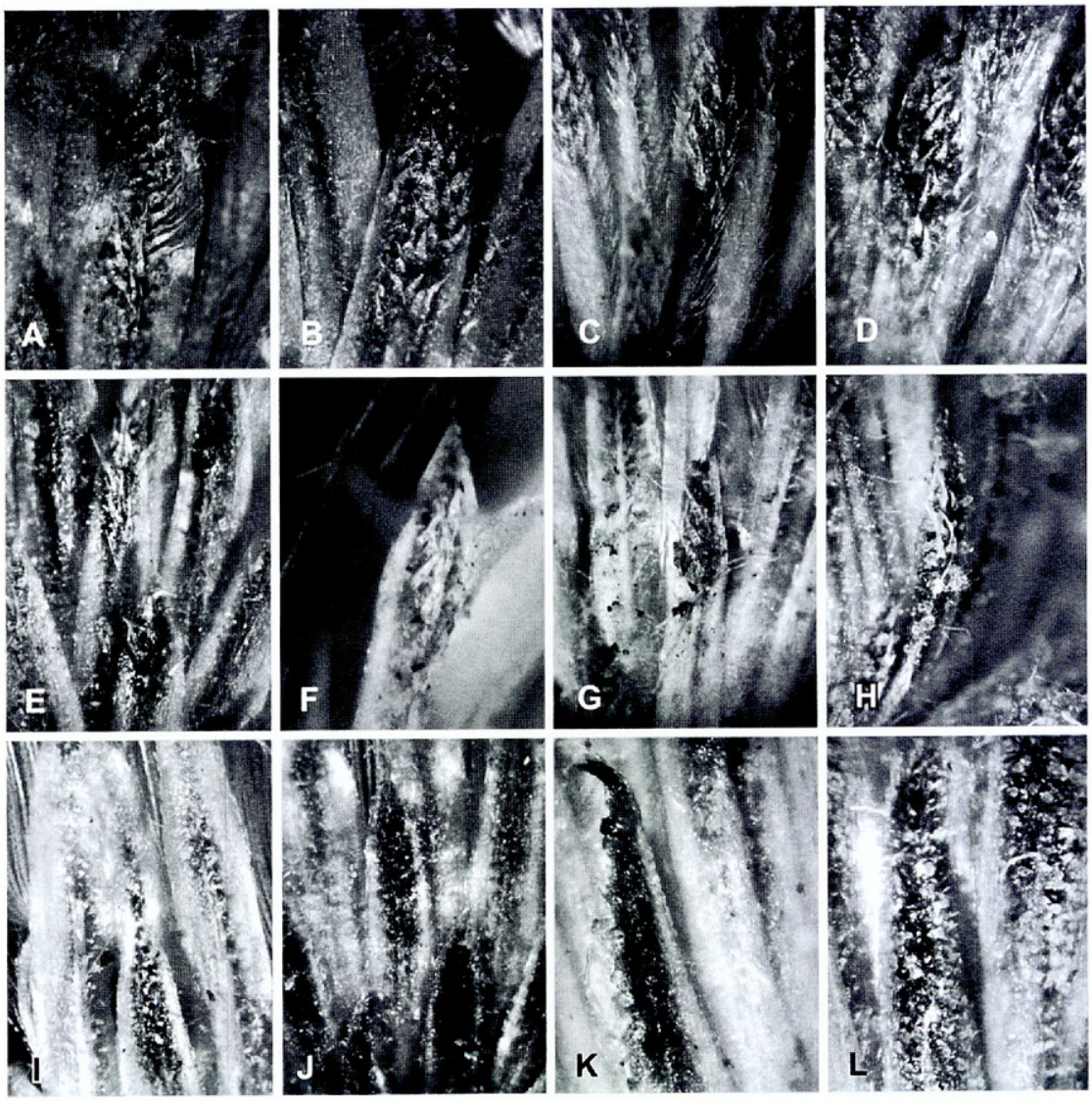

FIG. 1. Phyllary tip variation in *Heterotheca subaxillaris*. **A–H.** Subsp. *subaxillaris*. **A–B.** Mexico. **A.** Veracruz, *Turner 15372* (TEX). **B.** Tamaulipas, *LaSueur 496* (TEX). **C–H.** United States. **C.** Texas, Cameron Co., *King 2* (MINN). **D.** Louisiana, Cameron Par., *Dutton & Pritchett 2549* (WAT). **E.** Florida, Orange Co., *Semple et al. 2557* (WAT). **F.** North Carolina, Brunswick Co., *Bright 6236* (MINN). **G.** New Jersey, Gloucester Co., *Long 60507* (MINN). **H.** New York, Queens Co., *Semple 2031* (WAT). **I–L.** Subsp. *latifolia*. **I.** Mexico, Chihuahua, *Sundberg & Lavin 2811* (TEX; "chrysopsides"). **J–L.** United States. **J.** Georgia, Elbert Co., *Coile 1626* (WAT). **K.** Oklahoma, Caddo Co., *Semple 2735* (WAT). **L.** Arizona, Maricopa Co., *Lehto L19116* (WAT; "psammophila").

capitulescences [*S.* subsect. *Humiles* (Rydberg) Semple]. Like most other taxa in the genus, the phyllaries have a single vein. In robust plants the capitulescence becomes more paniculiform as branches develop from upper stem leaves. Two other species besides the nomenclatural type are included in the subsection: *S. leiocarpa* DC. (Fig. 2B) and *S. spithamaea* M.A. Curtis ex A. Gray (Fig. 2C). These are both narrowly distributed endemics in eastern North America (Semple & Cook 2005). *Solidago leiocarpa* (synonym: *S. cutleri* Fern.) includes tetraploids

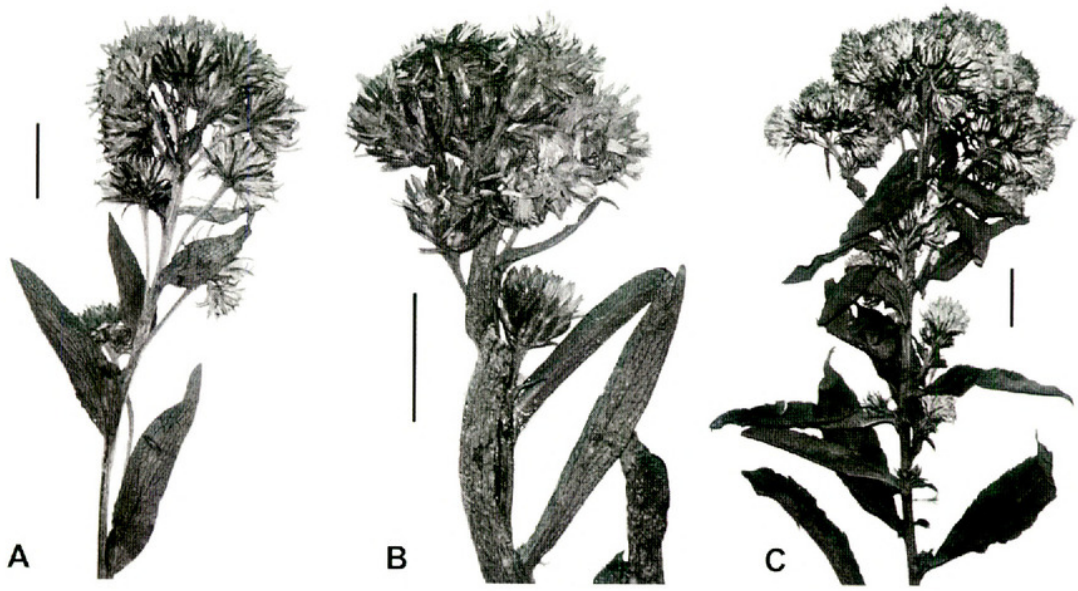

FIG. 2. *Solidago* subsect. *Multiradiatae*, capitulescences. **A.** *Solidago multiradiata*, Yukon, *Chmielewski et al. CC3824* (WAT). **B.** *Solidago leiocarpa*, New Hampshire, *Ringius 1584* (WAT). **C.** *Solidago spithamaea*, North Carolina, *Semple & Suripto 9669* (WAT). Scale bars = 1 cm.

found at disjunct high elevations in eastern New York, the Green Moutains in Vermont, the White Mountains in New Hampshire, and on Mt. Katadhin and a few higher peaks in Maine (Beaudry 1963; Morton 1981; Magee & Ahles 1999). *Solidago spithamaea* includes hexaploids restricted to the highest granitic outcrops in the mountains of western North Carolina (Cronquist 1980; Semple et al. 1984; Semple & Cook 2004). *Solidago multiradiata* includes diploids and tetraploids and is widely distributed across northern North America from the Maritimes to Alaska across Canada and down the cordillera at higher elevations in the western United States to California, Arizona, Nevada, and New Mexico (Semple et al. 1999). Other goldenrods that can have a rounded-corymbiform capitulescence occur in *Solidago* sect. *Ptarmicoidei* Semple & Gandhi, but these have striate phyllaries ((Semple & Gandhi 2004). *Solidago wrightii* A. Gray sometime can also have a rounded somewhat corymbiform capitulesence, but the species has short-petiolate mid stem leaves and often glandular phyllaries (Semple & Cook 2005).

Kanchi H. Gandhi (pers. comm.) noted that my combination proposed last year (Semple 2003) was based on an invalid basionym because the protologue lacked a Latin diagnosis.

Symphyotrichum concolor (L.) Nesom var. **devestitum** (S.F. Blake) Semple, comb. nov. BASIONYM: *Aster concolor* L. var. *devestitus* S.F. Blake, Rhodora 32:145. 1930. TYPE: U.S.A. FLORIDA. Bay Co.: Lynn Haven, in dry sandy open soil, 13 Oct 1921, *Billington 80* (HOLOTYPE: US-1116195!).

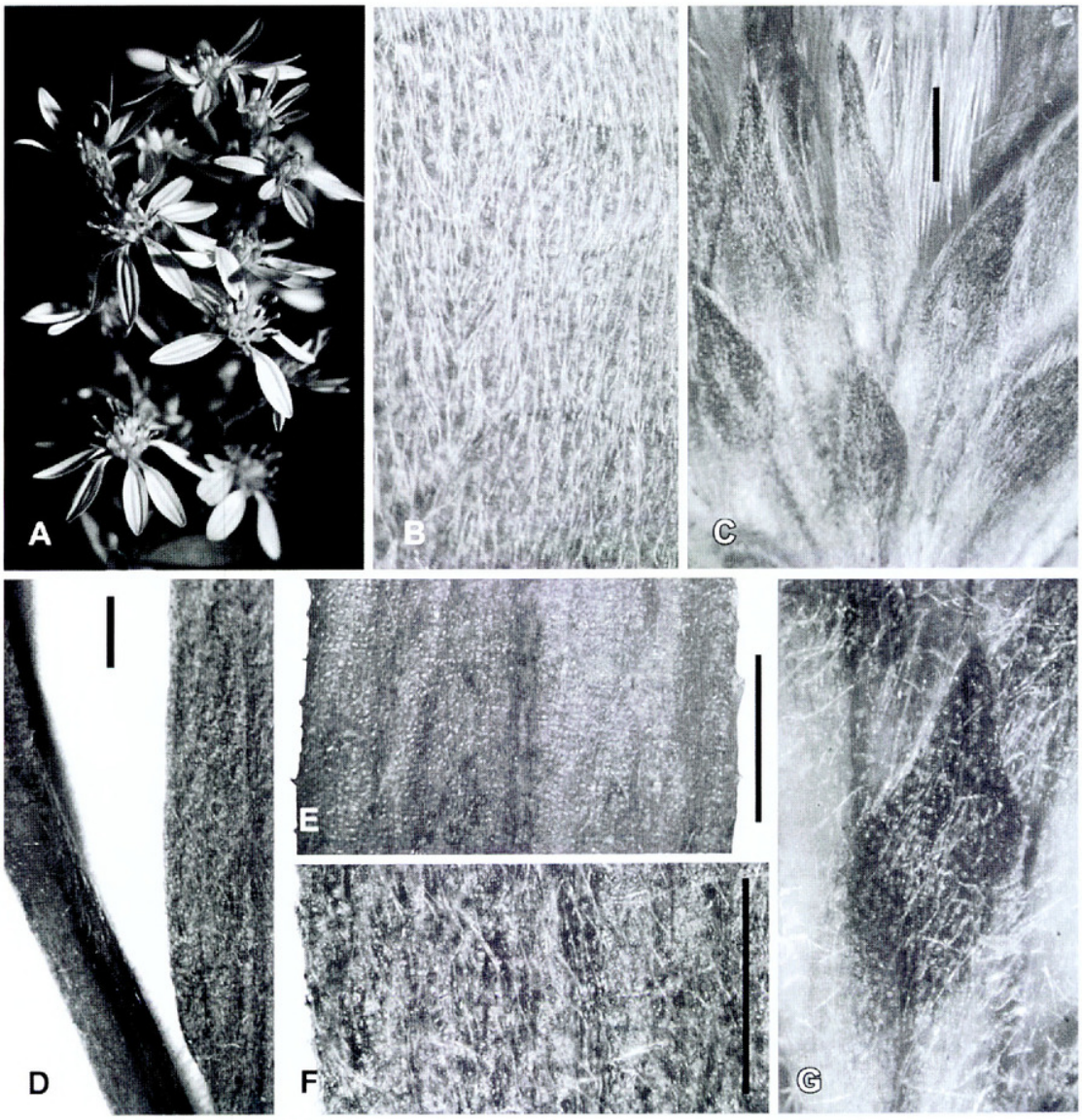

FIG. 3. Morphology of *Symphyotrichum concolor*. **A.** Flowering heads, Florida. **B–C.** Variety *concolor*. **B.** Mid stem leaf surface; Georgia, *Semple & Chmielewski 6213* (WAT). **C.** Phyllaries; Florida, Suwanee Co., *Semple, Brouillet & Canne 3930* (WAT). **D–G.** Variety *divestitum*, Florida; **E,** Bay Co., *Semple & Godfrey 3118*; **D, F–G,** Santa Rosa Co., *Semple, Brouillet & Canne 3880* (WAT). **D.** Mid stem and leaf. **E–F.** Mid stem leaf surfaces. **G.** Phyllary. Scale bar = 1 mm in C, E–F and 1 cm in D.

Symphyotrichum concolor is characterized by its narrow, elongate capitulescence of usually many, violet-rayed heads (Fig. 3A). The var. *concolor* has more moderately to densely silky pubescent leaves and phyllaries (Figs. 3B–C), while var. *devestitum* has glabrous to very sparsely pubescent stems and glabrate to sparsely pubescent leaves and phyllaries (Figs. 3D–G). Plants similar to the type of var. *devestitum* occur in the western Florida Panhandle. The involucres of such Florida plants tend to be larger than those of diploid var. *concolor* (Blake 1930). Very sparsely pubescent-leaved individuals also occur in southern Miss.,

Ala., Ga., and S.C. These may prove to belong in var. *devestitum* pending more detailed study. Semple (1984) described and illustrated the distribution of diploids (2n = 8) and tetraploids (2*n* = 16) in *S. concolor* under the name *Virgulus concolor*, but did not discuss varieties and noted incorrectly that no obvious differences occurred between diploids and tetraploids. In Florida, the range of tetraploids is contained within the range of var. *devestitum*; tetraploids are currently unknown outside Florida. Cytovouchers of tetraploids in WAT have glabrous to sparsely pubescent leaves and belong in var. *devestitum*. The tetraploid condition may account for the larger involucres.

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