

The genus *Asanthus* (Asteraceae: Eupatorieae) revisited

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ABSTRACT

My previous publications relating to the genus *Asanthus* are reviewed and compared with the taxonomic findings of yet other workers, especially those having to do with DNA studies. It is concluded that *Asanthus* is composed of 3 species: *A. squamulosus*, *A. solidaginifolius* and *A. thrysiflorus*. It is noted that the latter two are sufficiently close so as to be considered as but varietally distinct, such designation awaiting additional study. A key to the several species is provided, along with maps showing their distributions. Published on-line www.phytologia.org *Phytologia* 96(3): 195-198 (July 1, 2014). ISSN 030319430

KEY WORDS: Asteraceae, Eupatorieae, *Asanthus*, *Brickellia*, *Steviopsis*, Mexico

King and H. Robinson (1972) erected the genus *Asanthus* to accommodate three taxa, these previously treated by B. L. Robinson (1917) as belonging to the section *Steviastrum* of *Brickellia* (*B. solidaginifolia* and *B. thrysiflora*) and the monotypic sect. *Gemmipedium* of *Brickellia* (*B. squamulosa*). All of these have glabrous non-bulbous stylar shafts, like those of *Steviopsis*, and all, except *B. squamulosa*, have similar subimbricate involucre bracts. McVaugh (1984) retained this complex in *Brickellia*, largely because of their 6-8 ribbed achenes (which I interpret as basically 5-ribbed with intercalary, smaller ribs, unlike the 8-9 equally-ribbed achenes of most *Brickellias*), all of which have swollen, pubescent, stylar shafts. King and H. Rob. (1987) provided an overview of the *Asanthus* complex in which 3 species were recognized: the very distinctive type species, *A. squamulosus*, and the two more similar taxa, *A. solidaginifolius* and *A. thrysiflorus*. Turner (1997), however, presumably in a lumping mood, positioned the several taxa in his broad concept of *Steviopsis*.

I now recant such a treatment, what with the recent DNA studies of Schilling et al. (2013) that confirm the taxonomy of King & Robinson (1987). In short, all of the above-mentioned taxa are best removed from *Brickellia* and/or *Steviopsis* and positioned in *Asanthus*, the latter readily distinguished from *Steviopsis* by having glandular (vs eglandular) achenes, and erect (vs spreading) corolla lobes. In addition to the taxonomy, the purpose of the present paper is to provide a key to the species, showing their distributions in greater detail than that provided by previous workers.

King and H. Robinson provided an excellent description of the genus, and such need not be replicated here.

Key to species

1. Leaves linear, 4-6 mm wide, mostly deciduous when achenes approach maturity; n Dur, Chi and USA.....**A. squamulosus**
1. Leaves narrowly lanceolate to ovate, 6-20 mm wide, persistent through maturity; north-central Mexico...(2)
2. Involucres 2-4 seriate; inner bracts 1 mm wide or less; n Dur, Chi, Nue.....**A. solidaginifolius**
2. Involucres 4-6 seriate; inner bracts 1-2 mm wide; south-central Mexico.....**A. thrysiflorus**

ASANTHUS SOLIDAGINIFOLIUS (A. Gray) King & H. Rob., Phytologia 24: 66. 1972.*Brickellia solidaginifolia* A. Grayn Dur, Chi and Nue; oak-pine woodlands, 1600-2600 m; Sep-Nov. **Map 1**

Suffrutescent herbs to 1 m high. **Leaves** numerous and mostly alternate, 3-8 cm long, 0.4-0.8 cm wide; petioles 1-5 mm long; blades lanceolate, 3-nervate from or near the base, puberulent, prominently glandular-punctate or atomiferous glandular, the margins entire or nearly so. **Heads** numerous on terminal much-branched stems, forming an elongate, broad capitulescence, the ultimate peduncles 1-15 mm long. **Involucres** 2-4 seriate, 6-7 mm high, the bracts broad and 2-4 striate, or slender and 1-2 striate. **Florets** 10-14 per head, the corollas 6-7 mm long. **Achenes** 3.5-5.0 mm long, 9-ribbed, sparsely glandular pubescent, the pappus 1-seriate, composed of ca 30 barbellate or subplumose bristles 6-8 mm long.

Turner (1988) proposed this taxon as a variety of *A. thrysiflorus*, such never **formally** published, hence not listed in IPNI. See additional discussion below.

ASANTHUS SQUAMULOSUS (A. Gray) King & H. Rob., Phytologia 24: 66. 1972.*Brickellia squamulosus* A. Gray*Steviopsis squamulosa* (A. Gray) B.L. Turner

Chi, n Dur, Coa and USA, mostly in sandy soils along flood plains and arroyo bottoms, 2000-2200 m; Apr-Jun. **Map 2**

Suffrutescent herbs or shrublets to 6 dm high; stems erect, brittle, corky and glabrate at maturity. **Leaves** subopposite to alternate, 3-7 cm long, 2-6 mm wide; petioles 0-2 mm long; blades (on primary growth) linear, 3-nervate from below, the margins entire or nearly so; leaves on secondary growth forming minute bead-like clusters that persist after the primary leaves drop. **Heads** numerous, turbinate, arranged in narrow, compact, elongate, wand-like capitulescences. **Involucres** 5-8 seriate, very graduate, 8-10 mm high, the phyllaries indurate, puberulent. **Florets** 8-12 per head, the corollas ca 8 mm long. **Achenes** 3-4 mm long, 10-ribbed, glabrous or nearly so, the pappus 2-3 seriate, of numerous nearly eciliate bristles, 6-8 mm long.

Asanthus squamulosus is superficially similar to *Brickellia spinosa*, as noted by Robinson (1917). King and Robinson (1972a), however, called to the fore the many differences between the two taxa especially the nodose stylar shafts, placing this in the genus *Asanthus*, while Turner (1997) placed the taxon in *Steviopsis*. DNA data (Schilling et al. 2013) confirm the classification of King and Robinson.

The latter workers provide an excellent full-page sketch of the species.

ASANTHUS THRYSIFLORUS (A. Gray) King & H. Rob. Phytologia 24: 66. 1972.*Brickellia thrysiflora* A. Gray*Steviopsis thrysiflora* (A. Gray) B.L. Turner

Nue, Dur, Agu, Zac, San, Jal and Gua, oak-pine woodlands, 1600-2600 m; Sep-Nov.

Suffrutescent perennial herbs to 1 m high. **Leaves** numerous and mostly alternate, 3-8 cm long, 4-8 mm wide; petioles 0-5 mm long; blades lanceolate, 3-nervate from or near the base, puberulent, prominently glandular-punctate or atomiferous-glandular, the margins entire or nearly so. **Heads** numerous on the much-branched stems, forming an elongate, broad, capitulescence, the ultimate peduncles 0-15 mm long. **Involucres** 4-6 seriate, 6-8 mm high, the bracts narrow and 1-2 striate. **Florets** 10-14 per head, the corollas 6-7 mm long. **Achenes** 3.5-5.0 mm long, 9-ribbed, sparsely pubescent, the pappus 1-seriate, of ca 30 barbellate or subplumose bristles 6-8 mm long.

As noted above, King & Robinson (1987) recognized 2 species within the *Asanthus thrysiflorus* complex, while McVaugh (1984) reduces these to synonymy under his *Brickellia thrysiflora*. Turner (1988) treated the two taxa informally as varieties, largely because they were allopatric and some of the characters seemed to intergrade. McVaugh (1984) recognized the regional variation discussed above, but synonymized the species on the basis of presumed intermediates. King and H. Robinson (1972) and

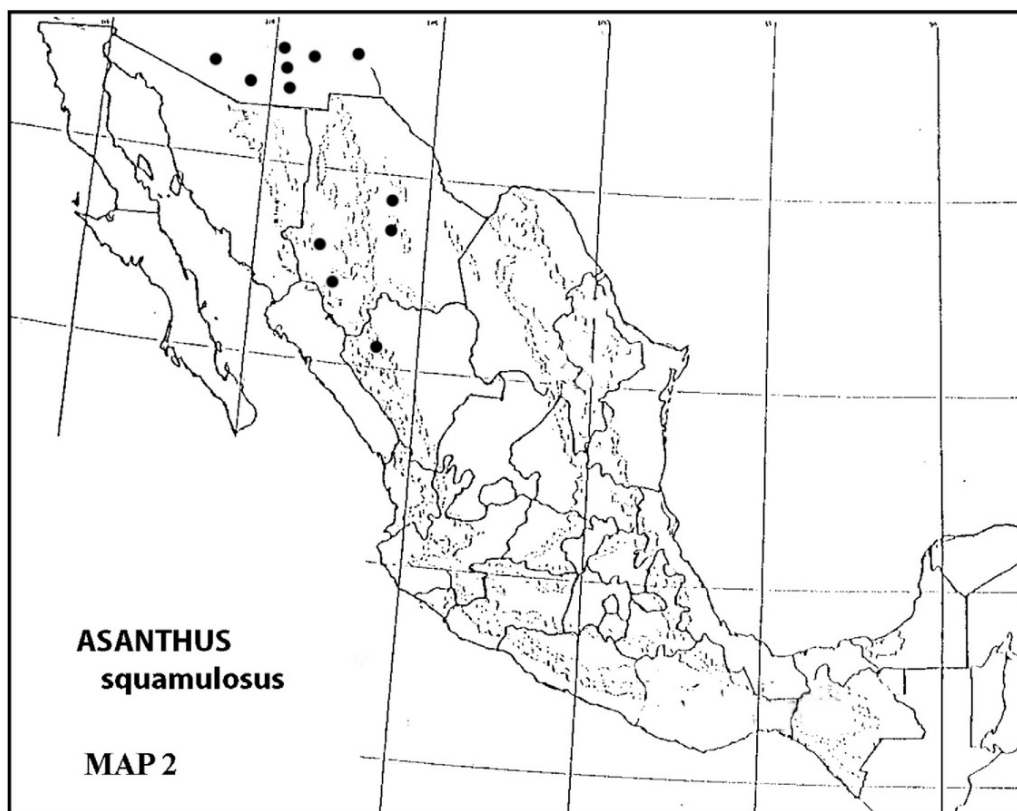
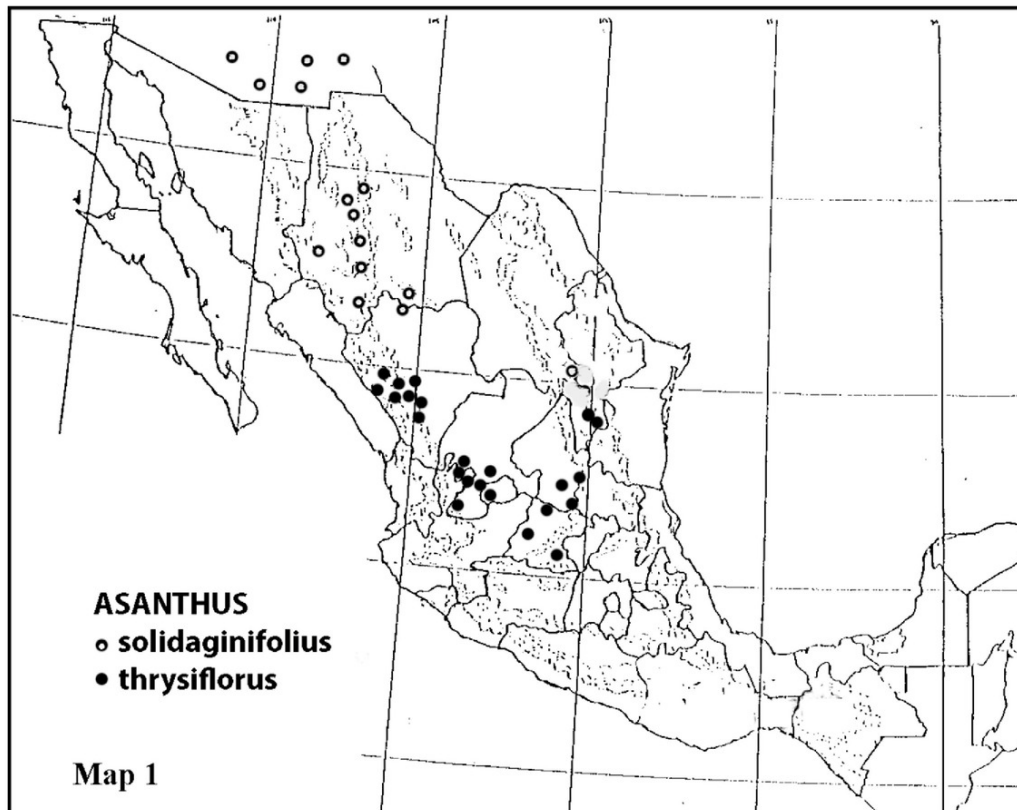
Schilling et al. (2013), treated these as species, but the latter workers noted "the decision to recognize them as distinct species or as varieties (or subspecies) within a species is still open." I have reexamined the complex and conclude that the proposed infraspecific taxa are worthy of recognition. I note further, Schilling et al.'s DNA citation 2491 (from Coa, Villarreal 5422, TEX) appears to be an immature specimen of *Asanthus solidaginifolius* (with which it clusters in their Fig. 2) and not *A. thrysiflorus*. Additionally, I should add that the two specimens from Nuevo Leon indicated in my Map 1 possess unusually large heads, their involucres (8-10 mm high); these perhaps represent an unnamed taxon, albeit varietal.

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