

***SOLIDAGO GEORGIANA* (ASTERACEAE: ASTEREAE),  
A NEW SPECIES IN *S.* SUBSECT. *SQUARROSAE* FROM GEORGIA**

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**ABSTRACT**

*Solidago georgiana* is described from a single collection from Effingham Co., Georgia. The new species is placed in *Solidago* subsect. *Squarrosae* and has morphological similarities with *S. roanensis* and *S. porteri*.

*Solidago* subsect. *Squarrosae* A. Gray (Asteraceae: Astereae) includes 14 species native primarily to eastern Canada and the midwestern and eastern portions of the USA (Semple et al. 2017). Semple and Cook (2006) recognized 9 species with multiple infraspecific taxa in several species, while Semple (2017 frequently updated) recognized 14 species: *S. bicolor* L., *S. erecta* Pursh, *S. hispida* Muhl., *S. jejunifolia* Steele, *S. pallida* (Porter) Rydb., *S. porteri* Small, *S. puberula* Nutt., *S. pulverulenta* Nutt., *S. rigidiuscula* (Torr. & A. Gray) Porter, *S. roanensis* Porter, *S. sciaphila* Steele, *S. speciosa* Nutt., *S. squarrosa* Muhl., and *S. villosicarpa* LeBlond. A total of 265 specimens representing 14 species were included in a multivariate study of *S.* subsect. *Squarrosae* focusing on the *S. speciosa* complex (Semple et al. 2017).

As part of an in-progress multivariate study of the *Solidago puberula* - *S. pulverulenta* complex, additional collections were borrowed from GA (Thiers continuously updated) to expand the sampling of the complex in Georgia. Among the collections was *Zomlefer et al. 3785* from Effingham County near the coast in southeastern Georgia, northwest of Savannah, which had been identified originally as *S. puberula* then later annotated as *S. puberula* subsp. *pulverulenta* (Nutt.) Semple. The stem pubescence was not densely very-short canescent from the base into the inflorescence and the heads appeared to be too big and the phyllaries too wide for *S. puberula* and *S. pulverulenta*. Hairs were absent from the lower stem and became increasingly more dense distally and were longer than hairs found on stems of *S. puberula* and *S. pulverulenta* and more like the pubescence of *S. roanensis* in distribution and size as noted in the multivariate study of the *S. bicolor*-*S. hispida* complex (Figs. 5-6 in Semple et al. 2017). However, the range of *S. roanensis* just extends into northern Georgia in the Appalachian Mountains with the nearest known collections coming from Abbeville Co., South Carolina, in the Piedmont at 150-200 m elevation (Fig. 13 in Semple et al. 2017). *Zomlefer et al. 3785* came from the outer coastal plain at about 19 m elevation (Figs. 1-2).

The involucre of *Solidago roanensis* are 2.3–5.6 mm tall, averaging 3.9 mm tall (Table 15 in Semple et al. 2017). The involucre of *Zomlefer et al. 3785* average about 5 mm tall. Ray lamina lengths in *S. roanensis* are 1–3 mm averaging about 2 mm while those of *Zomlefer et al. 3785* were about 4 mm long. Thus, the heads of *Zomlefer et al. 3785* are noticeably larger and more showy than those of *S. roanensis*. Either *Zomlefer et al. 3785* is a significantly disjunct and possibly polyploid member of *S. roanensis* with only diploids  $2n=18$  having been reported for the species (Beaudry 1963, Semple et al. 1984, Semple et al. 2015 and unpublished data), or it is a collection of a previously undescribed species. Because the habitats of *Zomlefer et al. 3785* and *S. roanensis* are so different, treating the former as a member of a previously undescribed species is the more reasonable option in this case. Semple et al. (2017) included *Zomlefer et al. 3785* in a multivariate study of *S. porteri*, *S. roanensis*, *S. squarrosa*, and *S. villosicarpa*; *Zomlefer et al. 3785* was most similar to *S. porteri* but also had affinities to *S. roanensis* and *S. villosicarpa*.

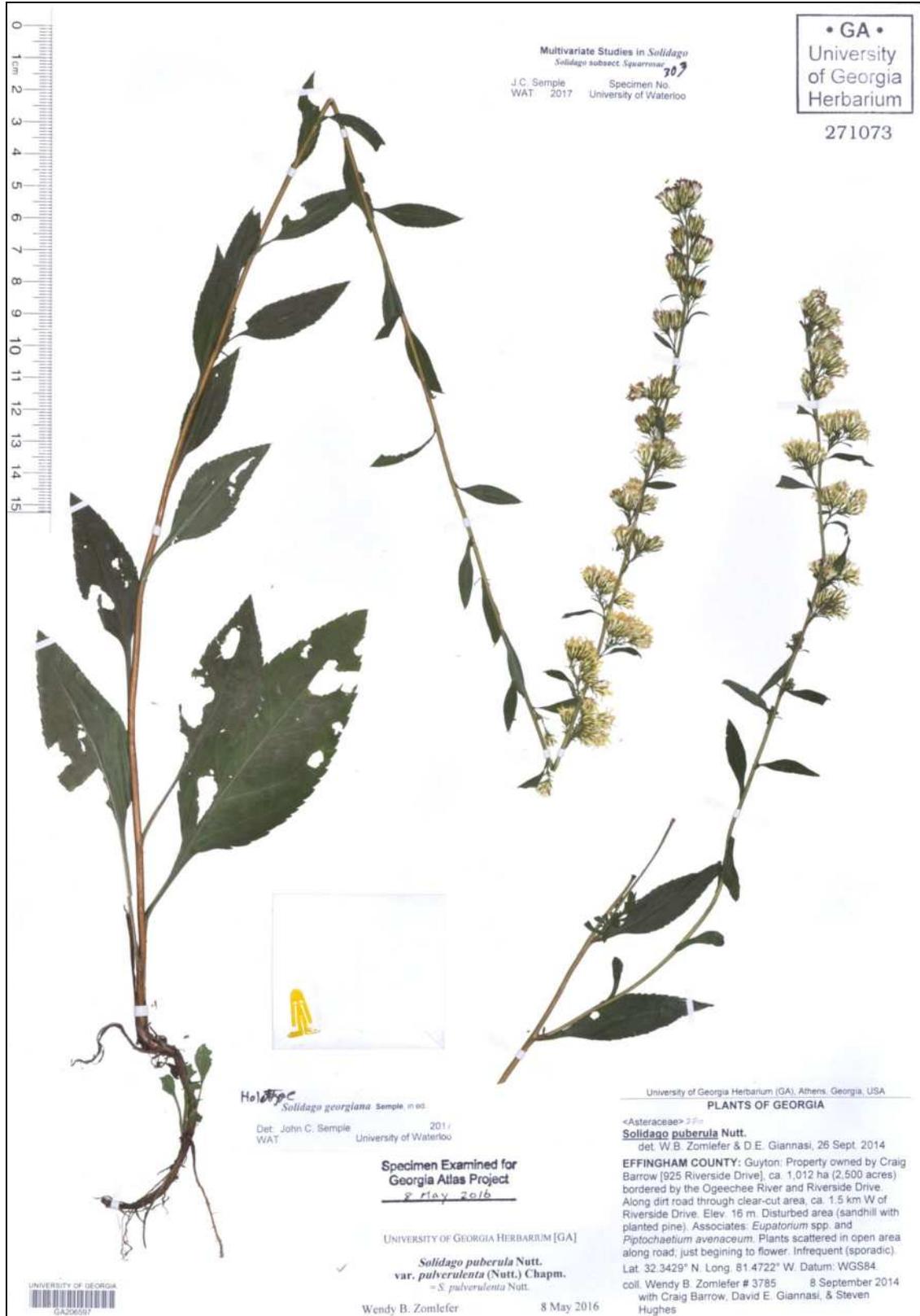


Figure 1. Holotype of *Solidago georgiana*, Zomlefer et al. 3785 (GA from Effingham Co., Georgia).

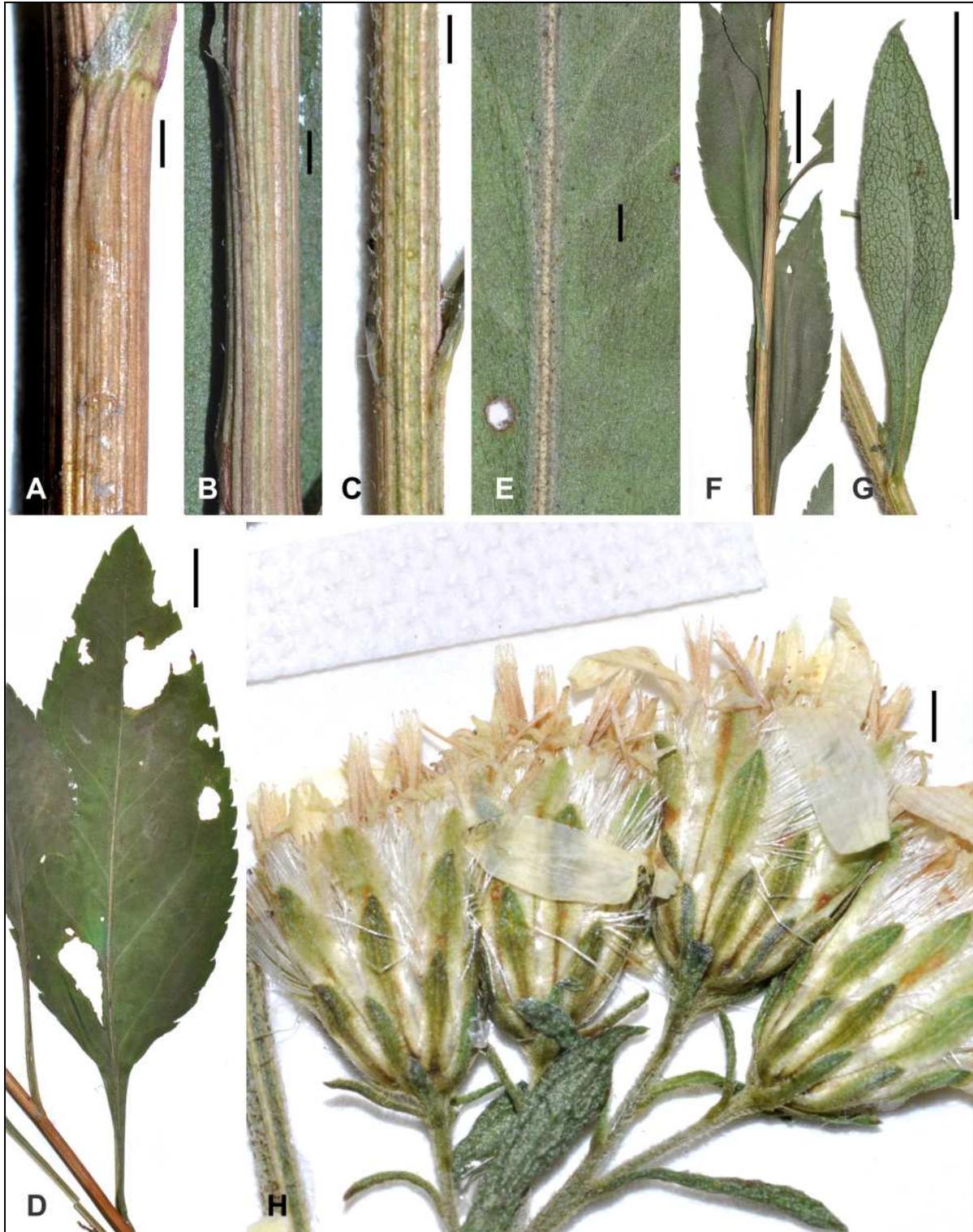


Figure 2. Details of the morphology of the holotype of *Solidago georgiana*, Zomlefer et al. 3785 (GA). **A-C**. Lower, middle and upper stem. **D-E**. Lower stem leaf and adaxial surface detail. **F-G**. Mid and upper stem leaves. **H**. Heads. Scale bars = 1 mm in A-C, E and H; = 1 cm in D, F-G.

**SOLIDAGO GEORGIANA** Semple, **sp. nov.** **TYPE: USA. Georgia:** Effingham Co.: Guyton, 925 Riverside Drive [property owned by Craig Barrow], ca. 1012 ha (2500 acres) bordered by the Ogeechee River and Riverside Drive, along dirt road through clear-cut area (sandhill with planted pine); *Eupatorium* spp. and *Pitochaetium avenaceum*, plants scattered in open area along road, just beginning to flower, infrequent (sporadic), lat. 32.3429° N, long. 81.4722° W, 8 Sep 2014, *W.B. Zomlefer 3785 with C. Barrow, D.E. Giannasi, & S. Hughes* (holotype: GA). Figures 1 and 2)

Similar to *Solidago roanensis* in stem pubescence but with larger more showy heads that are smaller than those of *Solidago porteri* and native to the outer coastal plain of southeastern Georgia.

**Plants** 65–75 cm; from short rhizomes. **Stems** single, erecta, glabrous proximally, strigulose-puberulent distally and in arrays. **Leaves:** basal and proximal cauline tapering to narrowly winged petioles 20–35 mm long, blades elliptic to elliptic-ovate, 70–110 (including petiole) × 20–38 mm newly formed rosettes with much smaller leaves, acuminate, glabrous, margins serrate and scabrellous; mid and distal cauline sessile, blades mostly narrowly lanceolate, 18–50 × 4–12 mm. **Heads** 20–50, in elongate, narrowly paniculiform arrays, leafy-bracteate proximally, not secund, proximal branches short and ascending to arching. **Peduncles** 3–10 mm, bracteolate. **Involucres** campanulate, 5–5.1 mm at anthesis. **Phyllaries** in 3–4 series, appressed, unequal (outer  $\frac{1}{3}$  length of inner), linear to lanceolate-deltate, single veined, apices broadly acute to slightly obtuse. **Ray florets** 4–6; laminae 3.9–4.5 × 1.4–1.7 mm. **Disc florets** 8–10; corollas 4.3–4.8 mm, lobes 0.7–1.1 mm. Cypselae: body 1.1–1.3 mm at anthesis, proximally sparsely strigose, distally moderately densely strigose; pappus in several similar series, the longest inner 3.5–3.8 mm at anthesis; mature fruits larger. **Chromosome number:** unknown.

The species is currently known only from the holotype collection.

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