

ADDITIONS TO THE VASCULAR FLORA OF THE ROCKY FORK TRACT, TENNESSEE, U.S.A.

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ABSTRACT

An examination of previously unaccessioned and overlooked specimens has added 16 species to the vascular flora of the 3800 ha Rocky Fork Tract in northeastern Tennessee. One species was deleted because of a prior misidentification for a net gain of 15 species and a total of 764 species. One species, *Solidago lancifolia* (Torr. ex A. Gray) Chapm., is listed as Endangered in Tennessee. All additions except two, represent county records.

RESUMEN

Un examen de los especímenes previamente sin testigos y pasados por alto ha añadido 16 especies a la flora vascular de las 3800 ha Rocky Fork Tract en el noreste de Tennessee. Una especie se eliminó debido a una previa identificación errónea para tener una ganancia neta de 15 especies y un total de 764 especies. Una especie, *Solidago lancifolia* (Torr. ex A. Gray) Chapm., está listada como En Peligro en Tennessee. Excepto dos, todas las adiciones, representan citas en el condado.

A recently published flora of the 3800 ha Rocky Fork Tract, located on the border of the Blue Ridge (Bald Mountains) and Ridge & Valley physiographic provinces in northeastern Tennessee, compiled 749 species (Levy & Walker 2016). An examination of previously overlooked and recently accessioned specimens at ETSU adds 16 additional species, all of which are native and all but two represent county records (11 for Unicoi County and 3 for Greene County, for new totals of 90 and 228 county records, respectively) (Table 1). One species (*Carex folliculata* L.) was misidentified for a net gain of 15 species and a new total of 764 species.

The most noteworthy new addition is *Solidago lancifolia* (Torr. & A. Gray) Chapm., a species endemic to the Southern Blue Ridge and listed as Endangered in Tennessee (Crabtree 2016). In Tennessee, the species was historically known only from Roan Mountain (Carter Co.) and Bluff Mountain (Cocke Co.). The Rocky Fork locale is on Wilson Knob, an anthropogenically created and maintained forest opening at an elevation of 1280 m. The population size is unknown as the specimen, collected in 2009, had not been identified to species until it was examined for a recent study of the distribution and morphology of *S. lancifolia* (Levy and Donaldson, accepted). The species was not unexpected at Rocky Fork because it had also been found recently (2016–2017 collections) within 12 km at sites to the east (1.7 km sw of Big Bald, Unicoi Co., TN, elev. 1460 m) and west (Bald Mountain, Greene Co. TN, elev. 1326 m). However, the Wilson Knob site represents the lowest known elevation for the species (Levy and Donaldson, accepted). With spreading rhizomes, *S. lancifolia* can form colonies that persist in either openings or under a forest canopy. However, frequent mowing would likely be detrimental.

Two species, *Carex cumberlandensis* Naczi, Kral, & Bryson and *Scirpus georgianus* R.M. Harper, are noteworthy because their geographic distributions tend to avoid the Blue Ridge physiographic province. A similar distributional pattern is evident in *Lysimachia tonsa* (Wood) Wood ex Pax & R. Knuth, a species found at a low elevation site (approx. 650 m) in the Rocky Fork Tract but largely absent from the Blue Ridge. *Scirpus georgianus* was also found at low elevation, <0.5 km from the *L. tonsa* site, but *C. cumberlandensis* was found higher, near Broad Branch Creek at 945 m elevation. The distributions of this set of species highlight the difficulty associated with using county dot maps to assess physiographic distribution limits. For example, most of the eastern-most counties in Tennessee span the Blue Ridge and Ridge & Valley physiographic provinces.

TABLE 1. Species in the Rocky Fork Tract listed alphabetically by family within vascular plant groups. Abbreviations: County records: G = Greene, U = Unicoi; TN = Tennessee Rare Plant List. Collection number of a representative specimen follows species name and county abbreviations. All collections were by Levy and Walker or Levy and are deposited in the ETSU herbarium.

MONOCOTS	DICOTS
<p>Cyperaceae</p> <p><i>Carex albicans</i> Willd. ex Spreng. U RF3042 <i>Carex baileyi</i> Britton G 15325 <i>Carex cumberlandensis</i> Naczi, Kral, & Bryson U RF2507 <i>Carex hirsutella</i> Mack. U 14151 <i>Carex laxiflora</i> Lam. RF1048 <i>Carex retroflexa</i> Muhl. ex Willd. U 14332 <i>Carex styloflexa</i> Buckley U 14155 <i>Carex umbellata</i> Schk. ex Willd. U 15068 <i>Scirpus georgianus</i> R.M. Harper U RF1547</p> <p>Poaceae</p> <p><i>Dichanthelium villosissimum</i> (Nash) Freckmann U RF2419</p>	<p>Asteraceae</p> <p><i>Solidago lancifolia</i> (Torr. & A. Gray) Chapm. G TN RF1944 <i>Symphotrichum lowrieianum</i> (Porter) G.L. Nesom U RF2968 <i>Symphotrichum phlogifolium</i> (Muhl. ex Willd.) G.L. Nesom U RF2967</p> <p>Brassicaceae</p> <p><i>Cardamine concatenata</i> (Michx.) Sw. 18001</p> <p>Linaceae</p> <p><i>Linum virginianum</i> L. U RF3487</p> <p>Rosaceae</p> <p><i>Rubus allegheniensis</i> Porter G RF1601</p>

However, the widespread availability of searchable herbarium databases provides an opportunity to more finely dissect distributions. In the case of this set of species, an examination of label data from specimens in the SERNEC database showed that for the eastern Tennessee counties, most collections were localized to the Ridge and Valley rather than the Blue Ridge (SERNEC 2017).

Carex folliculata, a Tennessee “Threatened” species, was previously reported but a re-examination of the two specimens showed these were *C. intumescens* Rudge var. *fernaldii* L.H. Bailey. The net gain of seven *Carex* and one *Scirpus* species increases the number of *Carex* species to 43 and the Cyperaceae species to 51. *Carex* is the most speciose genus, and the Cyperaceae remains the third largest family in Rocky Fork, after the Asteraceae and Poaceae (with new totals of 114 and 82 species, respectively). In comparison, two sites in the Cumberland Plateau of southeastern Tennessee with similar land area and floristic richness, Fall Creek Falls State Park and the Tennessee River Gorge, had 37 and 30 *Carex* taxa, respectively, of which there was overlap (i.e., number of species shared) with Rocky Fork of only 20 and 16 species, respectively (Beck & Van Horn 2007; Blyveis & Shaw 2012). With over twice the acreage of Rocky Fork, Prentice Cooper State Forest and Wildlife Management Area, also in the Cumberland Plateau of southeastern Tennessee, had 85 *Carex* species with 37 species that overlapped those of Rocky Fork (Fleming & Wofford 2004). Big Frog Wilderness Area, a 2843 ha site in the Blue Ridge of extreme southeastern Tennessee, had only 19 species of *Carex*, of which 15 overlapped with those of Rocky Fork (Murrell & Wofford 1987).

Using the Sørensen Similarity Index (Sørensen 1948) as an estimator of the degree of species overlap, for *Carex* species the range of similarities with the four comparable floras cited above was 0.44–0.58. In comparison, for *Solidago* and *Viola*, the second and third most speciose genera at Rocky Fork (with 20 and 17 species, respectively), similarities were much higher at 0.62–0.94 and 0.63–0.73, respectively. The lower similarities for *Carex* species may reflect the relatively high species diversity for the genus, and a higher degree of habitat and physiographic fidelity in *Carex* compared to the other genera.

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