

A second, possibly native, extant population of *Cyperus setiger* in Missouri

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ABSTRACT. — A new population of *Cyperus setiger* is reported from Callaway County. The history and putative nativity of the species in Missouri is discussed.

Cyperus setiger Torrey & Hooker (Lean Flatsedge) is native to Kansas, Oklahoma, Texas, Missouri, and New Mexico (Great Plains Flora Association 1986, Jones & Reznicek 1993, McKenzie & Jacobs 1995, Yatskievych 1999). The binomial *Cyperus setigerus* has commonly been used in the literature for this species (e.g., Great Plains Flora Association 1986, Jones & Reznicek 1993, McKenzie & Jacobs 1995, Yatskievych 1999), but this combination is invalid because of an incorrect termination of the specific epithet (<https://www.tropicos.org/name/100177362>).

The species has been reported from a variety of habitats, including prairie swales, clay meadows, ditches, and the shorelines of ponds and lakes (Correll & Correll 1972, Great Plains Flora Association 1986, McKenzie & Jacobs 1995, Yatskievych 1999). The only previous Missouri reports are a 1915 record from Jackson County and a 1995 record from Boone County along Interstate 70 which remains extant (McKenzie & Jacobs 1995; Yatskievych 1999).

Subsequent to the discovery of the I-70 population in Columbia, near the West Boulevard exit (McKenzie & Jacobs 1995), repeated attempts were made to transplant rhizomes of *C. setiger* from the Boone County site to multiple locations in Boone and Callaway Counties, due to concerns related to right-of-way maintenance activities by the Missouri Department of Transportation. To become established before translocating, rhizomes were initially grown in pots at Rock Post Wildflowers, a private nursery in Fulton, Missouri. Transplants of potted plants were attempted at Eagle Bluffs Conservation Area, Rockbridge State Park, Tucker Prairie, and Prairie Fork Conservation Area between 1996 and 2018 (McKenzie & Jacobs 1995; Malissa Briggler, Missouri Department of Conservation, pers. comm.). The only translocation site where *C. setiger* survived was at Prairie Fork Conservation Area (Briggler & Newbold, personal observations 2015-2020). Translocation of plants to Tucker Prairie occurred on 10 May 2002, but subsequent observations by the authors and others (Malissa Briggler, Ann Wakeman) from 2003 to date failed to document any survival or reproduction at the planting site.

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On 30 July 2019, Newbold observed a large population *C. setiger* along a prairie swale near the western boundary of Tucker Prairie (Figs. 1 & 2); McKenzie vouchered the new location on 23 June 2020. The authors assumed incorrectly that this location was one of the original 2002 translocation sites. Those plantings, however, occurred near the eastern boundary of the prairie, approximately 300 m W and WNW from the 2019 discovery site (Wakeman, pers. comm.).



Figure 1. Culm of *Cyperus setiger* from near the western boundary of Tucker Prairie, 30 July 2019. Photo: Chris Newbold.



Figure 2. Large population of *Cyperus setiger* at the 2019 discovery site. Photo: Paul McKenzie.

Due to the fact that all known translocations along the eastern boundary of Tucker Prairie did not survive after repeated searches, and the 300+ meters distance between the eastern and western boundaries, we believe the 2019 discovery is possibly a native occurrence. It is unlikely that plants translocated to the eastern edge of Tucker Prairie were the source of the large population growing near the western boundary because as noted, the translocated plants did not flower or persist. Since no seeds were produced by the transplanted population, the only potential movement of *C. setiger* 300 meters to the current extant location would be from rhizomes dug up by some unknown mammal species while the translocated plants were still alive. We find this possibility unlikely. Additionally, Tucker Prairie is located ca. 17 mi. WNW of Prairie Fork CA and it is extremely unlikely this was a source population for plants discovered on Tucker Prairie.

The current extant site at Tucker Prairie is robust, with an estimated 500+ flowering culms (Fig. 2). Main associates of *Cyperus setiger* at the location are *Agrimonia parviflora*, *Andropogon gerardii*, *Baptisia alba* var. *macrophylla*, *Carex scoparia*, *Carex tribuloides*, *Cornus drummondii*

Eryngium yuccifolium, *Eupatorium perfoliatum*, *Euthamia graminifolia*, *Glyceria striata*, *Helianthus grosseserratus*, *Helianthus mollis*, *Penstemon digitalis*, *Scirpus georgianus*, *Sorghastrum nutans*, *Vernonia baldwinii*, and *Veronicastrum virginicum*. Nomenclature and authorities follow Yatskievych (1999, 2006, 2013).

The West Boulevard exit on I-70 in Columbia is directly adjacent to Cosmo-Bethel Park in the northwest corner of the city. An examination of the USGS 7.5' topographic map for the location reveals that the park was part of what was historically Cosmos Prairie. It is likely that the I-70 site was constructed through this prairie and that *C. setiger* was a native component of swales or wet depressions in the area. The discovery of a naturally occurring population of *Cyperus setiger* in a prairie swale at Tucker Prairie provides further support that such habitats were important for this sedge, as they are in some other areas of the species' extant range.

In Boone and Callaway counties, *C. setiger* is one of the earliest flowering perennial species of the genus, with inflorescences present as early as late May and continuing through mid-June. Due to its combination of stout culms, long floral bracts, reddish-purple spikelets (Figs. 1 & 3), and long rhizomes that have a noticeable sweet smell, this species is not likely to be confused with any other perennial *Cyperus* in Missouri. Although the prairies in southwest Missouri have been intensively surveyed, *Cyperus setiger* has not been discovered in this region of the state. The species should be looked for in prairie swales as well as ditches, pond edges, and low depressions.



Figure 3. Close-up of *Cyperus setiger* (McKenzie 2659) inflorescences showing reddish-purple spikelets and long floral bracts. Photo: Paul McKenzie.

Specimen cited: U.S.A. MISSOURI: CALLAWAY CO.: Tucker Prairie, south of I-70, ca. 2.5 miles west of highway 54 exit; in prairie swale near western boundary of site; 38.9519°N, 91.9984°W, McKenzie 2659 (MO).

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