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NEMASTYLIS NUTTALLII (IRIDACEAE) DOCUMENTED FOR THE TEXAS FLORA

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ABSTRACT

Nemastylis nuttallii Nutt. is documented for the flora of Texas in a Silveus Dropseed–Mead's Sedge Prairie at Talbot Prairie Preserve in Bowie County. Minimum population size, demographics, microsite preference, and associates of *N. nuttallii* were recorded at the preserve site.

The Iridaceous herb *Nemastylis nuttallii* Nutt. (Figures 1, 2), less formally Nuttall's pleatleaf, arises from bulbs with corrugated leaves in spring. It flowers in the evening in late spring or early summer. This timing and seasonality, as well as leaves less than 4 mm broad, anthers less than a centimeter in length, and connate filaments distinguish *N. nuttallii* from *N. geminiflora* Nutt., which shares most of its range (Kartesz 2014; Steyermark 1963; USDA NRCS 2023). Both occur in prairies or glades.

Nemastylis nuttallii has previously been mapped as occurring in Arkansas, Oklahoma, and Missouri. It has been ranked as globally vulnerable (G3) by NatureServe (2024) and observations on Symbiota portals (https://symbiota.org/) and the iNaturalist platform (https://www.inaturalist.org/) reveal roughly 60 temporally unique collections and 30 unique iNaturalist observations.

This species has been mentioned in the major floristic works for Texas, but the authors have expressed skepticism about its presence (Correll & Johnston 1970; Diggs et al. 1999, 2006). Distribution maps have avoided its inclusion (Kartesz 2014; Turner et al. 2003; USDA NRCS 2023). Weakley (2024) has included the species as rare for two regions of Texas, but we examined all Texas specimens on the Symbiota portals attributed to *Nemastylis nuttallii* and none were correctly identified — the majority represent *Nemastylis geminiflora* or *Alophia drummondii*.

In June 2023, the presence of *Nemastylis nuttallii* in Texas was confirmed, and a collection was made (Figure 1) at the Talbot Brother Prairie Preserve in Bowie County. A specimen collected there 12 years before proved to be the same species. *Nemastylis nuttallii* is thus critically imperiled (S1) in Texas.

Voucher specimens. Texas. Bowie Co: Talbot Brothers Preserve, from Simms, Texas, 5.5 mi. N of jct Hwy 98 and Hwy 67 on Hwy 98, W side of Hwy 98, 10 May 2011, *Singhurst* and *White 19357* (BAYLU); Talbot Brothers Prairie, along TX-98 ca. 4 mi SW of New Boston, 33.421744° N, 94.482844° W ± 5m, 2 Jun 2023, *Kelley* and *White s.n.* (KBL). Figure 1.

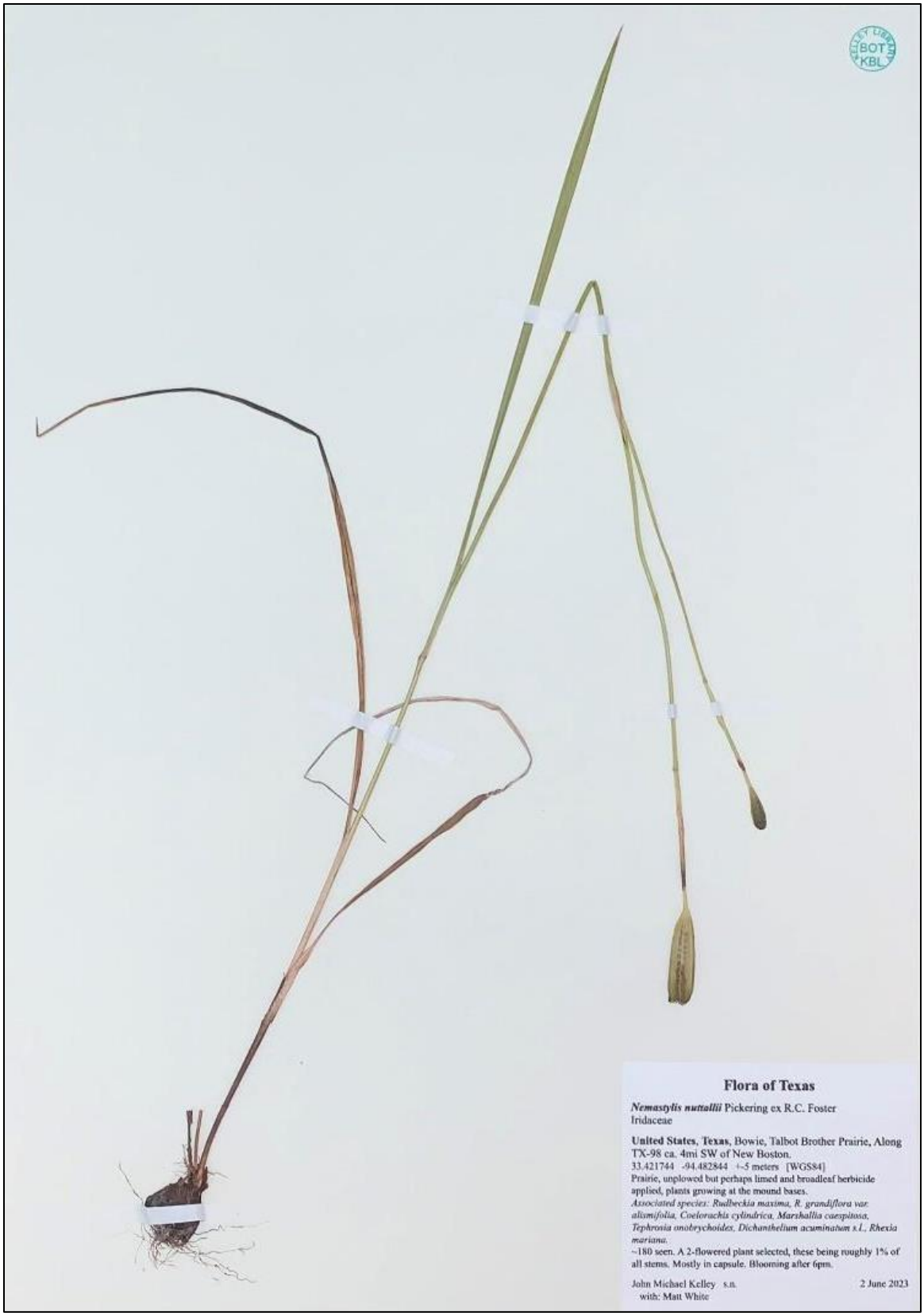

Figure 1. *Nemastylis nuttallii*, collected in 2023 at the Talbot Brother Prairie Preserve in Bowie Co., Texas.

Figure 2. *Nemastylis nuttallii* in flower and fruit at the Talbot Brother Prairie Preserve in Bowie Co., Texas.

Figure 3. General aspect of the Silveus Dropseed – Mead's Sedge Prairie habitat at the Talbot Brother Prairie Preserve in Bowie Co., Texas.

Talbot Brothers Preserve is owned and managed by the Native Prairies association of Texas and is also protected by a conservation easement held with the Texas Chapter of the Nature Conservancy. This 148-hectare preserve includes one of a few high-quality examples of unplowed native prairie in northeast Texas in addition to mesic, calcareous oak-hickory forest. The 57-hectare prairie portion of the preserve is ecologically defined by the U.S. National Vegetation Classification System (NatureServe Explorer 2024) as a Silveus Dropseed – Mead's Sedge Grassland (*Sporobolus silveanus-Carex meadii* Grassland), which is critically imperiled (G1S1). This is a unique type of pimple mound prairie with a diverse mix of wildflowers and grasses, including the namesake grass, Silveus dropseed. These prairies are found only in northeast Texas and potentially southeast Oklahoma and they represent one of the rarest communities in Texas.

We made notes on two trips immediately following the discovery of the *Nemastylis* — minimum population size, demographics, microsite preference, and associates were recorded in roughly eight man-hours of observation. We observed nearly 300 plants in the 6-hectare area we surveyed (Figure 3). Approximately 10% of the plants were in bloom (peak bloom was 1930 hrs.), the remainder being in various stages of fruit, but none with ripe capsules. About 1% of the plants had two flowers or fruits rather than one. 97% of the plants tallied were associated with mound bases; the plants were usually absent from the upper three-fourths of the mounds, but a narrow, broken band of *Nemastylis* often encircled the mounds from the lower fourth outward. Roughly one in three mounds had *Nemastylis* plants, and they ranged from a single stem to 147 stems per mound. Among the few

individuals found in the flat, intermoundal zone was a single plant blooming in the sparsely vegetated footprint where a hay bale was set the year before.

Associated species at the mound bases included the following: *Carex caroliniana*, *Coelorachis cylindrica*, *Sorghastrum nutans*, *Dichanthelium acuminatum* var. *lindheimeri*, *Rhynchospora globularis*, *Scleria ciliata*, *Castilleja coccinea*, *Erigeron strigosus*, *Helenium flexuosum*, *Linum medium* var. *texanum*, *Marshallia caespitosa* var. *caespitosa*, *Polygala sanguinea*, *Rhexia mariana*, *Rudbeckia grandiflora* var. *alismifolia*, and *Tephrosia onobrychoides*. *Rudbeckia hirta* became common above this narrow zone while *Juncus* spp. and *Physostegia angustifolia* became more common below. Most of these associates are present in the flatwoods and prairies of Arkansas, Louisiana, and Oklahoma as well, with collection notes from Arkansas in particular describing almost identical associates and position at the base of mounds (*Keesling 19-0072* at ANHC, Theo Witsell pers. comm.).

The proximity of the Texas occurrence to historic prairies in southwestern Arkansas and northwestern Louisiana suggests that these areas might have supported the species historically (Flores 1984, 2000). We did not locate *Nemastylis nuttallii* in a series of late-June surveys of remnants in Louisiana, but many of the associates are abundant at the sites searched. Roadside and hay-meadow grassland remnants in Morehouse Par., Louisiana, and Lafayette Co., Arkansas, deserve particular attention.

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