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VERNONIA FASCICULATA (ASTERACEAE): NEW TO THE FLORA OF TEXAS

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ABSTRACT

Vernonia fasciculata is reported new to the flora of Texas. It was collected on 9 Sep 2012 on a narrow remnant strip of low-lying "pocket prairie" along Hwy 37 in Red River County, Texas. These "pocket prairie" remnants are in dire need of study and conservation.

KEY WORDS: Asteraceae, *Vernonia*, *Vernonia fasciculata*, Red River County, Texas, "pocket prairie"

Vernonia fasciculata Michaux, prairie ironweed, is a native species that occurs most abundantly on the northern Great Plains and in the upper Midwest, though it occurs from the Prairie Provinces of Canada east to Ohio south to Colorado, Oklahoma, Arkansas, Mississippi, and Alabama (BONAP 2012). It was not listed for Texas by Correll and Johnson (1970), Jones et al. (1997), Turner et al. (2003), or BONAP (2012).

Vernonia fasciculata is a species of "the cool temperate zone" (Jones 1972), where it grows in a variety of mesic habitats including "bottomlands, ditches, and low prairies" (Strother 2006). It is closely related to *V. marginata* of west Texas and Oklahoma and Correll and Johnson (1970) suggested they might be treated as conspecific, a notion dispelled by Jones (1972) who treated the duo as the Fasciculatae Group.

On September 9, 2012, a small population of *Vernonia fasciculata* was found on an unmowed roadside near Negley in Red River County, Texas, five miles south of the Red River on a terrace along Pecan Bayou. Nearly two dozen plants were growing on a narrow remnant strip of high-quality "pocket prairie." This species was confined to a strip no more than 10 yards wide and 30 yards in width. Apparently this small remnant was protected from destruction by the right-of-way of Texas Hwy 37. Associated species included *Andropogon gerardii*, *Verbesina alterniflora*, *Solidago odora*, *Symphyotrichum pratense*, *Helianthus mollis*, and *Pteridium aquilinum*. A stand of *Vernonia baldwinii* was growing 50 yards away, but plants of that species were not found in the *V. fasciculata* colony.

Plants of *Vernonia fasciculata* (Figs. 1–4) were easily distinguished in the field by the corymbose inflorescence and toothed leaves with scabrous adaxial surface and glabrous abaxial leaf surfaces, as well as the fasciculate flowering heads (which were still in bud) in the axils of the upper cauline leaves. The leaf of a freshly collected specimen scanned at 3600 dpi resolution revealed that the abaxial leaf surface contained numerous pits, each containing a tiny awl-shaped hair (Fig. 2). Four North America species of *Vernonia* have awl-shaped hairs in the pits on the abaxial leaf surface, including *V. fasciculata*, *V. marginata*, *V. lettermannii*, and *V. texana* (Strother, 2006). Only V. fasciculata, though, has a corymbiform inflorescence and leaves with toothed margins.

Voucher specimen: **Texas.** Red River Co.: Texas Hwy 37, N of Negley, E side of hwy, 4.9 miles S of Red River bridge, 33° 47'32.93 N, 95° 03' 12.16"W, 9 Sep 2012, *M. White s.n.* (BAYLU).

The soils at the site are mapped as the Whakana-Elysian complex with 0-1% slopes. This complex, which formed in alluvial sediment, is a mixture of soil types and contains numerous "pimple" mounds. In Red River County these soils occur on nearly level terraces ranging from 5 to 150 acres in size, with an average of 45 acres. The Whakana is a gray loam about 14 inches thick and makes up the largest surface area of the complex. The circular protruding "pimple" mounds consist of Elysian loam, a fine brown sandy loam about 6 inches thick. The moist depressions in this complex are mapped as Wrightsville soils and range from 5 to 8 acres in size (Thomas 1977).

This site, like the recently discovered Godley and Little Prairies in nearby Bowie County to the east, was originally a "pocket prairie" surrounded by mixed hardwood and shortleaf-pine savannah (Singhurst et al., 2011). However, unlike those two high-quality hay meadows, apparently only a narrow sliver of this "pocket prairie" remains along the narrow right-of-way of Texas Hwy 37. Images in the Soil Survey of Red River County, Texas (Thomas 1977) as well as recent Google Earth reveal the original shape of the part of this "pocket prairie" on private property west of the highway though unfortunately, east of the highway the site has been converted to extensive pine plantations.

Seven species of *Vernonia* and one putative hybrid are mapped for Texas by Turner et al. (2003). Although *Vernonia fasciculata* was earlier reported for Texas by Heller (1894), the specimen in question was later determined to be the hybrid *Vernonia* X *guadalupensis*—a cross between *V. baldwinii* and *V. lindheimeri*. The discovery of *V. fasciculata* makes the eighth species in the genus known from Texas. The closest populations to the Red River County plants apparently are in McCurtain County, Oklahoma, immediately north of Red River County.

This discovery underscores the need both to protect and to study the few remaining "pocket prairie" remnants in the Texas, especially those in the northeastern corner of the state, where little botanical field work has been conducted. As recent discoveries in this area have made clear, the prairie flora in this region is influenced by the upper Midwest and the northern Great Plains.

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Figure 1. *Vernonia fasciculata*. Flowering head at 3600dpi. Note the lance-ovate outer phyllaries and oblong to linear-oblong inner phyllaries with arachno-ciliolate margins. Note also the phyllaries in four series. Flatbed scan by Matt White.

Figure 2. *Vernonia fasciculata* abaxial and adaxial leaf surfaces at 3600 dpi. On the abaxial leaf surface, note the numerous pits, each containing a small awl-shaped hair. On the adaxial leaf surface note the scabrellous resin dotted glands and the occasional pits. The distinctive toothed margins are clearly visible. Flatbed scan by Matt White.

Figure 3. *Vernonia fasciculata* in a remnant "pocket" prairie five miles south the Red River in Red River County, Texas, 9 September 2012. Note the corymboid inflorescence as well as the fasciculate flowering heads in the axils of the upper leaves, for which the species is named. Photo by Matt White.

Figure 4. *Vernonia fasciculata*. Inflorescence. 15 September 2012.