

# THE TEXAS SPECIES OF *CALLIANDRA* (LEGUMINOSAE, MIMOSOIDEAE)

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**Abstract:** The genus *Calliandra* is represented in Texas by five species: *C. biflora* Tharp, a relatively uncommon taxon of southern Texas and Tamaulipas, Mexico; *C. conferta* Benth., a somewhat uncommon, species of northern Mexico, south-central and southern Texas; *C. eriophylla* Benth., a widespread variable species of Mexico, represented in Texas by rare outlier populations in Uvalde County; *C. humilis* Benth. (including *C. herbacea* Engelm. ex A. Gray), a very distinctive herbaceous species of Mexico, occurring in Texas in mostly montane igneous soils of the trans-Pecos, and *C. iselyi* B. L. Turner, *sp. nov.*, a newly proposed species from the Big Bend region of trans-Pecos, Texas, this previously included under the descriptive parameters of *C. conferta*. A key to the Texas species of *Calliandra* is provided along with dot maps showing their distribution.

**Keywords:** *Calliandra*, Leguminosae, Texas.

Isely (1998) provided a treatment of *Calliandra* for the United States. In this he recognized six species as native to the U.S.A., five of these occurring in Texas. Unfortunately, he failed to note that one of the latter, *C. media* (Mart. & Gal.) Standl. (syn. *C. coulteri* S. Wats.) was transferred to the genus *Zapoteca* by Hernandez (1989). With this transfer, only four species of *Calliandra* might be said to occur in Texas. Preparation of a revised treatment of *The Legumes of Texas* (Turner 1959) has occasioned a re-study of *Calliandra* for the state, this prompting the present paper in which the removal of *C. media* is sanctioned, and a new species, *C. iselyi*, is proposed. A key to the above mentioned Texas taxa follows:

### KEY TO SPECIES

- 1. Plants herbaceous; leaves 5–10 cm long . . . . . 4. *C. humilis*
- 1. Plants shrublets or shrubs; leaves 1–4 cm long
  - 2. Peduncles mostly 6 cm long or more . . . . . genus *Zapoteca*
  - 2. Peduncles 3 cm long or less
    - 3. Flowers 2 (rarely 3) on each peduncle; legumes about 10 mm wide . . . 1. *C. biflora*
    - 3. Flowers 3–15 on each peduncle; legumes 5–7 mm wide

- 4. Leaves with mostly 2–3 pairs of pinnae . . . . . 3. *C. eriophylla*
- 4. Leaves with mostly 1 pair of pinnae
  - 5. Peduncles 10–20 mm long; petals glabrous or nearly so . . . . . 5. *C. iselyi*
  - 5. Peduncles 1–5 mm long; petals markedly pubescent . . . . . 2. *C. conferta*

1. CALLIANDRA BIFLORA Tharp, *Rhodora* 56: 132. 1954. Fig. 1.

Isely (1998) provided an adequate treatment of this species, as did Barneby (1998). The latter worker in his map showing the distribution of the two species, *C. biflora* and *C. conferta*, reversed the symbols concerned. Mahler (1981) has provided an excellent line drawing of *C. biflora*.

2. CALLIANDRA CONFERTA Benth. in A. Gray, *Pl. Wright*. 1: 63. 1852. Figs. 2, 3.

This taxon was treated as synonymous with *Calliandra eriophylla* by McVaugh (1987), as discussed under the latter taxon. Isely (1998) accepted its specific status, as did Barneby (1998) and the present author (see discussion under *C. eriophylla*). Following my original observations (Turner 1959), Isely also noted that, in Texas, *C. conferta* has a western element with elongate peduncles, the specimens concerned



FIG. 1. Distribution of *Calliandra biflora* (triangles), *C. eriophylla* (open circles), *C. humilis* (closed circles) in Texas.

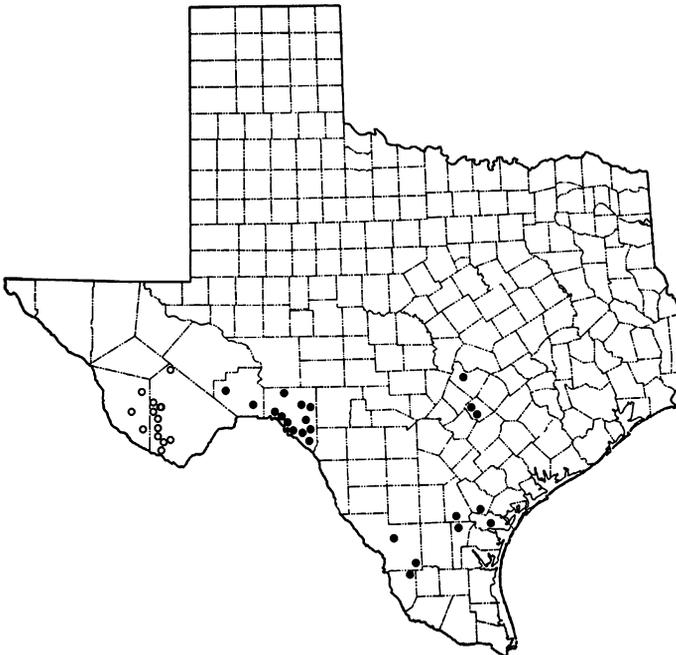


FIG. 2. Distribution of *Calliandra conferta* (closed circles) and *C. iselyi* (open circles) in Texas.

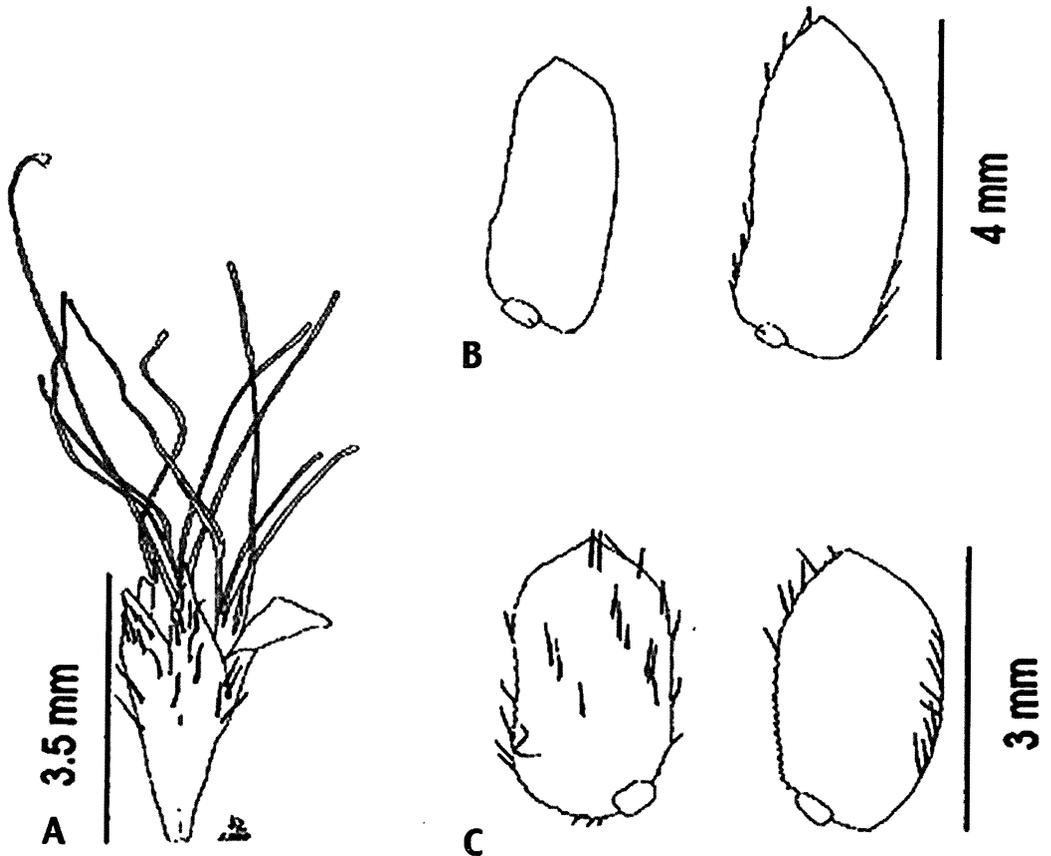


FIG. 3. *Calliandra conferta* and *C. iselyi*. A. Corolla of *C. conferta*. B. Leaflet outlines of *C. conferta* showing the range in size and shape. C. A pair of opposing leaflets from *C. iselyi*.

were appropriately mapped. In the present paper, I treat these western elements as constituting a distinct species, *C. iselyi*, as there are several other characters that also serve to distinguish the taxon, as noted below.

3. CALLIANDRA ERIOPHYLLA Benth., London J. Bot. 3: 105. 1844. Figs. 1, 4.

*Calliandra eriophylla* var. *chamaedrys* Isely, Madroño 21: 276. 1972. TYPE: TEXAS. Uvalde Co.: 15 mi north of Uvalde, 26 Jun 1954, B. L. Turner 3642 (Holotype SMU, now housed at BRIT).

This is a widely distributed, highly variable species of Mexico and closely adjacent United States as noted by Barneby (1998).

McVaugh (1987), in his *Flora Novo-Galiciana*, treated *C. conferta* as synonymous with the present, but I treat the latter as distinct, as does both Barneby (1998) and Isely (1998). The type of *C. conferta* is from Val Verde County, Texas, and is readily distinguished from the more southern *C. eriophylla* by its leaves, which possess but a single pair of pinnae, the latter possessing two or more pair on at least some of its branches. I also agree with both Isely and Barneby that *C. eriophylla* is represented in Texas by at least a few populations, these given the name var. *chamaedrys* by Isely (1998), as noted in the above synonymy, the type being from Uvalde County, first collected by me in 1954. I have recently re-collected the taxon at the type locality and



FIG. 4. Above, *Calliandra eriophylla* (Turner 20-394). Below, *Calliandra isleyi* (holotype).

am reasonably certain that Isely's var. *chamaedrys* is but a fruit-form of *C. eriophylla*. Indeed, at the type locality of *C. eriophylla* var. *chamaedrys* (revisited in the summer of 2000, Turner 20-384 TEX), mature fruits were found to vary from 2.5–9.0 cm long, overlapping completely the reported range of fruits (7–9 cm) reported for var. *chamaedrys* by Isely in his original description. The isolated collections of his var. *chamaedrys* from the "New Mexico-Arizona" boundary (as cited by Isely) are presumably but large fruit forms of *C. eriophylla* collected in the latter area, although Barneby (1998) thought these might be mixed collections made by Wright from western Texas and given incorrect label data. In short, I think that the Uvalde collections concerned are but outlier populations of a widespread variable *C. eriophylla*. Nevertheless, Barneby (1998) retained the variety, but without knowledge of the information presented here. It should be noted that I have collected *C. eriophylla* at one other site in Uvalde County, this being ca. 3.1 km W of the intersection of highways 55 and 334 in the northwesternmost part of the county, 2 May 1999, Turner 99-260 (TEX).

4. *CALLIANDRA HUMILIS* Benth., London J. Bot. 5: 103. 1846. Fig. 1.

*Calliandra herbacea* Engelm. ex A. Gray, Amer. Acad. Arts Sci. Mem., Ser. 2, 4: 1849.

Isely (1998) recognized two varieties under this taxon: a typical var. *humilis* and var. *reticulata* (A. Gray) Benson. By Isely's treatment, Texas material belongs to the typical var. *humilis*. I would treat the var. *reticulata*, sensu Isely, as a distinct species, the two taxa being essentially sympatric and readily distinct, as noted by Isely (1998). In my treatment of the *Legumes of Texas* (Turner 1959), I recognized *C. herbacea* as distinct from *C. humilis*. Subsequent work has shown that the former is but a form of the latter.

5. *CALLIANDRA ISELYI* B. L. Turner, sp. nov. Figs. 2, 3, 4.

TYPE: TEXAS: Brewster Co.: ca. 3 km west of Terlingua along highway 170; small limestone hills at base of Reed Plateau next to the Terlingua House of David Lanman, architect and builder (ca. 29°18'N, 103°33'W), 30 Jun 2000, B. L. Turner & Gayle Turner 20-386 (HOLOTYPE: TEX. ISOTYPES: MEXU, NY).

Similis *Calliandra confertae* Benth. sed pedunculis plerumque 10–25 mm longis (vice 1–5 mm), corollis glabris (vice corolla valde pubescenti), pinnis cum 6–9 jugis (vice 9–13), foliolis brevioribus apicibus plerumque obtusis aut rotundatis (vice plerumque acutus).

Perennial shrublets 15–25 cm high. Stems more or less fractiflex, pubescent with appressed white hairs. Leaves bipinnate with a single pair of pinnae; petioles 0.5–1.0 mm long; pinnae mostly 8–10 mm long; larger pinnae with 6–9 pairs of leaflets, the latter mostly 2.5–3.5 mm long with raised venation, their apices mostly obtuse or somewhat rounded (rarely broadly acute). Flowers 3–6 on axillary peduncles (7)10–26 mm long; calyces sparsely pubescent, ca.  $\frac{1}{4}$ – $\frac{1}{3}$  as long as the petals; corollas glabrous or nearly so, 3–5 mm long, the lobes 1.0–1.5 mm long. Legumes spatulate to linear-oblongate, mostly with 3–6 ovules, relatively few of these forming seeds; valves appressed white-pubescent, their apex apiculate.

REPRESENTATIVE SPECIMENS EXAMINED: The University of Texas specimens (LL, TEX) of *Calliandra* are currently on loan to MEXU, consequently the following cited specimens of *C. iselyi* are all on file at SRSC. UNITED STATES. TEXAS: Brewster Co.: Packsaddle Mt., ca. 65 mi S of Alpine, 30 Oct 1964, McAfee 224; 65 mi S of Alpine, 29 Jun 1959, McKenzie 329; 1 mi S of Adobe Wall Mt., 12 Jun 1949, Turner 1080; Muskog Spring, 30 Jul 1938, Warnock C551; Ward Springs, W side of Chisos Mts., 18 Aug 1955, Warnock 13101; Burro

Springs, W side of Chisos Mts., 21 May 1955, *Warnock & Walme 13201*; Amarilla Mt., 7 mi W of Terlingua, 19 Jun 1949, *Warnock et al. 1168*; Buckhill Mt., ca. 45 mi S of Alpine, 27 May 1959, *Warnock et al. 17829*; 20 mi NE of Alpine along highway 67, 8 Jun 1959, *Weyerts 117*. **Presidio Co.:** Lefthand Shutup, Solitario, 14 Aug 1984, *Clark 365*; Tinaja Prieta Canyon, ca 1 mi below the canyon, on a rocky-gravel bluff above the arroyo, 18 Jun 1978, *Powell 3274*; 25 mi SE Marfa near Alamito Creek, 19 Jun 1949, *Warnock et al. 118513*; 4 mi S of Safter, 27 Jul 1947, *Warnock 6624*; Old Ross Mine area, Chinati Mts., 15 Oct 1962, *Warnock 18855*.

*Calliandra iselyi* is largely confined to the Big Bend region of Trans-Pecos Texas (Fig. 2). It has long resided within the descriptive parameters of *C. conferta*, the latter typified by material collected by Charles Wright in Val Verde Co. (near the present village of Juno), Texas. So far as known the distribution of these two taxa do not overlap, nor do they appear to intergrade.

Both Turner (1959) and Isely (1998) called attention to the distinctiveness of the populations concerned in noting that the peduncular lengths of the two taxa consistently differ. Closer scrutiny of the two taxa in the present study shows that *C. iselyi* can also be readily identified by yet other characters, including glabrous corollas (rarely a few hairs near the apex of lobes), shorter petioles (0.5–1.0 mm long vs. 1–2 mm long), generally fewer leaflets per pinna (6–9 pairs vs. 9–13 pairs), the leaflets at mid-pinna of a different shape, being shorter with mostly obtuse or rounded apices (vs.

acute, Fig. 3). In addition to the present illustrations), Powell (1988) provided an excellent sketch of the species, albeit labeled *C. conferta*. Barneby (1998), in his broad monographic treatment of *Calliandra*, did not comment upon the morphogeographic patterns which serve to distinguish *C. iselyi*, but he did review the present manuscript and raised no objections to its description here.

The species is named for my long-time friend, Duane Isely (1918– ), Prof. Emeritus of Botany at Iowa State University, Ames, Iowa, and zealous scholar of the legume family.

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#### LITERATURE CITED

- Barneby, R. C.** 1998. The genus *Calliandra*. Mem. New York Bot. Gard. 14: 1–123.
- Hernandez, H. M.** 1989. Systematics of *Zapoteca* (Leguminosae). Ann. Missouri Bot. Gard. 76: 781–862.
- Isely, D.** 1998. *Native and Naturalized Leguminosae (Fabaceae) of the United States*. Provo, Utah: Brigham Young University Press.
- Mahler, W. F.** 1981. Notes on rare Texas and Oklahoma plants. Sida 9: 76–86.
- McVaugh, R.** 1987. Leguminosae. Flora Novo-Galiciana. Vol. 5. Ann Arbor, Michigan: University of Michigan Press.
- Powell, A. M.** 1988. *Trees and shrubs of Trans-Pecos Texas*. Austin, Texas: University of Texas Press.
- Turner, B. L.** 1959. *The Legumes of Texas*. Austin, Texas: University of Texas Press.