

## A REVISION OF THE *TEUCRIUM CUBENSE* (LAMIACEAE) COMPLEX

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**Abstract:** In 1946 the *Teucrium cubense* complex was treated as having four subspecies by McClintock and Epling. In the present account these have been treated as distinct species: *Teucrium cordobense*, *T. cubense*, *T. depressum*, and *T. laevigatum*. An additional species, *T. coahuilanum*, is described from north-central Mexico, this previously recognized as a North American populational element of *T. laevigatum*.

**Keywords:** *Teucrium*, Lamiaceae, Mexico, southwestern U.S.A.

The last taxonomic account of the New World species of *Teucrium* was provided by McClintock and Epling (1946). In this work they recognized eight species, two belonging to the section *Stachyobotrys*, and six belonging to the section *Teucriis*. *Teucrium cubense* belongs to the latter section; the two authors recognized four subspecies within this complex distinguished from one another primarily by habit, nutlet size, and degree of leaf lobing. In the present paper I recognize all of the their subspecies as species. Additionally, I have recognized a fifth species from among the complex, this being the North American elements of their *T. cubense* subsp. *laevigatum* for which the following name has been coined:

**5. *Teucrium coahuilanum* B. L. Turner, sp. nov. Fig. 1**

**TYPE: MEXICO. COAHUILA.** Sierra del Pino, "vicinity of La Noria, open valley with scrub oaks and scattered pines," 20–26 Aug 1940, *I.M. Johnston & C.H. Muller 706* (HOLOTYPE: LL).

*Teucrium laevigato* Vahl similis sed differt distincte ac magis aequaliter pubescentibus (vs glabris vel glabritus), lobis calycis plerumque longioribus (4–6 mm longis vs. 2–4 mm), et nuculis sparsim pubescentibus trichomatibus tenuibus erectis (vs. glabris).

PERENNIAL HERBS to 70 cm high. STEMS (the internodes) moderately to sparingly pubescent with minute recurved or down-

pressed hairs. Mid-stem LEAVES mostly deeply 3–5 lobed, often to the midribs, the lobes broadly linear; leaves of the inflorescence deeply 3-lobed to the midribs, or nearly so. CALYX LOBES lanceolate, 4–6 mm long, 1.5–2.0 mm wide, widest at the very base. COROLLAS white, 10–12 mm long, their tubes 1.5–2.5 mm long. STAMENS 4, two short and two long, the former ca. 6 mm long, the latter ca. 8 mm long; anthers ca. 0.75 mm long. STYLES ca. 5 mm long, the two branches ca. 1 mm long. NUTLETS 2.2–2.5 mm long, rugose, atomiferous-glandular throughout, their apices with a smattering of erect slender hairs ca. 0.2 mm long.

REPRESENTATIVE SPECIMENS. MEXICO. CHIHUAHUA [from among 10 specimens]. Mpio. Aldama, intersection of Hwy 16 and Pueblito turnoff, 7 Jul 1974, *Engard & Getz 280* (LL); Mpio. Coyame, Hwy 16, El Pastor, "riverbed," 16 Sep 1971, *Henrickson 6751* (LL); Mpio. Jimenez, Canon del Rayo, NE side of Sierra del Diablo, 25–29 Jul 1941, *Stewart 874* (LL). COAHUILA [from among 24 specimens]. Sierra del Pino, near La Noria, 20–26 Aug 1940, *Johnston & Muller 706* (LL); 15 mi N of Saltillo, 14 Oct 1958, *Jones 23232* (LL); Hermanas, 20 Apr 1939, *Marsh 1630* (TEX); Monclova, 7 May 1939, *Marsh 1722* (TEX); General Cepeda, 23 Mar 1992, *Neff 92-3-23-5* (TEX); 1 km NE of El Pino, 20 Sep 1941, *Stewart 1776* (LL). DURANGO [a single specimen]. Mpio. Guadalupe Victoria, ejido El Ojo, 1 Jul 1984, *Herrea A. 402* (TEX). NUEVO LEON [from among 12 specimens]. Rancho Aquillilla, 18 May 1989, *Hinton et al. 19414* (TEX); 8 mi S of San Roberto Junction, Hwy 57, 8 Oct 1977, *Turner s.n.* (LL); 25 mi SW of Monterrey along Hwy 54, 27 Mar 1966, *Wilson 10862* (TEX). SAN LUIS POTOSI [from among 8 specimens]. 4 mi NE of San Luis Potosi, 29 Aug 1947,

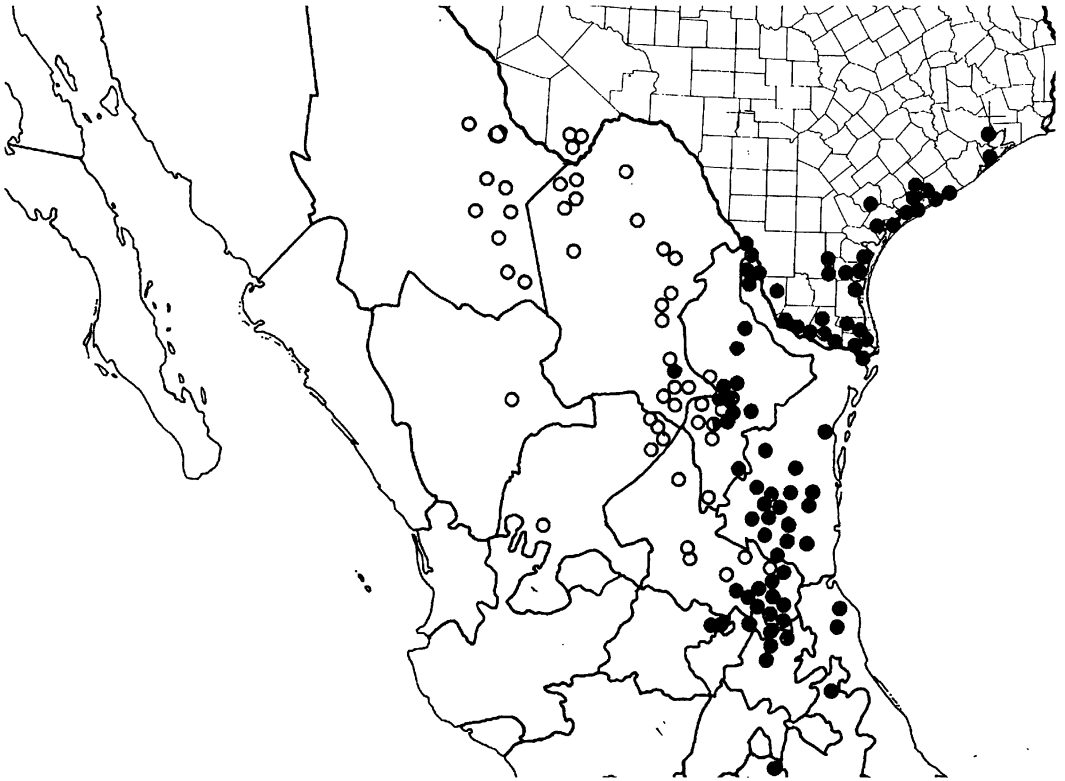


FIG. 1. Distribution of *Teucrium cubense* (closed circles), and *T. coahuilanum* (open circles) showing area of abutment.

Barkley et al. 792 (TEX); 3 mi NW of Ciudad del Maiz, 23 Aug 1956, *Fearing & Thompson* 196 (TEX). ZACATECAS [from among 7 specimens]. 11 mi SW of Camacho, 3 Sep 1971, *Henrickson* B6300 (LL); 21.4 mi S of San Benito, 27 Aug 1976, *Wendt* 1306 (TEX). U.S.A. TEXAS. [from among 17 specimens] **Brewster Co.:** Big Bend National Park, Oak Canyon below the "Window" among large boulders, 9 Nov 1964, *Correll & Correll* 30617 (LL); Big Bend National Park, in Basin near cabins, 27 Aug 1944, *Lundell* 13285 (LL); Big Bend National Park, gravel foothills W of Oak Canyon, 20 Jul 1982, *Powell & Powell* 3813 (SRSC, TEX).

The species epithet refers to the state of Coahuila, Mexico where the taxon is most abundant.

McClintock and Epling (1946) included this taxon within their concept of *Teucrium laevigatum*, a species typified by material collected in South America (Argentina) where it is partially sympatric with *T. cordobense*. They noted that the South American plants differed from North American plants in being

more nearly glabrous (vs "sparsely puberulent with short downwardly curled hairs. Otherwise they are very similar.").

While very similar in habit and vestiture, there are other differences, most notably that of nutlet ornamentation (glabrous in *Teucrium laevigatum*; apically pubescent in *T. coahuilanum*), and size and shape of the calyx lobes (deltoid and 2–4 mm long in *T. laevigatum*; vs lanceolate and 4–6 mm long in *T. coahuilanum*). Indeed, McClintock and Epling did not have a well-defined concept of the two taxa in that they included in their "Representative specimens" of subsp. *laevigatum* collections of both *T. cubense* and *T. depressum*, at least as interpreted herein.

With description of the above novelty, I recognize five species in the *Teucrium cubense* complex, as follows (key modified from that of McClintock and Epling, 1946):

1. Nutlets as long as or shorter than the calyx tube; stems and leaves densely and uniformly pubescent with minute spreading hairs . . . . . 1. *T. cordobense*
1. Nutlets longer than the calyx tube; stems and leaves otherwise.
  2. Plants annual; northwestern Mexico and closely adjacent U.S.A. . . . . 3. *T. depressum*
  2. Plants perennial; widespread.
    3. Midstem leaves irregularly lobed about half way to midribs; hairs at apex of nutlets recurved . . . . . 2. *T. cubense*
    3. Midstem leaves 3-5 lobed nearly to the midribs; hairs at apex of nutlets erect or absent.
      4. Nutlets glabrous; calyx lobes deltoid, 2-4 mm long; southern South American . . . . . 4. *T. laevigatum*
      4. Nutlets pubescent; calyx lobes lanceolate, 4-6 mm long; north-central Mexico . . . . . 5. *T. coahuilinum*

1. *Teucrium cordobense* (Epling) B. L. Turner, stat. & comb. nov.

*Teucrium cubense* subsp. *cordobense* Epling, Ann. Missouri Bot. Gard. 12: 113. 1925.

As indicated by McClintock and Epling (1946), *Teucrium cordobense* is partially sympatric with *T. laevigatum*. The former is easily distinguished from the latter by its larger nutlets, and densely pubescent stems, the vestiture consisting of minute spreading hairs. The two also differ in their nutlet-calyx structure, as well noted by McClintock and Epling. I have not examined intermediates between the two taxa, but the occasional hybrid between these might be expected.

2. *TEUCRIUM DEPRESSUM* Small, Bull. New York Bot. Gard. 1: 288. 1899. Fig. 2.

TYPE: (designated here): **U.S.A. TEXAS. El Paso Co.:** El Paso, "low ground," Apr 1851, *George Thurber 193* (LECTOTYPE: GH!; ISOLECTOTYPES: NY!, UC!).

*Teucrium cubense* var. *densum* Jepson, Man. Fl. Pl. Calif. 861. 1925. TYPE (designated by G.T. Robbins, 1935 on the type itself): **U.S.A. CALIFORNIA.** Colorado River Bottoms, Palo Verde Valley, "Needles to Yuma," 22 Oct-7 Nov 1912, *Jepson 8255* (LECTOTYPE: UC!).

*Teucrium cubense* subsp. *depressum* (Small) E. M. McClint. & Epling, Brittonia 5: 505. 1946.

Small, in his original description, gave the distribution of this species as "In dry soil, southern Texas." This geographical account is obviously in error since immediately after that statement he commented as follows:

"*Teucrium depressum* is the smallest species of the genus within the limits of the United States; its nearest ally is *Teucrium laciniatum*. Most of its organs are only one-half as large as those of its relative [*T. laciniatum*]. The pubescence is coarser and more scabrous. Wright's number 1545, Coll. N. Mex., 1851-52, and Thurber's number 193 from El Paso, Texas, collected in April, 1851, both belong here." Clearly *T. depressum* needs typification, this provided in the above account.

REPRESENTATIVE SPECIMENS. **MEXICO. CHIHUAHUA.** Bank of Rio Grande, ca. 300 m down stream from Fern Canyon, "corollas dull dishwater color," 7 Apr 1980, *Johnston 12492* (TEX); ca 7 km NNE of Rancho Boquillas Perez, "corollas whitish," 3 Apr 1973, *Johnston et al. 10565A* (TEX); 8.1 mi W of Chilicote, on road to Falomir, flowers "white," 23 Mar 1975, *Wendt & Lott 772* (LL). **COAHUILA.** Mexican side of Rio Grande, just downstream from La Linda crossing, 27 Mar 1976, *Butterwick & Osburn 2040* (TEX). **SINOLA.** [from among 5 specimens]: Culican, 11 Nov 1904, *Brandagee s.n.* (NY,UC). **SONORA.** [from among 24 specimens]: Rancho San Alfonso, on road to Bahia San Pedro, "Corollas blue," 11 Mar 1985, *Felger 85-616* (TEX); 15 mi N of Magdalena, flowers "light blue," 5 Apr 1942, *Fosberg 7919* (UC); Esperanza, Rio Yaqui, flowers "pale blue," 4 Mar 1937, *Gentry 3023* (GH, UC); 1 mi E of Bahia San Carlos, flowers "lavender," 30 Jun 1959, *Gentry 17736* (LL); 35 mi W of Sonoyta, flowers "whitish lavender-blue," 18 Mar 1936, *Keck 4229* (UC); 6 mi

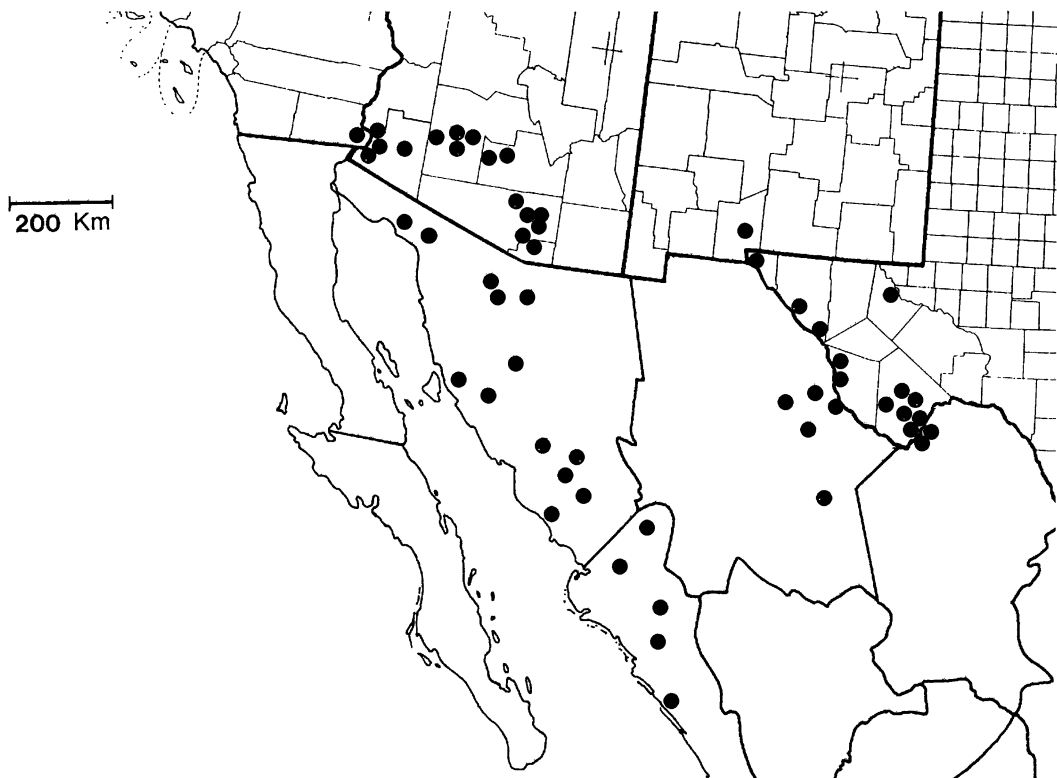


FIG. 2. Distribution of *Teucrium depressum*.

N of Obregon, flowers "bluish purple," 2 Jan 1953, *Parker 8211* (UC). U.S.A. ARIZONA. [from among 15 specimens] **Maricopa Co.:** N of Gila Bend, 15 Mar 1930, *Nelson 11204a* (GH). **Pima Co.:** 14 mi E of Tucson, Tanque Verde Creek, "Mesquite forest of flood plain, annual with blue flowers." 10 Mar 1940, *Brass 14194* (GH). **Yuma Co.:** 0.6 mi NE of Tyson, "corolla lobes pale-blue with purple lines," 2 Apr 1973, *Holmgren & Holmgren 6629* (NY); road from Yuma to Quartzite, just S of Gila River. "Flowers pale blue, in bed of vernal pool." 8 Apr 1952, *Mason 14215* (LL). CALIFORNIA. [from among 8 specimens] **Riverside Co.:** "The Hayfields," 7 Apr 1932, *Hitchcock 12197* (UC). **NEW MEXICO. Dona Ana Co.:** 0.5 mi NE of Highway 70 in the Tularosa Basin, "floor of Cox Tank," 14 Apr 1972, *Todson s.n.* (NY). **Hidalgo Co.:** 11 mi along Highway 81 S of Hachita, 22 Apr 1984, *Worthington 11868* (NY). TEXAS. **Brewster Co.:** 4 mi SE of Persimmon Gap, Big Bend Natl. Park, "Flowers white," 3 Apr 1959, *Correll 20700* (LL); 30 mi S of Marathon, "white flowered," 2 Apr 1938, *Warnock T281* (TEX). **El Paso Co.:** El Paso, Mar 1881, *Vasey s.n.* (GH, NY). **Hudspeth Co.:** 20 mi S of Sierra Blanca, corollas white "with faint purple streaks running down throat," 19 May 1949, *Turner 337* (GH). **Presidio Co.:** 7 mi N of Cand-

laria, "Flowers white, purple blotches in throat," 17 Apr 1947, *McVaugh 7977* (GH, TEX).

The strictly annual *Teucrium depressum* is largely confined to northwestern Mexico and closely adjacent U.S.A., although McClintock and Epling (1946) map the taxon as also occurring in southern Texas and northeastern Mexico. I take the latter collections to be misidentifications of material referable to *T. cubense*, but I have not examined the specimens concerned. *Teucrium depressum* has nutlets similar to the perennial, *T. coahuilanum*, but the terminal erect hairs on its nutlets are somewhat longer, and much more numerous.

There are at least two morphogeographical units within *Teucrium depressum*: a white-flowered assemblage with calyx lobes mostly 4–6 mm long, these seemingly confined to the Chihuahuan Desert and a lavender-flowered assemblage with calyx lobes

mostly 2–4 mm long, these seemingly confined to the Sonoran Desert. This distinction is apparent from the flower color notations made on numerous collections from the areas concerned (see above cited specimens). Other than flower color, and length of calyx lobes I could find little else to justify their formal recognition, although a case might be made for their recognition as varietal taxa; additional study is needed.

3. *TEUCRIUM CUBENSE* Jacq., Enum. syst. pl. 25. 1760. Fig. 1.

*Teucrium chamaedrifolium* Mill., Gard. dict., ed. 8, 1768.

*Melosmon cubense* (Jacq.) Small, Fl. s.e. U.S. 1019. 1337. 1903.

*Teucrium cubense* subsp. *chamaedrifolium* Epling, Ann. Missouri Bot. Gard. 12: 112. 1925.

*Teucrium cubense* is largely confined to the Carribean Islands and Gulf Coastal regions of the southern United States and Mexico, with a few waifs in coastal ports elsewhere. In northeastern Mexico it extends westward from its more eastern distribution, seemingly abutting the range of *T. coahuilanum*. The single collection of *T. cubense* from Coahuila shown in Fig. 1 is based upon *Henrickson 11722* (LL), otherwise most of the collections examined from northeasternmost Mexico are from the states of Nuevo Leon and Tamaulipas. The two taxa do not appear to grow together, however, nor is there clear-cut evidence of intergradation in regions of near contact.

For the most part *Teucrium cubense* can be readily separated from *Teucrium coahuilanum* by its less deeply divided stem leaves, and somewhat larger nutlets having downwardly recurved hairs on the apex of their nutlets, as noted in the key to species. However, the occasional ill-collected plant in regions of abutment may be difficult to place, and it is not unlikely that hybridization,

past or present, between the two has compromised their morphological integrity.

4. *TEUCRIUM LAEVIGATUM* Vahl, Symb. bot. 1: 40. 1790.

*Melosmon laevigatum* (Vahl) Small, Fl. s.e. U.S. 1019, 1337. 1903.

*Teucrium cubense* subsp. *laevigatum* (Vahl) E. M. McClint. & Epling, Brittonia 5: 503. 1946.

*Teucrium laevigatum* was treated as an amphitropical disjunct by McClintock and Epling (1946). As discussed in the above, I have described the North American populations as a new species, *T. coahuilanum*. The latter superficially resembles *T. laevigatum*, but is easily separated from it by several consistent characters. As mapped by McClintock and Epling the species is partially sympatric with *T. cordobense*, both taxa largely confined to Argentina.

Burkart (1979) treated *Teucrium laevigatum* as a synonym of *T. cubense*, noting that collections from Entre Rios, Argentina "presentan en un mismo ejemplar caracteres que corresponden a dilemas de las subespecies *depressum*, *chamaedrifolium* [= *cubense*], y *laevigatum*." He further noted that McClintock and Epling's key to these several taxa is difficult to use, and further "Todo esto hace dudar sobre la validez de los otros dos subespecies [namely, *cordobense* and *depressum*]."

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