

NATIVE SPECIES OF *BAUHINIA* (CAESALPINIACEAE) OCCURRING IN NORTHEASTERN MEXICO

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ABSTRACT

Seven native species of *Bauhinia* are recognized as occurring in northeastern México (states of Coahuila, Nuevo León, and Tamaulipas). These are *Bauhinia bartlettii* B.L. Turner, *sp. nov.*, *B. coulteri* Macbride, *B. divaricata* L., *B. lunarioides* A. Gray *ex* S. Wats., *B. macranthera* Benth. *ex* Hemsl., and *B. uniflora* S. Wats. A key to the species is prepared, and distributional maps for each are provided.

KEY WORDS: Caesalpinaceae, *Bauhinia*, México

Wunderlin (1983) provided a revision of the arborescent *Bauhinias* native to Middle America. In this he recognized 27 species, five of these native to northeastern México: *B. coulteri* Macbride, *B. divaricata* L., *B. lunarioides* A. Gray *ex* S. Wats., *B. macranthera* Benth. *ex* Hemsl., and *B. ramosissima* Benth. *ex* Hemsl. The latter species was recognized as an assemblage of variable populations or individuals, six of which had been given names by Britton & Rose (1930). After examination of its holotype, I have reassessed the status of *B. ramosissima* and aggregates, concluding that *B. uniflora* S. Wats. (including *B. monantha* [Britt. & Rose] Lundell) is a valid species. Additionally, from among the specimens included in *B. macranthera* by Wunderlin I have described a new species, *B. bartlettii* B.L. Turner. This brings to seven the number of native *Bauhinias* occurring in northeastern México.

The distributional maps (Figures 2-5) are based upon numerous specimens on deposit at LL, TEX.

KEY TO NATIVE SPECIES OF *BAUHINIA* IN NORTHEASTERN MEXICO

1. Leaves (most of them) bilobed, the leaflets fused at the base for 4-30 mm. (2)
1. Leaves (all of them) 2-foliolate, the leaflets not fused, or fused at the base for 3 mm or less. (4)
 2. Fertile stamens 2-3; leaves rounded in outline. *B. coulteri*
 2. Fertile stamens 1; leaves ovate in outline. (3)
3. Petals white or creamy-white; lobes of leaves mostly acute at apices. .
B. divaricata
3. Petals rose to purple, lobes of leaves mostly broadly rounded at apices. .
B. macranthera
 4. Larger leaflets mostly (4-)5-9 cm long, their apices acute or narrowly obtuse. *B. bartlettii*
 4. Larger leaflets mostly 1-4(-5) cm long, their apices broadly rounded. (5)
5. Larger leaflets mostly (1.5-)2.0-4.0(-5.0) cm long. *B. ramosissima*
5. Larger leaflets mostly 0.7-1.5 cm long. (6)
 6. Petals white to pale pink; young legumes glabrous or nearly so. .
B. lunarioides
 6. Petals decidedly dark pink to purple; young legumes pubescent throughout. *B. uniflora*

1. ***Bauhinia bartlettii*** B.L. Turner, *sp. nov.* Figure 1. TYPE: MEXICO: Tamaulipas: Mpio. Hidalgo, W of Santa Engracia, 9.2 mi W of Guayabas, 4 mi W of the Guayabas-Adelaida junction, N-facing slope of steep canyon; limestone bedrock, subtropical deciduous woods, 430 m, 16 Apr 1988, *Guy Nesom 6312*, with L. Hernández, M. Martínez, J. Jiménez (HOLOTYPE: TEX!; Isotype: MEXU!).

Bauhiniae macranthae Benth. *ex* Hemsl. similis sed foliis bifoliolatis foliolis libris angustioribus ad apices anguste obtusos vel acutos gradatis angustatis (vs. foliis bilobatis foliolis connatis, lobis ad apices late obtusis vel rotundatis) et petalis albis vel cremeis (vs. roseis).

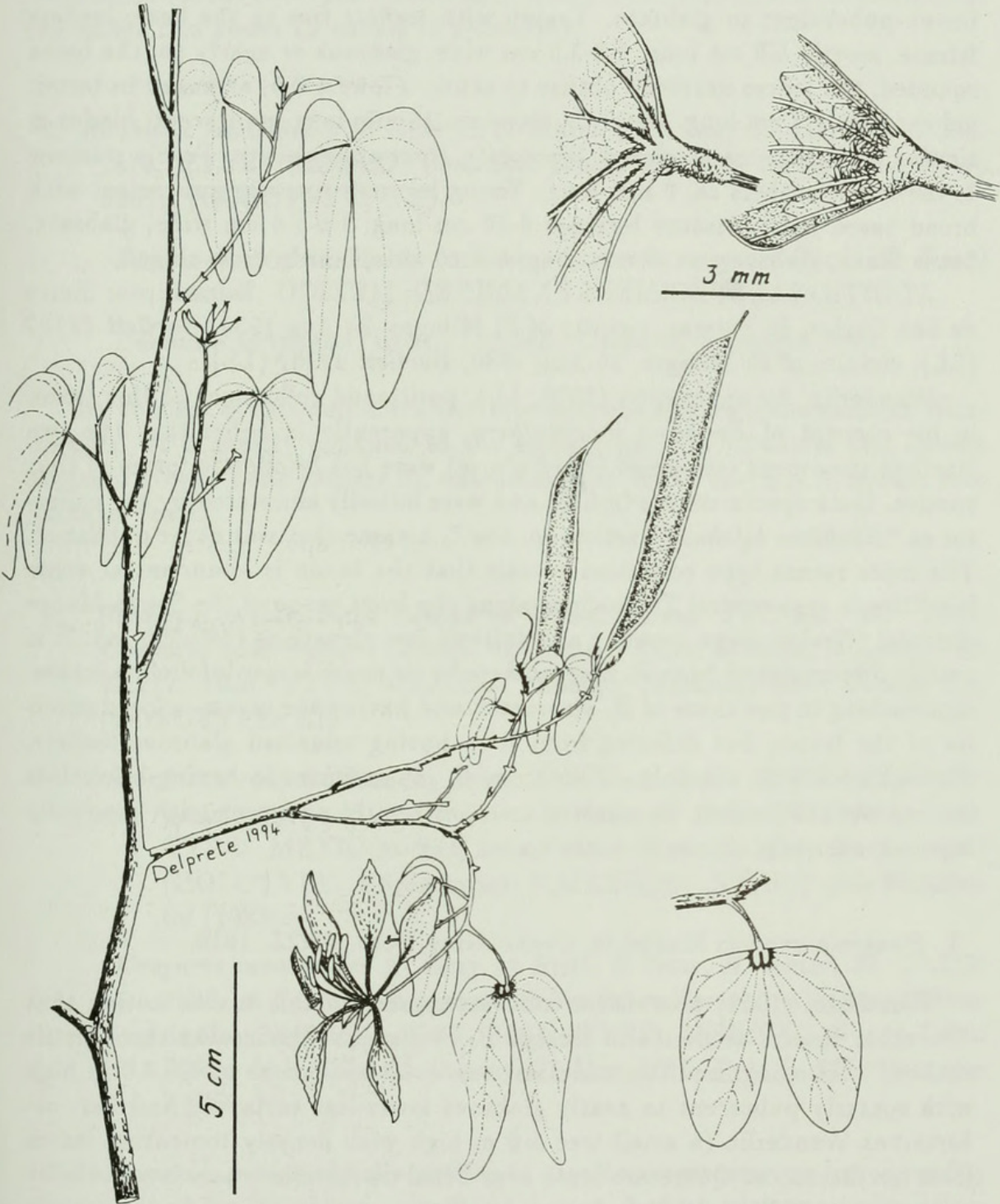


Figure 1. *Bauhinia bartlettii* (from holotype); lower right, detached leaf of *B. macranthera*; upper right, detail of leaf-under surfaces: to left, *B. bartlettii*; to right, *B. ramosissima*.

Small, loosely branched trees to 4 m high. Young stems very sparsely brown-puberulent to glabrate. Leaves with leaflets free to the base; leaflets falcate, mostly 5-9 cm long, 1.8-3.0 cm wide, glabrous or nearly so, the bases rounded, the apices narrowly obtuse to acute. Flowers 3-5, arranged in terminal racemes 2-4 cm long. Petals 5, claws ca. 15 mm long, pubescent; blades \pm similar, white or cream-colored, lanceolate, their apices acute. Fertile stamens 1, the fertile anthers ca. 6 mm long. Young legumes sparsely puberulent with broad-based hairs; mature legumes 6-10 cm long, 1.0-1.4 cm wide, glabrate. Seeds black, glabrous, ca. 9 mm long, 5 mm wide, faintly cross-ridged.

ADDITIONAL SPECIMENS EXAMINED: MEXICO. Tamaulipas: Sierra de San Carlos, El Palmar, vicinity of El Milagro, 24 Aug 1930, *Bartlett 11107* (LL); vicinity of El Milagro, 26 Aug 1930, *Bartlett 11181* (LL).

Wunderlin, by annotation (1979, LL), positioned collections of this taxon in his concept of *Bauhinia macranthera*, apparently in belief that the two Bartlett specimens concerned (cited above) were but bifoliolate forms of that species. Both specimens are in fruit and were initially annotated by the collector as "*Bauhinia bifoliola* Bartlett sp. nov.", a name that was never published. The more recent type collection reveals that the taxon is abundant at some localities in east-central Tamaulipas along the front range of the Sierra Madre Oriental (Nesom, pens. comm.) at relatively low elevations (400-500 m). It is readily distinguished from *B. macranthera* by its much larger bifoliolate leaves, approaching in size those of *B. divaricata*, and having the cream-colored corollas of the latter, but differing from it in having ununited glabrous leaflets. *Bauhinia bartlettii* not only differs from *B. macranthera* in having bifoliolate leaves, but the leaflets themselves are consistently narrower with gradually tapered, narrowly obtuse or acute apices (Figure 1).

2. *Bauhinia coulteri* Macbride, Contr. Gray Herb. 59:22. 1919.

Wunderlin (1983) provided a solid assessment of this taxon, noting that "No other species of *Bauhinia* [except *B. coulteri*] in Mexico has three fertile anthers". He recognized two varieties: var. *coulteri* (shrubs to 0.8-3.0 m high with sparsely pubescent to nearly glabrous lower-leaf surfaces); and var. *arborescens* Wunderlin (a small tree 5-6 m high with densely tomentose leaves from northernmost Querétaro state near Pinal de Amoles where it reportedly occurs at ca. 2700 m, its only known locality).

3. *Bauhinia divaricata* L., Sp. Pl. 374. 1753.

This is a widely distributed highly variable species extending, in its northernmost range, to the states of Tamaulipas and Sinaloa, México (Figure 3); southwards it reaches Costa Rica, and eastwards to the Caribbean Islands.

Wunderlin (1983) provided a seemingly sound treatment of the taxon, including under this about 22 names in synonymy.

4. *Bauhinia lunarioides* A. Gray ex S. Wats., *Bibl. Ind. N. Amer. Bot.* 205. 1878. TYPE: MEXICO. Coahuila: Rocky hills near Santa Rosa, Perry 2901A (HOLOTYPE: GH).

Bauhinia congesta Britt. & Rose. *Casparia congesta* (Britt. & Rose) Lundell.

Bauhinia jermiyana (Britt.) Lundell. *Casparia jermiyana* Britt.

My concept of this well-marked, white-flowered species is the same as Wunderlin's. It is mostly confined to the eastern parts of Coahuila and closely adjacent Nuevo León (Figure 5), extending just across the U.S.A. border into western Texas.

5. *Bauhinia macranthera* Benth. ex Hemsl., *Diag. Pl. Nov.* 49. 1880. *Casparia macranthera* (Benth. ex Hemsl.) Britt. & Rose, *N. Amer. Fl.* 23:212. 1930. TYPE: MEXICO. Hidalgo: Zimapan, 1827, Coulter s.n. (HOLOTYPE: K!).

Bauhinia retifolia Standl., *Contr. U.S. Natl. Herb.* 23:416. 1922. *Casparia retifolia* (Standl.) Britt. & Rose, *N. Amer. Fl.* 23:213. 1930. TYPE: MEXICO. San Luis Potosí: Rascon, 1911, Purpus 5268 (HOLOTYPE: US; Isotypes: F, MEXU, MO, NY, UC) -fide Wunderlin (1983).

Casparia lunarioides A. Gray ex Britt. & Rose, *N. Amer. Fl.* 23:212. 1930. \equiv *Bauhinia macranthera* Benth. ex Hemsl. var. *grayana* Wunderlin, *Phytologia* 15:53. 1967. TYPE: MEXICO. Nuevo León: Sierra de la Silla, Monterrey, 27 May 1889, Pringle 2529 (Isotype: TEX!).

This species is superficially similar to *Bauhinia ramosissima* but is readily distinguished by its united, somewhat larger, leaflets with markedly pilose basal veins on the undersurfaces (vs. appressed-strigopuberulous to glabrous). It mostly occurs along the eastern slopes of the Sierra Madre Oriental, as indicated in Figure 5.

Wunderlin, by annotation, included in this taxon elements which I refer to *Bauhinia bartlettii*. The sheets concerned (Bartlett 11107, 11181 [LL]) have large ununited essentially glabrous leaflets which are mostly ca. 3 times as long as wide and gradually taper to acute apices (or nearly so). He apparently

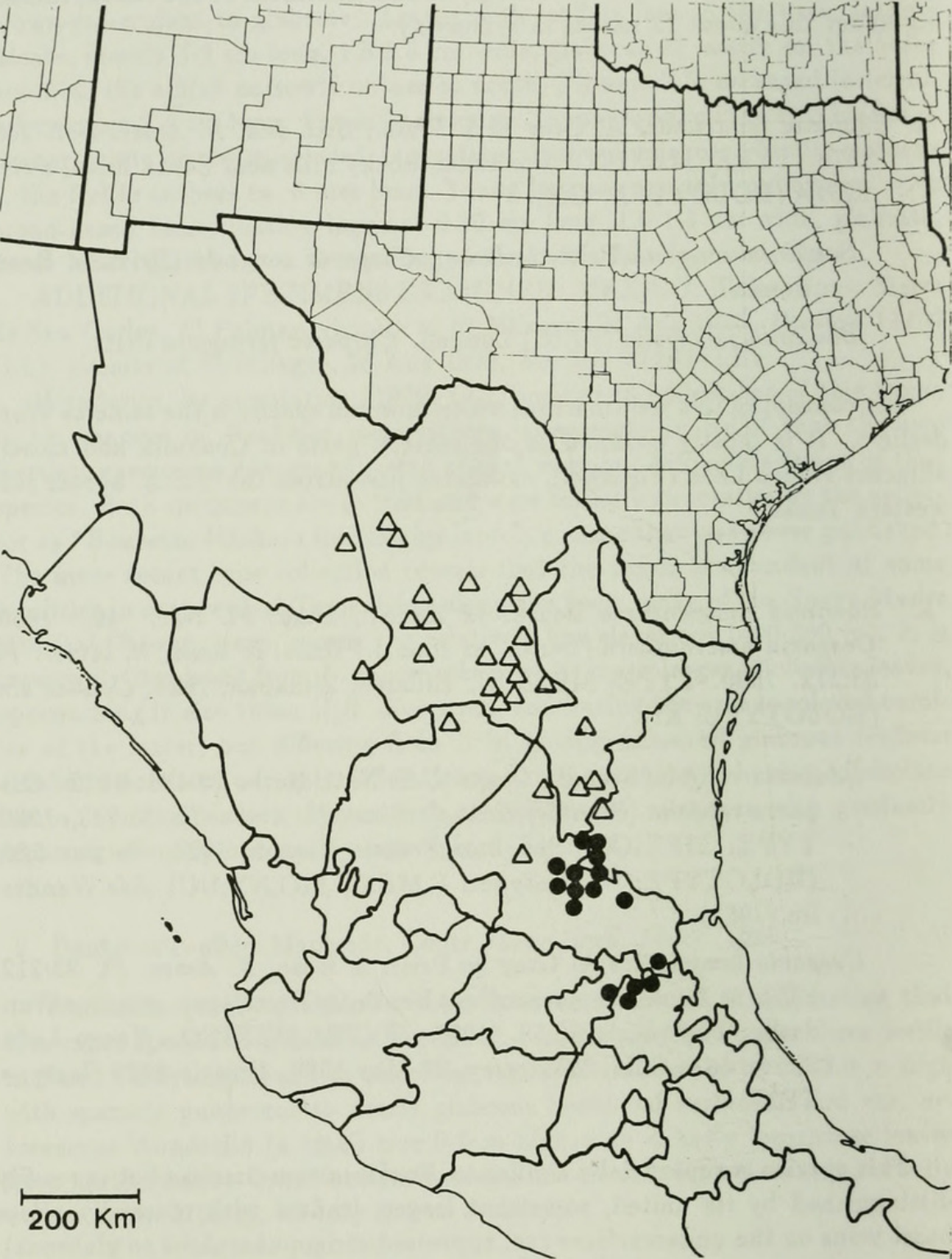


Figure 2. Distribution of *Bauhinia coulteri* (closed circles) and *B. uniflora* (open triangles).

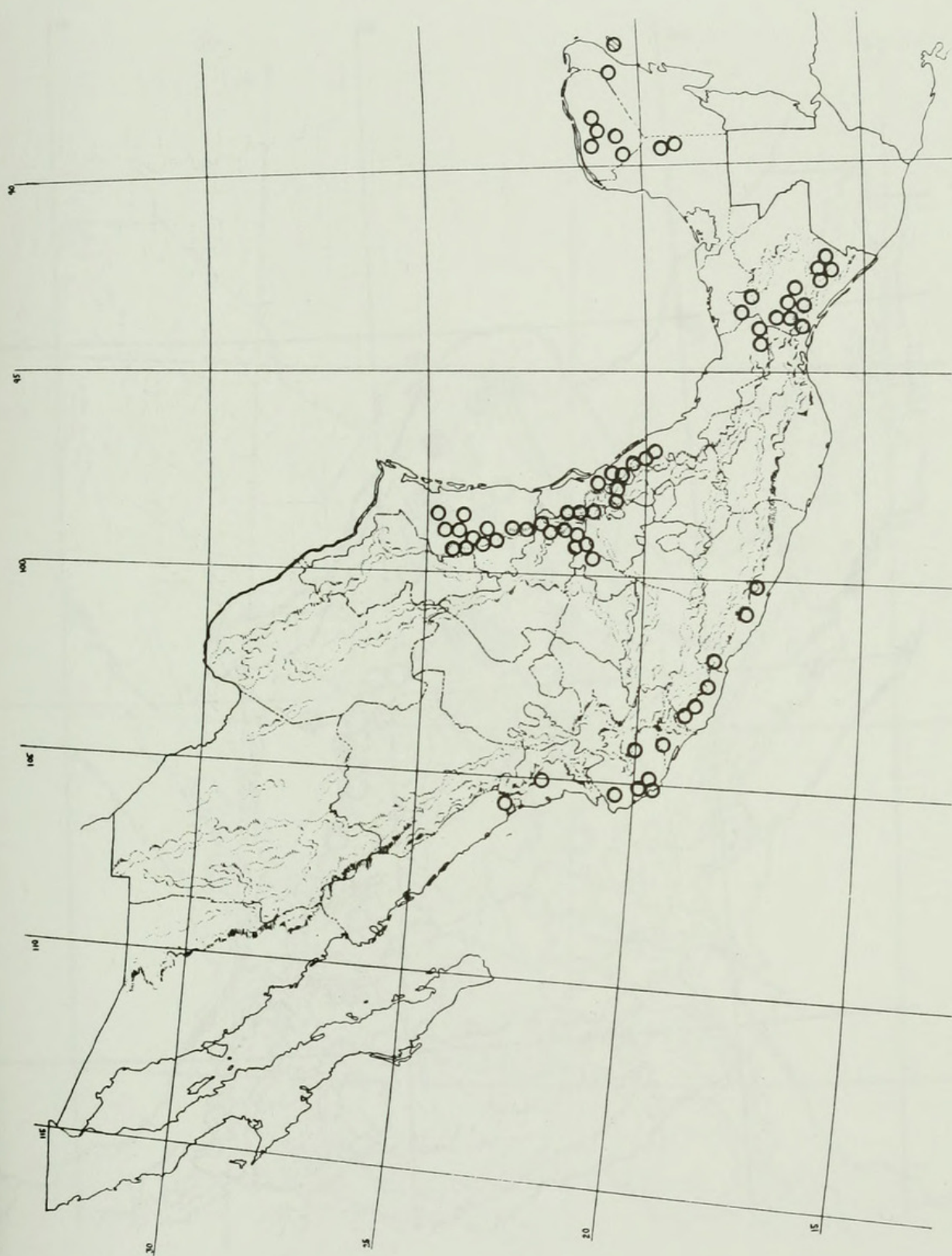


Figure 3. Distribution of *Bauhinia divaricata* in México.

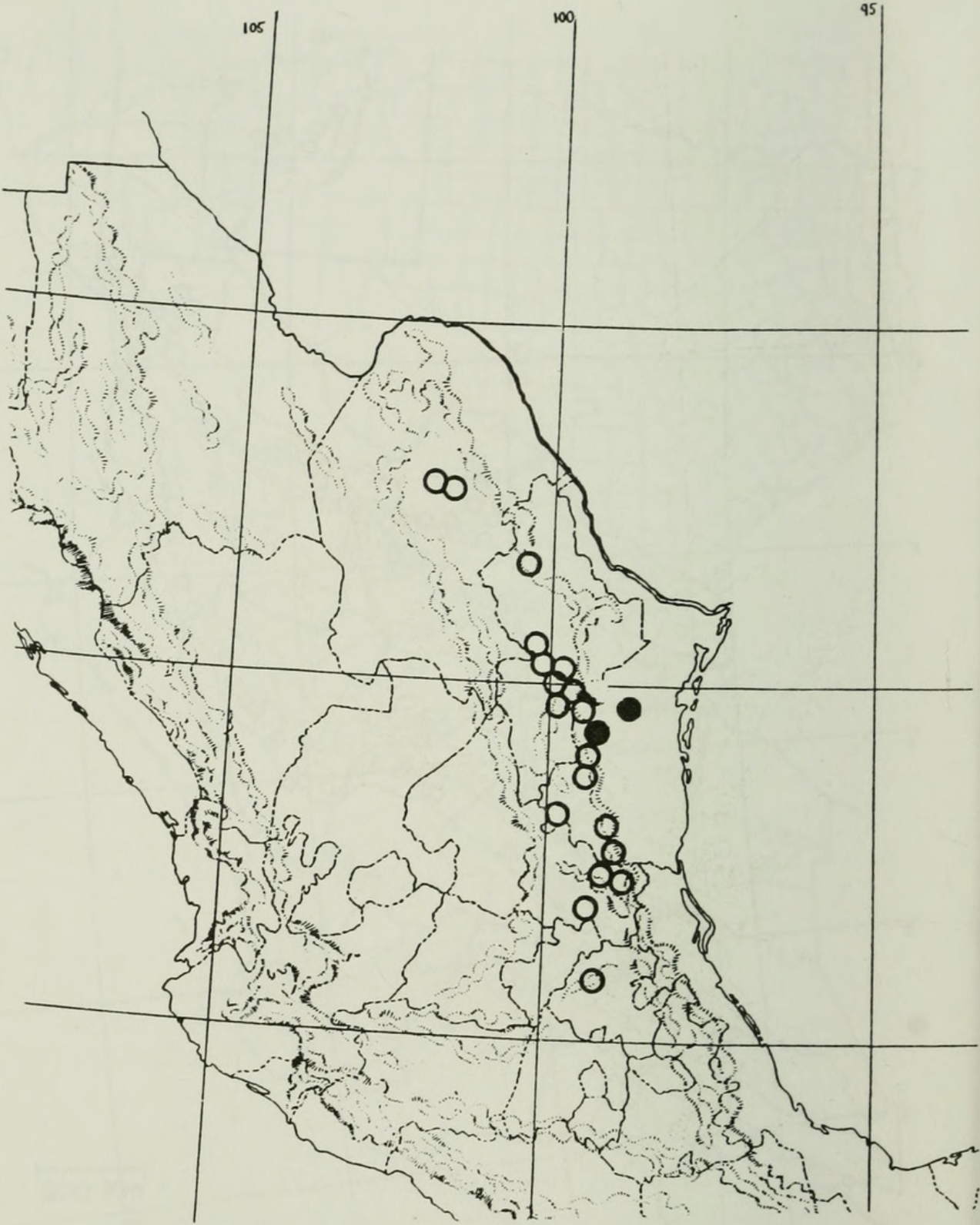


Figure 4. Distribution of *Bauhinia bartlettii* (closed circles) and *B. macranthera* (open circles).

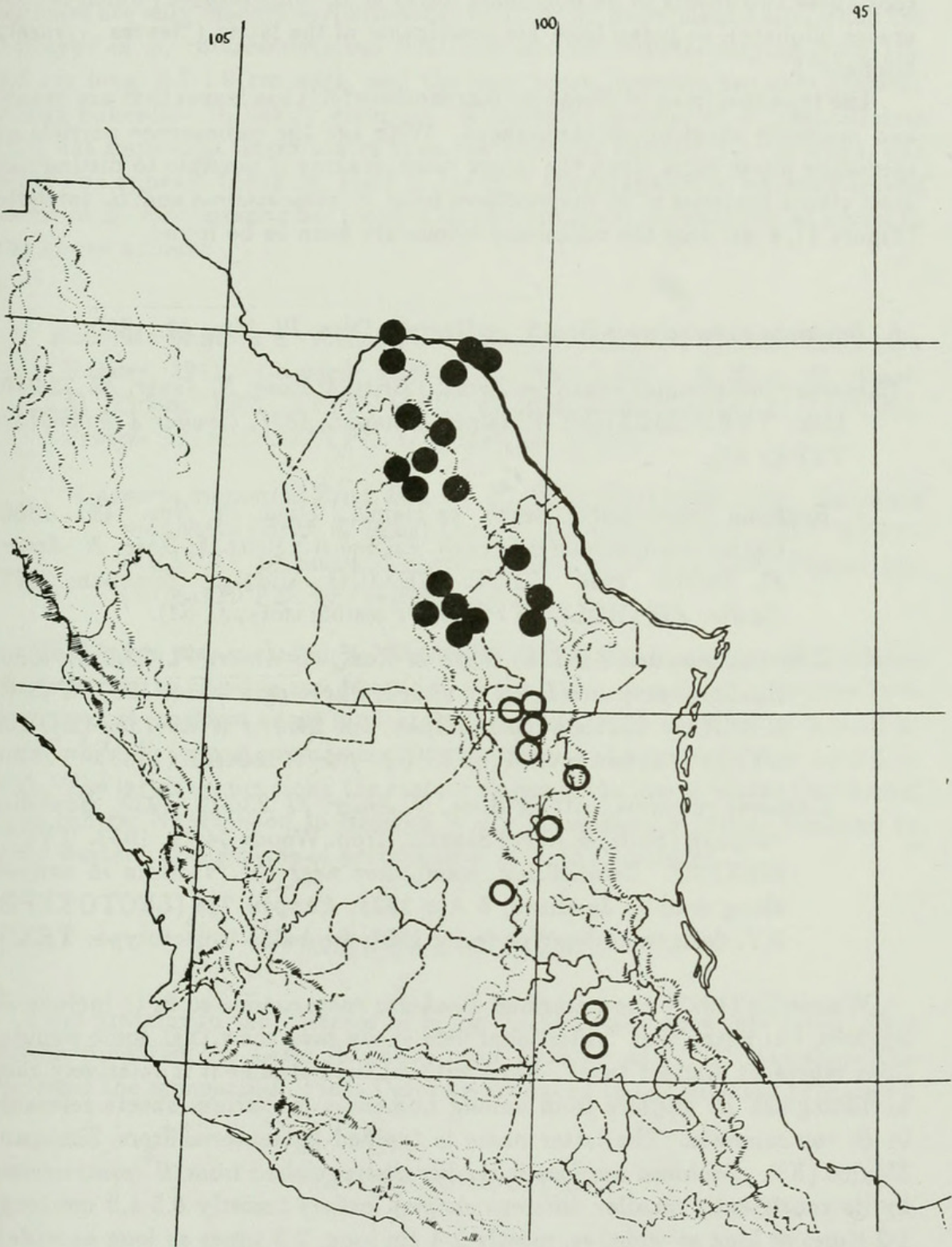


Figure 5. Distribution of *Bauhinia lunarioides* (closed circles) and *B. ramosissima* (open circles).

took these two sheets to be bifoliolate forms of *B. macranthera* (which is otherwise bilobate), to judge from his description of the latter ("leaves ... rarely bifoliolate").

The type specimen of *Bauhinia macranthera* (K!) has leaves that are evenly and markedly short-pilose throughout. With age the pubescence persists as spreading pilose hairs along the larger veins, making it possible to distinguish most sterile material of *B. macranthera* from *B. ramosissima* and *B. bartlettii* (Figure 1), even were the occasional bifoliolate form to be found.

6. *Bauhinia ramosissima* Benth. ex Hemsl., *Diag. Pl. Nov.* 49. 1880.

Casparia ramosissima (Benth. ex Hemsl.) Britt. & Rose, *N. Amer. Fl.* 23:210. 1930. TYPE: MEXICO. Hidalgo: Zimapan, 1827, *Coulter 473* (HOLOTYPE: K!).

Bauhinia unguicularis Benth. ex Hemsl., *Diag. Pl. Nov.* 49. 1880.
Casparia unguicularis (Benth. ex Hemsl.) Britt. & Rose, *N. Amer. Fl.* 23:210. 1930. TYPE: MEXICO. Hidalgo: Zimapan, 1827, *Coulter 472* (HOLOTYPE: K!; Possible isotype: K!).

Casparia purpusii Britt. in Britt. & Rose, *N. Amer. Fl.* 23:210. 1930.
Bauhinia purpusii (Britt.) Lundell, *Phytologia* 1:214. 1937. TYPE: MEXICO. Hidalgo: Ixmiquilpan, Jul 1905, *Purpus 1364* (HOLOTYPE: NY; Isotypes: F, MO, UC) - *fide* Wunderlin (1983).

Casparia runyonii Britt. & Rose, *N. Amer. Fl.* 23:210. 1930. *Bauhinia runyonii* (Britt. & Rose) Standl., *Trop. Woods* 34:41. 1933. TYPE: MEXICO. Tamaulipas: mountains near Cd. Victoria in canyon along road to Juamave, 8 Apr 1925, *Runyon 748* (LECTOTYPE: NY, designated by Wunderlin 1983; Probable isotype: TEX!).

Wunderlin (1983) circumscribed *Bauhinia ramosissima* so as to include *B. uniflora*, but noted that "Additional field study may show that some populations represent distinct taxa". Even without field studies it is relatively easy to distinguish *B. uniflora* from among numerous herbarium sheets referable to *B. ramosissima*. The latter name is typified by material from Zimapan, México (K!). *Bauhinia uniflora* is readily distinguished from *B. ramosissima* by its consistently smaller different shaped leaflets (mostly 0.5-1.5 cm long, 1-2 times as long as wide, vs. mostly 2-4 cm long, 2-3 times as long as wide). Additionally, the corollas of *B. uniflora* are mostly purple or reddish-purple and the young legumes are densely white-strigose (vs. corollas pinkish and young legumes sparsely tawny-pilose to \pm glabrescent).

The holotype of *Bauhinia unguicularis*, also from Zimapan (K!), has quite large leaves, varying from 3.5-5.0 cm long, 1.5-2.5 cm wide, and the very young

legumes are only moderately pubescent with tawny-puberulent hairs, while the holotype of *B. ramosissima* has relatively smaller leaflets, varying from 1.5-2.5 cm long, 0.7-1.0 cm wide, and the very young legumes are only sparsely tawny-pubescent to nearly glabrous. A probable isotype of *B. ramosissima* (K!) has somewhat larger leaves than the holotype (mostly 2-3 cm long), but otherwise appears the same. Both of the type sheets appear to be small-leaved forms of *B. ramosissima* but neither clearly relates to *B. uniflora*, as noted in the above account.

7. *Bauhinia uniflora* S. Wats., Proc. Amer. Acad. Arts 31:451. 1886; *non* Hassler, 1911. *Casparia uniflora* (S. Wats.) Britt. & Rose, *N. Amer. Fl.* 23:209. 1903. TYPE: MEXICO. Coahuila: Jimulco, 27 Apr 1885, Pringle 174 (HOLOTYPE: GH; Isotype: TEX!).

Casparia monantha Britt. & Rose, *N. Amer. Fl.* 23:209. 1930. *Bauhinia monantha* (Britt. & Rose) Lundell, *Phytologia* 1:214. 1937. TYPE: MEXICO. Coahuila: General Cepeda, 16-17 Aug 1904, Palmer 330 (HOLOTYPE: US; Isotype: TEX!).

This taxon was included by Wunderlin (1983) in his concept of *Bauhinia ramosissima*, as noted in my discussion of the latter. Nearly all collectors have described *B. uniflora* as an intricately branched shrub or shrublet 0.8-2.0 m high, while *B. ramosissima* is consistently described as a weak tree 2.5-5.5 m high. The latter occurs along the eastern slopes of the Sierra Madre Occidental from central Nuevo León to Hidalgo, while *B. uniflora* is largely confined to more western arid regions of northcentral México (Figure 2).

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