

## LECTOTYPIFICATIONS AND NEW RECORDS OF *MIMOSA* (LEGUMINOSAE) FROM MEXICO

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### ABSTRACT

As a result of the preparation of a treatment of the genus *Mimosa* (Leguminosae) for the Flora of Guerrero, Mexico, lectotypes for *Mimosa affinis* B.L. Rob., *M. caerulea* Rose, and *M. egregia* Sandwith are designated here, and new records of other eleven taxa of the genus are documented for Guerrero.

### RESUMEN

Como un resultado de la preparación de un tratamiento del género *Mimosa* (Leguminosae) para la Flora de Guerrero, México, se designan aquí los lectotipos de *Mimosa affinis* B.L. Rob., *M. caerulea* Rose y *M. egregia* Sandwith y se reportan nuevos registros de otros once taxa del género para el estado de Guerrero, México.

*Mimosa* L. comprises ca. 540 species worldwide. In Mexico there are 105 species, which constitute ca. 20% of the total, and of these ca. 60% are endemic to the country (Grether & Steinmann 2014), thus Mexico is considered the second center of diversification after Brazil (Grether 1978; Simon et al. 2011). The states with the highest number of *Mimosa* species are Oaxaca with 46 (Grether 2011), Guerrero with 44 (López-Mendoza 2018), Chiapas with 35 (Grether 1997), and Veracruz with 26 (Martínez-Bernal et al. 2008). In Mexico, *Mimosa* is represented by species belonging to 4 of the 5 sections and 37 out of 41 series, according to Barneby's (1991) classification and Grether's (2000) nomenclatural changes.

As a result of the preparation of a treatment of *Mimosa* (Leguminosae) in the state of Guerrero, lectotypes are designated here for three species endemic to Mexico: *Mimosa affinis* B.L. Rob., *Mimosa caerulea* Rose, and *Mimosa egregia* Sandwith. In addition, eleven taxa of *Mimosa* are first recorded for the state.

***Mimosa affinis*** B.L. Rob., Bot. Gaz. (Crawfordsville) 16: 341. 1891. **LECTOTYPE** (designated here): **MEXICO. Sinaloa.** Mazatlán and vicinity, Jan 1889, *W.G Wright 1218* (fl, fr) (GH00065058!; isolectotypes: F0058247F!, MO127533!, MSC0092382!, US00930649!, US00000789!, fragments: NY00002515!). Non *M. affinis* Harms ex Glaz., Bull. Soc. Bot. France 53, Mém. 3b: 185. 1906.

In 1891, B.L. Robinson named and described *Mimosa affinis*, based on the collections of *W.G Wright 1218* and *1265*. Both specimens are mounted on the same sheet, each with its own bar code, *W.G Wright 1218*, GH00065058! (fl, fr) and *W.G Wright 1265*, GH00065059! (fl, fr). The specimen

*W.G. Wright 1218* is chosen here as the lectotype, as it shows the important characters of the inflorescence, flower and fruit that fully characterize the species. The isolectotypes F0058247F!, MO127533!, MSC0092382!, and US00000789! correspond to the collection number *W.G. Wright 1218* [additionally labeled: = 1265], the sheet NY00002515! only includes fragments of *W.G. Wright 1218* ex GH [additionally labeled: = 1265] and the specimen US00930649! only has the collection number of *W.G. Wright 1218*.

This species is distributed in western, central, southern, and southeastern Mexico and Central America (Guatemala, Belize, and Nicaragua). *Mimosa affinis* grows in diverse vegetation types in foothills and lowlands of the Pacific slope, in elevations of 0–1000 m in western Mexico (McVaugh 1987) and it is found in the Mesoamerican region, in deciduous medium forests, as well as in savannas with *Acoelorrhapha* and grasses at elevations up to 430 m (Grether 1997, 2001). In Guerrero, this species has been documented at elevations up to 1600 m, growing in oak forests.

***Mimosa caerulea*** Rose, Contr. U.S. Natl. Herb. 5: 141. 1897. **LECTOTYPE** (designated here): **MEXICO. Morelos.** [Mpio.] Cuernavaca: on the foothills above Cuernavaca, 18 Nov 1895, *C.G. Pringle 6200* (fr) (US00000809!; isolectotypes: E00383725!, ENCB0003374!, F0058250F!, JE00001084!).

*Mimosa caerulea* Rose is based on two syntypes: *Pringle 6200* (fr) and *Pringle 6385* (fl), deposited in the U.S. National Herbarium (US). Barneby (1991) recognized *M. caerulea* but did not choose a lectotype. The fruiting specimen *Pringle 6200* is designated here as the lectotype, as it has several important characters such as mature leaves and fruits with stipe 5–7 mm long or sessile, 1–3 cm long, 5–6 mm wide, and short setose margin.

*Mimosa caerulea* is endemic to Mexico, previously known only from the states of Mexico and Morelos. In Guerrero, this species has been found in tropical deciduous forest and pine-oak forest, in elevations of 1500–2150 m; it is distributed into the Southern Mountain Ridges [floristic province of Serranías Meridionales (Rzedowski 1978)].

***Mimosa egregia*** Sandwith, Bull. Misc. Inform. Kew 1936(1): 7. 1936. **LECTOTYPE** (designated here): **MEXICO. Guerrero.** [Mpio. de Coyuca de Catalán] I.R.F. Quirio [Cuirio], Coyuca, Nov 1934, *G.B. Hinton 6907* (fr) (K000082083!; isolectotypes: BM000952352!, GBH006907!, LL00371148!, MO127545!, PH00017688!, RSA0003543!, US00930653!).

*Mimosa egregia* Sandwith is based on two syntypes: *Hinton 6314* (fl), K000082082!, and *Hinton 6907* (fr), K000082083!. After examination of the syntypes and their duplicates in several herbaria, the fruiting specimen is here selected as the lectotype, because the fruit has several important characters that distinguish *M. egregia* from related species such as *M. guatemalensis* (Hook. & Arn.) Benth., *M. sotoi* R. Grether & V.W. Steinm., and *M. spirocarpa* Rose.

The flowering specimen: *Hinton 6314* (K000082082!) from El Pochote, [Mpio.] Coyuca [de Catalán], Guerrero, was also examined, as well as its duplicates (A00065102!, A00065103!, ENCB0003376!, F0058257F!, K000478116!, MO127546!, NY00002541!, NY00002542!, NY00002543!). It is important to note that the specimen with fruits was collected from the same tree as *Hinton 6296* (fl), as cited in the protologue, and that I.R.F. Quirio [river Cuirio] is a tributary of the Balsas River and not a town, 18° 18' N, 100° 41' W.

*Mimosa egregia* is endemic to the Balsas Basin and adjacent areas of the Southern Mountain Ridges, in the State of México, Michoacán, and Guerrero, where it occurs in tropical deciduous forest and thorn scrub at elevations of 250–850 m.

## New records of *Mimosa* species for Guerrero

- 1. *Mimosa psilocarpa*** B.L. Rob., Proc. Amer. Acad. Arts 35: 325. 1900. **TYPE: MEXICO. Oaxaca.** Between San Carlos and San Bartolo Yautepec, 6 Jan 1896, C. & E. Seler 1727 (holotype: GH00065033! (fragm., US00000901! ex GH); isotype: NY00002599!).

*Mimosa psilocarpa* had been previously found only in Oaxaca and the Cañón del Sumidero in Chiapas, at elevations of 140–1350 m (Grether 1997). It is recorded here for the first time from Guerrero, where it grows in tropical deciduous forest between 300 and 500 m elevation on the Pacific slope [floristic province of Costa Pacífica (Rzedowski 1978)].

**Specimens examined. MEXICO. Guerrero.** Mpio. Acapulco de Juárez: El Veladero, 26 Jul 2004, *Hernández 407* (FCME); Parque Nacional El Veladero, Colonia de los Burócratas, 3 Mar 1985, *Noriega 472* (FCME).

- 2. *Mimosa sotoi*** R. Grether & V.W. Steinm., Brittonia 67: 5. 2015. DOI 10.1007/s12228-014-9346-0. 2014. **TYPE: MEXICO. Michoacán.** Mpio. La Huacana: 1.5 km al oeste-suroeste de Los Ranchos, por la vereda al depósito de agua, 2 Oct 2011, V.W. Steinmann 7357 (holotype: IEB; isotypes: ARIZ, MEXU, MICH, NY, UAMIZ).

This species was described from Michoacán and this is the first register for Guerrero. *Mimosa sotoi* grows at elevations of 250–350 m, in deciduous tropical forest and riparian tropical forest and it is restricted to the lower Balsas region of southern Michoacán and western Guerrero, into the Balsas Depression province.

**Specimens examined. MEXICO. Guerrero.** Mpio. Zirándaro: El Cacahuananche, 6 km al SO de Zirándaro, camino a Guayameo, 13 Jul 1982, *Martínez & Soto 1330* (MEXU).

- 3. *Mimosa albida*** Humb. & Bonpl. ex Willd. var. **pochutlensis** R. Grether, Phytologia 52: 91. 1982. **TYPE: MEXICO. Oaxaca.** Distrito de Pochutla: 17 km al O de Pochutla, 18 Dic 1978, R. Grether & H. Quero 1264 (holotype: MEXU; isotypes: ENCB003373!, UAMIZ0005000!, UAMIZ0005039!, XAL0098964!).

*Mimosa albida* var. *pochutlensis* is documented for Guerrero for the first time; it is found in tropical subdeciduous forest and secondary vegetation, at elevations of 0–1800 m. This variety is distributed along the Pacific slope. *Mimosa albida* var. *pochutlensis* was only known from Oaxaca, on the Pacific coastal plain, in tropical deciduous and subdeciduous forests; it has also been found in the edges of savannas and oak forests up to 500 m elevation and in cloud forest with coffee plantation at 1200 m. This variety is characterized by leaves with one pair of pinnae, each with two pairs of leaflets up to 11 x 6.5 cm, strigose and puberulent on both surfaces, the margin with short, not appressed irregularly arranged setae, and the fruits hirsute; however, some specimens from Oaxaca and Guerrero have leaflets glabrous on both surfaces and margin with some appressed but irregularly arranged setae; however, they have glabrous flowers and hirsute fruits, with erect setae on valves and margin, which are typical of *M. albida* var. *pochutlensis*.

**Specimens examined. MEXICO. Guerrero.** Mpio. Acapulco de Juárez: 11 km al N de Acapulco, 22 Jan 1982, *Miller et al. 289* (MEXU). Mpio. Coyuca de Benítez: Isla Montosa, 14 Jan 1987, *Andrade 134* (FCME); 2 km al NO de Coyuca de Benítez, 7 Jul 1985, *Grether et al. 1972* (MEXU, UAMIZ). Mpio. San Marcos: 7 km adelante de Huajintepec rumbo a Agua Zarca, 21 Ago 1985, *Fonseca 1242* (FCME).

- 4. *Mimosa tricephala*** Schtdl. & Cham. var. **lignosa** (Micheli) Chehaibar & R. Grether, Novon 10: 31. 2000. *Mimosa lignosa* Micheli, Mém. Soc. Phys. Genève 34(3): 278. 1903. **TYPE:**

**MEXICO. Michoacán.** Las Higueritas, Jul 1898, *E. Langlassé* 232 (holotype: G; isotypes: F, GH01154784!, MEXU 00050990! MEXU00050991!, US).

This variety is recorded in Guerrero for the first time. *Mimosa tricephala* var. *lignosa* was known as endemic to Michoacán; it has been found in Guerrero at elevations of 300–600 m in tropical deciduous forests and gallery forests. It is endemic to the Balsas Basin.

**Specimens examined. MEXICO. Guerrero.** Mpio. Ajuchitlán del Progreso: 1 km al NO de Corral Falso y 21 km al SE de Coyuca de Catalán, carretera Coyuca de Catalán–Ajuchitlán del Progreso, 31 Jul 2011, *Calónico* 19206 (MEXU). Mpio. Huitzuc de los Figueroa: 2 km al O de San Francisco Ozomatlán camino a San Miguel Tecuixiapan Amecantla, 2 Jul 1987, *Contreras* 2047 (FCME); 1 km al O de San Francisco Ozomatlán, 29 Oct 1989, *Contreras* 2581 (FCME); 1.8 km al E de San Francisco Ozomatlán, 27 Jul 1988, *Vaca & Vargas-Pérez* 98 (FCME); 4 km al E de San Francisco Ozomatlán, 19 Jul 1989, *Vargas-Pérez* 57 (FCME).

**5. *Mimosa tricephala* Schldtl. & Cham. var. *nelsonii* (B.L. Rob.) Chehaibar & R. Grether, Novon 10: 31. 2000. *Mimosa nelsonii* B.L. Rob., Proc. Amer. Acad. Arts 33: 314. 1898. LECTOTYPE** (designated by Grether 2000): **MEXICO. Oaxaca.** Between San Gerónimo and La Venta, 13 Jul 1895, *E.W. Nelson* 2775 (GH01154786!; isolectotypes: A01154787!, GH01154788!, US).

This variety is recorded for Guerrero for the first time; it was only known in Michoacán and Oaxaca. It grows in deciduous tropical forest at elevations of 150–1250 m and is distributed in the three floristic provinces (Rzedowski 1978) that converge in Guerrero: Balsas Depression, Southern Mountain Ridges, and Pacific Coast.

**Specimens examined. MEXICO. Guerrero.** Mpio. Coyuca de Catalán: 8 km al O de Coyuca de Catalán, carretera Ciudad Altamirano–Los Placeres del Oro, 5 Feb 1993, *Martínez-Bernal et al.* 665 (UAMIZ). Mpio. San Marcos: 1 km de la Estancia, carretera Pinotepa Nacional a Acapulco, 31 Jan 1983, *Tenorio et al.* 3114 (MEXU). Mpio. Zirándaro: Las Salinas, 3.7 km al E, *Calónico* 12850 (FCME); Placeres del Oro, 7 km al NO, *Calónico* 12815 (FCME); El Jeriche, a 13 km de la Parota, en el camino Aratichanguio–Zirándaro, 2 Nov 1983, *Campos* 937 (MEXU).

**6. *Mimosa tricephala* Schldtl. & Cham. var. *tricephala*, Linnaea 5: 591. 1830. TYPE: MEXICO. Veracruz.** “inter Laguna Verde et Actopan”, *C.W. Schiede s.n.* (holotype: HAL0064977!; isotypes: BM, RSA0026507!, RSA0026508!).  
*Mimosa chaetocarpa* Brandege, Univ. Calif. Pub. Bot. 10: 182. 1922. TYPE: MEXICO. [Veracruz]. Cameron [rancho Camarón], Oct 1921, *C.A. Purpus* 8600 (holotype: UC206733!; isotypes: GH01154783!, MO, NY00002531!, photo MEXU! ex NY, US00000818!).

*Mimosa tricephala* var. *tricephala* is documented from Guerrero for the first time. It occurs in the Balsas Basin in deciduous tropical forest at elevations of 950 m. The typical variety of *M. tricephala* is also distributed in Morelos, Puebla, and Veracruz in Mexico, and it apparently is disjunct in the Guanacate Province in Costa Rica.

**Specimens examined. MEXICO. Guerrero.** Mpio. Atenango del Río: 273 km al NO de Apanguito, 20 Nov 2003, *Aguirre* 186 (FCME).

7. ***Mimosa grahamii*** A. Gray [var. **grahamii**], Pl. Wright. 2: 52. 1853. *Mimosopsis grahamii* (A. Gray) Britton & Rose, N. Amer. Fl. 23(3): 178. 1928. **TYPE: MEXICO. Sonora.** Mountain valleys of Sonora, between the San Pedro and the Sonoita, Sep 1851, *C. Wright 1042* (holotype: GH00065129!; isotypes: GH00065140!, MO356344!, NY00002553!).
- Mimosa endlichii* Harms, Repert. Spec. Nov. Regni Veg. 18: 93. 1922. **TYPE: MEXICO. Chihuahua.** Río San Juan, 21 Apr 1906, *R. Endlich 1256* (holotype: B, photo and fragm. US00000835!, fragm. NY00002545!).
- Mimosopsis durangensis* Britton & Rose, N. Amer. Fl. 23(3): 175. 1928. **TYPE: MEXICO. Durango.** Near Huasemote, 15 Aug 1897, *J.N. Rose 3491* (holotype: US00000952!, fragm. NY00003134!).
- Mimosa lemmonii* A. Gray, Proc. Amer. Acad. Arts 19: 76. 1883. *Mimosopsis lemmonii* (A. Gray) Britton & Rose, N. Amer. Fl. 23(3): 176. 1928. *Mimosa grahamii* var. *lemmonii* (A. Gray) Kearney & Peebles, J. Wash. Acad. Sci. 29: 482. 1939. **TYPE: USA. Arizona.** S Arizona, near Fort Huachuca, Cañon, Jun 1882, *J.G. Lemmon 2692* (fl) (syntype: GH00065130!; isosyntypes: K000791081!, PH00017698!, US00000871!, US00000872!); S Arizona, near Fort Huachuca, Cave Cañon, Sep 1882, *J.G. Lemmon 2693* (fr) (syntype: GH00065131!; isosyntype: NDG24068!).

*Mimosa grahamii* var. *grahamii* is distributed in southwestern USA and Mexico; it had been found in Sonora, Chihuahua, and Durango; in recent years it has been collected in Querétaro, seeming disjunct from the others. Here, this taxon is recorded for the first time from Guerrero, its known southern limit, at elevations of 1600–1950 m in oak forest in the floristic province of Southern Mountain Ridges.

The pubescence of foliage and flowers varies notably among populations of *Mimosa grahamii*, but those with densely pubescent foliage may be determined as *M. grahamii* var. *lemmonii* (A. Gray) Kearney & Peebles. Further study of this latter taxon is needed to evaluate its typification.

**Specimens examined. MEXICO. Guerrero.** Mpio. Chilpancingo de los Bravo: 26 km sobre la desviación Chilpancingo–Omitemi–Las Joyas, 27 Mar 1981, *Soto & Contreras 539* (FCME). Mpio. Eduardo Neri: Cañada Carrizalillo, 2 km al SE de Amatitlán, 11 May 1996, *Cruz & García 875* (FCME). Mpio. Tixtla de Guerrero: 16 km después de Tixtla (entre Ojitos de Agua y la Estacada) carretera Chilpancingo a Chilapa, 31 Mar 1981, *Contreras & Campos 911* (FCME).

8. ***Mimosa pigra*** L. var. **berlandieri** (A. Gray) B.L. Turner, Field & Lab. 24: 15. 1956. *Mimosa berlandieri* A. Gray in Emory, Rep. U. S. Mex. Bound. 2: 61. 1859. *M. asperata* L. var. *berlandieri* (A. Gray) B.L. Rob., Proc. Amer. Acad. Arts 33: 331. 1898. **LECTOTYPE** (designated by Isely 1971): **MEXICO. [Tamaulipas].** Environs of Matamoros, 1839, *J.L. Berlandier 3146* (GH00065067!; isolectotype: K000082472!, photo MEXU! ex K).
- Mimosa asperata* L., Syst. Nat., Ed. 10, 2: 1312. 1759. **LECTOTYPE** (designated by Barneby 1989): P. Miller, Gard. dict., ed. 7, t. 182, fig. 3. 1757. **MEXICO.** [“discovered...at **La Vera Cruz**”, by *Houston s.n.*, who sent the seeds to England].

*Mimosa pigra* var. *berlandieri* has a wide distribution in southern USA and in Mexico, where it occurs in Sinaloa, Nayarit, Jalisco, Colima, San Luis Potosí, Tamaulipas, Veracruz, Oaxaca, Chiapas, Tabasco, Yucatán, Campeche, and Quintana Roo, extending southward in Central America to Belize, Guatemala, and Nicaragua. This taxon is documented here for the first time from Guerrero, where it grows in mangrove and gallery forest at elevations of 0–2200 m. It is distributed in two floristic provinces converging in Guerrero: Southern Mountain Ridges and Pacific Coast.

**Specimens examined. MEXICO. Guerrero.** Mpio. Acapulco de Juárez: Laguna de Tres Palos, 24 Jul 1982, *López s.n.* (FCME). Mpio. General Heliodoro Castillo: Tejamanil, Ejido de Pueblo Viejo, 25 Jan 1993, *Pérez 6701* (FCME).

**9. *Mimosa polydactyla*** Humb. & Bonpl. ex Willd., Sp. Pl. 4: 1033. 1806. **TYPE: [VENEZUELA].** “Habitat in America meridionali ad fluvium nigrum prope St. Carlos,” *Humboldt & Bonpland 3384* (holotype: B-W19070010!, photo F0BN001358! ex B-W).

This species is recorded here for the first time in Guerrero, now its northern limit; in Mexico, it was only known from the state of Chiapas and it has a wide distribution in Central and South America to Argentina. In Guerrero, it grows between 700 and 1000 m elevation, in pine forest into the floristic province of Southern Mountain Ridges.

**Specimens examined. MEXICO. Guerrero.** Mpio. Chilpancingo de los Bravo: Soyatepec, 15 Oct 1994, *Gómez 2871* (FCME); 0.5 km al SO de Agua de Obispo, desviación a Zintlalapa, carretera federal Acapulco–Chilpancingo, 9 Oct 2011, *Redonda et al. 659* (MEXU).

**10. *Mimosa skinneri*** Benth. var. *skinneri*, London J. Bot. 5: 85. 1846. **TYPE: GUATEMALA.** Cuesta Leona, 1843, *Skinner s.n.* (holotype: K000532816!; isotype: K000532776!, photo MEXU! ex K).

*Mimosa tetraeura* Brandg., Univ. Calif. Publ. Bot. 6(4): 52. 1914. **TYPE: MEXICO. [Chiapas].** Sierra de Tonalá, Sep 1913, *C.A. Purpus 6626* (holotype: UC169739!; isotypes: F0058283F!, photo NY! ex F, MEXU!, US00000963!).

*Mimosa longicoma* Britton & Rose, N. Amer. Fl. 23: 152. 1928. **TYPE: MEXICO. Chiapas.** Jalisco Arriaga [Arriaga], Sep 1923, *C.A. Purpus 9069* (holotype: NY00002564!; isotypes: GH00065118!, MEXU00053631!, MO127548!, MO356257!, US00000879!).

*Mimosa skinneri* is a member of sect. *Mimosa* series *Modestae*; this series and species are new records for Guerrero. *Mimosa skinneri* var. *skinneri* is widely distributed in southern Mexico (Guerrero, Oaxaca, Chiapas, Veracruz, and Tabasco) and it is found in western Mexico (Nayarit), Central America, and Brazil. In Guerrero it grows in secondary vegetation, at 500 m elevation, into the Pacific Coast province.

**Specimens examined. MEXICO. Guerrero.** Mpio. Tlacoachistlahuaca: Rancho del Cura (Xochistlahuacan–Plan de Guadalupe), 25 Apr 1982, *Diego 2640* (FCME).

**11. *Mimosa tarda*** Barneby, Mem. New York Bot. Gard. 65: 434. 1991. **TYPE: PERU. Huánuco.** Prov. Leoncio Prado, Distrito Rupa Rupa: Aucayacu, 24 Mar 1975, *J. Schunke-Vigo 8160* (holotype: NY00003087!; isotype: MO954263!).

*Mimosa tarda* is a species of wide distribution in America. In Mexico, it was only known from Colima, Veracruz, and Oaxaca. Here, it is documented for the first time from Guerrero. In Central America it grows at elevations of 0–1400 m in deciduous forests and oak forests (Grether 1997), while in Guerrero it is found at elevations up to 500 m, in secondary vegetation “acahuales” in the Southern Mountain Ridges.

**Specimens examined. MEXICO. Guerrero.** Mpio. Tlacoachistlahuaca: 5 km de San Cristóbal, dirección de Santa María Asunción, 25 Jun 1982, *Diego 4036* (FCME).

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