Nomenclatural Changes in the Genus *Mimosa* (Fabaceae, Mimosoideae) in Southern Mexico and Central America

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ABSTRACT. As a result of a taxonomic study of the genus *Mimosa* L. for *Flora de Nicaragua, Flora Mesoamericana,* and *Flora de México,* six new combinations at the infraspecific level, two new names at the specific level, and two changes of series category at the supraspecific level, are herein proposed. These taxa occur mainly in southeastern Mexico (states of Veracruz, Tabasco, Oaxaca, Chiapas, and the Yucatán Península) as well as in Central America.

RESUMEN. Como uno de los resultados del estudio taxonómico del género *Mimosa* L. para la *Flora de Nicaragua,* la *Flora Mesoamericana* y la *Flora de México,* se proponen seis combinaciones nuevas a nivel infraespecífico, dos nombres nuevos a nivel específico, así como dos cambios en la categoría de serie a nivel supraespecífico, para los taxa existentes principalmente en el sureste de México (estados de Veracruz, Tabasco, Oaxaca, Chiapas y la Península de Yucatán) así como en Centroamérica.

The genus *Mimosa* is characterized by biparipinnate leaves; haplostemonous or diplostemonous flowers, these disposed in capitate or spicate inflorescences; and articulate or unarticulate legumes with persistent margins. It comprises 480 to 500 species, of which 90% are American with the rest distributed in Africa and Asia. Most of the diversity is found in the tropics as well as in arid and semiarid regions at elevations from sea level up to 2250 m. Several species grow in temperate areas at 2000–2750 m (Grether, 1978; Lewis & Elias, 1981; Barneby, 1991).

A taxonomic treatment of the genus for *Flora Mesoamericana* included 47 species with 28 varieties (Grether, 1997). In Nicaragua, 19 (40%) of these species have been found. Mexico is considered the second distributional center of the genus after Brazil: 100 to 110 species are known to occur in the country, and about 60% of them are endemic to different regions of it (Grether & Martínez-Bernal, 1996). According to Barneby (1991), the genus in the New World comprises five sections: *Mimadenia, Habbasia, Batocaulon, Calothamnos,* and *Mimosa*; each of these includes series. Section *Mimosa* has been divided into three series, and series *Mimosa* into 37 subseries.

The aim of this paper is to formalize and validate new combinations, new names, synonymies, and lectotypifications at the series, species, and variety level to accompany the taxonomic treatment of *Mimosa* in *Flora de Nicaragua, Flora Mesoamericana,* and *Flora de México.*

1. Series **Acantholobae** Barneby

Series *Acantholobae* is characterized by shrubby or arboreous species with lanceolate-oblong, oblong, or elliptic legumes, these 1–2.5 cm wide and with entire valves; the inflorescences are capitate or spicate. The group mainly occurs in Mexico and Central America, although *Mimosa acantholoba* (Humboldt & Bonpland ex Willdenow) Poiret var. *acantholoba* extends to Ecuador and Peru.

Barneby (1991) considered series *Acantholobae* to comprise five varieties of *M. acantholoba.* Within this species, he accepted variation of inflorescences from globose to subglobose capitula or spikes and variation of legumes from lanceolate-oblong to oblong or elliptic, with valves glabrous, setose, or echinate. However, he described *M. seticuspis* as a distinct species.

Within series *Acantholobae,* the following new combinations are proposed:

Mimosa acantholoba (Humboldt & Bonpland ex Willdenow) Poiret var. **seticuspis** (Barneby) R. Grether, comb. et stat. nov. Basionym: *Mimosa seticuspis* Barneby, Mem. New York Bot. Gard. 65: 109. 1991. TYPE: El Salvador. Depto. Santa Ana: 15 km W of Metapan on low-lying ground N of Lago de Guija, 22 Feb. 1989, *C. E. Hughes 1256* (holotype, NY; isotype, MEXU).

In my opinion, this taxon should be treated at the infraspecific level because of its capitate inflorescences. The main difference with *Mimosa acantholoba* var. *acantholoba* is the narrower legume,

always glabrous, with margins unarmed or slightly prickly, and the apex usually rostrate with the rostrum up to 1.1 cm long. *Mimosa acantholoba* var. *seticuspis* was earlier known only from type specimens, but it has subsequently been found in the Isthmus of Tehuantepec, particularly in the regions of San Miguel Chimapala and La Ventosa, near sea level, in the state of Oaxaca, Mexico. Because of its flowers disposed in subglobose capitula, this variety parallels *M. acantholoba* var. *molinarum*, from which it is distinguished by its longer and narrower lanceolate-oblong fruits, and by its narrowly oblong leaflets.

Mimosa acantholoba is characterized by its glabrous to puberulent flowers disposed in capitula; I recognize four varieties: *M. acantholoba* var. *acantholoba*, variety *eurycarpa* (B. L. Robinson) Barneby, variety *molinarum* Barneby, and variety *seticuspis* (Barneby) R. Grether. I regard variety *liesneri* Barneby as better placed under *Mimosa platycarpa* Bentham, herein recognized at the specific rank; it is distinguished from *M. acantholoba* by its always puberulent flowers disposed in spikes.

Mimosa platycarpa Bentham var. **liesneri** (Barneby) R. Grether, comb. nov. Basionym: *Mimosa acantholoba* var. *liesneri* Barneby, Mem. New York Bot. Gard. 65: 108. 1991. TYPE: Costa Rica. Guanacaste: Santa Rosa National Park, 2 km N of headquarters on road past Lagoona, 1 Feb. 1978, *R. Liesner 4800* (holotype, NY; isotypes, CR, MO).

Species and varieties of series *Acantholobae* can be distinguished by the following key:

1a. Flowers in dense capitula, 8–15 mm diam . . . . . *M. acantholoba*
  2a. Flowers in globose to subglobose capitula, 8–10 mm diam.; legumes with valves glabrous to shortly setose or echinate, 1.5–2.5 cm wide.
    3a. Legumes 5–8 cm long with valves glabrous to shortly setose; pinnae 4 to 12 pairs; leaflets 10 to 20 pairs; Mexico, Nicaragua, Ecuador, and Peru . . . . . *M. acantholoba* var. *acantholoba*
    3b. Legumes 3.5–5.5 cm long with valves always echinate in the middle; pinnae 6 to 8 pairs; leaflets 15 to 30 pairs; Mexico (Oaxaca) . . . . . *M. acantholoba* var. *eurycarpa*
  2b. Flowers only in subglobose capitula, 12–15 mm diam.; legumes with valves always glabrous, 1–1.7 cm wide.
    4a. Legumes oblong to elliptic, 4–4.5 × 1.3–1.7 cm; leaflets obliquely linear-oblong, (9)12 to 22 pairs; pinnae (2)4 to 8 pairs; Honduras . . . . . *M. acantholoba* var. *molinarum*
    4b. Legumes lanceolate-oblong, 6–8 × 1–1.1 cm; leaflets obliquely, narrowly oblong, (14)17 to 26 pairs; pinnae (4)5 to 11 pairs; Mexico (Oaxaca) and El Salvador . . . . . *M. acantholoba* var. *seticuspis*
1b. Flowers in lax spikes, 2–4 cm long . . *M. platycarpa*
  5a. Legumes lanceolate-oblong to oblong or elliptic, 3–8 × 1–2.5 cm, valves glabrous with prominent venation; pinnae 4 to 10 pairs; leaflets obliquely linear-oblong, 8 to 20(26) pairs; Mexico (Oaxaca and Chiapas), Guatemala, Honduras, Nicaragua, and Costa Rica . . . . . *M. platycarpa* var. *platycarpa*
  5b. Legumes always lanceolate-oblong, 4.5–6.5 × 1–1.4 cm, valves largely setose without prominent venation; pinnae (2)3 to 6(8) pairs; leaflets obliquely linear, (8)10 to 15(17) pairs; Costa Rica . . . . . *M. platycarpa* var. *liesneri*

2. Series **Glanduliferae** Bentham

Series *Glanduliferae* comprises 12 species occurring mainly in South America; *Mimosa watsonii* B. L. Robinson is the only species of this group found in southern Mexico and Central America besides *M. guilandinae* (DC.) Barneby var. *paterata* Barneby, which ranges from Colombia to Costa Rica.

Grether (1987), based on consistent inflorescence, flower, fruit, and leaflet characters, included *Mimosa recordii* Britton & Rose, *M. resinifera* Britton, and *M. rekoana* Britton in the synonymy of *M. watsonii*, mentioning the great variation in the number of pinnae and leaflets.

Barneby (1991) considered it useful to recognize the extreme variations in size and number of leaflets and pinnae at the varietal level, distinguishing variety *watsonii* by its leaves with 2 to 3 pairs of pinnae and 2 to 4 pairs of leaflets, the distal pair of them (3–)4–11 × 2.5–6.5 cm, and variety *recordii* by its leaves with 4 to 7 pairs of pinnae and 5 to 9 pairs of leaflets, the distal pair 1.5–3 × 0.8–2 cm. He reported a discontinuous distribution range for variety *watsonii* in Oaxaca and Veracruz, Mexico, southeast Guatemala, and northwest Honduras, while variety *recordii* was known from Belize, southern and central Guatemala, and from Chiapas and Oaxaca in Mexico.

Based on examination of material from the entire distributional range of this species, including the state of Guerrero in Mexico, El Salvador, Nicaragua, and Costa Rica, I consider it impossible to delimit infraspecific taxa. The leaves vary from 2 pairs of pinnae with 1 to 3 pairs of leaflets, as in the type of *M. watsonii*, to 2 to 3 pairs of pinnae with 2 to 5 pairs of leaflets or 2 to 4 pairs of pinnae with 4 to 7 pairs of leaflets, all the way up to 5 to

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6 pairs of pinnae with 4 to 9 pairs of leaflets. Variation is also observed in size of leaflets, 2.5–12 × 1.5–6 cm; intermediate combinations are frequent.

Additionally, analysis of geographical distribution range, altitudinal range, and vegetation types where this species occurs, as well as flowering and fruiting time, do not allow one to delimit varieties. Therefore, I include *M. watsonii* B. L. Robinson var. *recordii* (Britton & Rose) Barneby in the synonymy of this species.

3. Series **Lactifluae** (Barneby) R. Grether

I propose to treat this group of section *Mimosa* at the rank of series:

Mimosa Series **Lactifluae** (Barneby) R. Grether, stat. nov. Basionym: Series *Mimosa*, subseries *Lactifluae* Barneby, Mem. New York Bot. Gard. 65: 571. 1991. TYPE: *Mimosa lactiflua* Delile ex Bentham.

The groups Xantiae, Psilocarpae, Michelianae, and Chaetocarpae (nom. nud.) were included in the key for the genus, but not formally named as series by Britton and Rose (1928). Barneby (1991) elected to recognize none of these.

The *Lactifluae* are mainly a Mexican group, extending to the province of Guanacaste in Costa Rica. The greatest diversity of species is found in the Isthmus of Tehuantepec in the state of Oaxaca, Mexico, where the following taxa are frequent: *Mimosa deamii* B. L. Robinson (endemic to that region), *M. goldmanii* B. L. Robinson and *M. lactiflua* Delile ex Bentham (states of Puebla, Morelos, Guerrero, and Oaxaca), *M. melli* Britton & Rose and *M. psilocarpa* B. L. Robinson (states of Oaxaca and Chiapas), and *M. tricephala* Chamisso & Schlechtendal (wide distribution from Baja California, along the Sierra Madre Occidental (Sinaloa to Chiapas), central Mexico and the state of Veracruz, extending to Guatemala, Honduras, and Costa Rica). Other species endemic to Mexico are *M. sicyocarpa* B. L. Robinson (Sinaloa to Michoacán) and *M. caerulea* Rose (states of México and Morelos).

In my opinion, the *Lactifluae* must be treated at the rank of series, considering that they form a well-delimited group because of their habit, mainly shrubby or arboreous, and their morphology, as well as by their geographical distribution range.

Within this series, several new synonyms and new combinations, which are part of a Master's thesis on the Xantiae group and allied species by Teresa Chehaibar, are proposed here.

On the basis of examination of type collections and many other specimens from Mexico, Grether (1987) concluded that *Mimosa mixtecana* Brandegee is a synonym of *M. lactiflua* Delile ex Bentham. However, Barneby (1991) considered it in the synonymy of *M. caerulea* Rose. After reexamination of type specimens and material from Mexico, including the type locality of *Mimosa mixtecana*, Chehaibar and I confirm that it is a synonym of *Mimosa lactiflua* and not of *M. caerulea*. The latter is distinguished by its leaves with 1 to 2 pairs of pinnae and 5 to 12(14) pairs of leaflets, obliquely linear-oblong to lanceolate, as well as by its herbaceous or suffruticose habit.

Mimosa tricephala Chamisso & Schlechtendal var. **lignosa** (Micheli) Chehaibar & R. Grether, comb. et stat. nov. Basionym: *Mimosa lignosa* Micheli, Mém. Soc. Phys. Genève 34(3): 278. 1903. TYPE: Mexico. Michoacán [or Guerrero]: Las Higueritas, July 1898, *Langlassé 232* (holotype, G not seen; isotypes, F, MEXU, US).

Mimosa lignosa Micheli had been considered a synonym of *M. nelsonii* B. L. Robinson (Britton & Rose, 1928); however, Barneby (1991) segregated it as taxon B in the key to the members of the *M. xanti* complex. Chehaibar and I have examined the isotypes, the original description, and illustration of *M. lignosa*, as well as recent flowering and fruiting collections from the state of Michoacán. Based on that material, we agree with Barneby in considering this to be a distinct taxon; nevertheless, we place it at the infraspecific level. *Mimosa tricephala* var. *lignosa* is distinguished from *M. tricephala* var. *nelsonii* (vide infra) by its completely glabrous leaflets with prominent reticulate venation, smaller floral bracts and calyx, and by pubescent, not setose, legumes. It is endemic to the Balsas Basin in the state of Michoacán, Mexico.

Mimosa tricephala var. **nelsonii** (B. L. Robinson) Chehaibar & R. Grether, comb. et stat. nov. Basionym: *Mimosa nelsonii* B. L. Robinson, Proc. Amer. Acad. Arts 33: 314. 1898. TYPE: Mexico. Oaxaca: between San Gerónimo and La Venta, 13 July 1895, *E. W. Nelson 2775* (lectotype, selected here, GH; isolectotype, US).

Mimosa nelsonii B. L. Robinson was based on two syntypes: *Nelson 2775*, a flowering specimen from Oaxaca, Mexico, and *Palmer 88*, a fruiting specimen from Guerrero, Mexico. However, Barneby (1991) mistakenly cited the specimen collected by Nelson as holotype and the Palmer specimen as paratype of this taxon. *Nelson 2775* is selected here as lectotype of this taxon, which pre-

serves current use; moreover, the Palmer collection is *M. tricephala* var. *xanti*, because of its fruits with valves and margin strigose to hispid and pubescent.

Mimosa tricephala var. *nelsonii* is distinguished from the other three varieties mainly by its legumes with valves and margin pubescent, densely and shortly setose, with rigid and erect setae 1–2 mm long.

Mimosa tricephala var. **xanti** (A. Gray) Chehaibar & R. Grether, comb. et stat. nov. Basionym: *Mimosa xanti* A. Gray, Proc. Amer. Acad. Arts 5: 157. 1862. TYPE: Mexico. Baja California: Cabo San Lucas, Aug. 1859–Jan. 1860, *L. J. Xantus 29* (holotype, GH; isotypes, K, NY, US).

Mimosa zacapana Standley & Steyermark, Publ. Field Mus. Nat. Hist., Bot. Ser. 23: 57. 1944. Syn. nov. TYPE: Guatemala. Zacapa: rocky slopes near Santa Rosalía, 4 Oct. 1939, *J. A. Steyermark 29018* (holotype, F).

Examination of the type specimen and collection of a topotype of *M. zacapana* Standley & Steyermark (*R. Grether et al. 2294*, UAMIZ) led Chehaibar and me to conclude it should be synonymized here.

Barneby (1991) treated *Mimosa xanti* A. Gray as a species different from *M. tricephala* Chamisso & Schlechtendal. He tentatively recognized taxa A, B, C, and D in a key to the members of the *Mimosa xanti* complex, including *M. xanti*, *M. conzattii* Britton & Rose, *M. lagunensis* M. E. Jones, *M. langlassei* Micheli, *M. guanacastensis* Standley, and *M. nelsonii* within taxon A, and excluding *M. margaritae* Rose. The latter was considered as a distinct species, resembling in foliage *M. caerulea*, even though it is based on a vegetative specimen from Isla Margarita, Baja California Sur in Mexico.

Herein, taxon A is named at the varietal level as *Mimosa tricephala* var. *xanti*, excluding *M. guanacastensis*, *M. nelsonii*, and *M. margaritae*. It is distinguished from the typical variety mainly by its legumes with valves and margin strigose to hispid and pubescent.

Mimosa guanacastensis was described by Standley as endemic to the province of Guanacaste in Costa Rica without placement in any series of the genus. Examination of type collections as well as numerous flowering and fruiting specimens from Mexico and Costa Rica led Chehaibar and me to conclude that *M. guanacastensis* is also conspecific with *M. tricephala*. Because of their legumes with valves and margin densely and largely hirsute, with yellow, not rigid setae, Chehaibar and I include both *M. guanacastensis* and *M. chaetocarpa* in the synonymy of *M. tricephala* var. *tricephala*.

Varieties of *Mimosa tricephala* can be distinguished by the following key:

1a. Legumes with valves and margin hirsute or setose; floral bracts ½–⅔ of corolla length; stipules pubescent.
  2a. Legumes with valves and margin densely and largely hirsute, with setae 2–4 mm, not rigid; leaflets 10 to 15 pairs; Mexico (Veracruz, Puebla, and Morelos) and Costa Rica . . . . . *M. tricephala* var. *tricephala*
  2b. Legumes with valves and margin densely and shortly setose, with setae 1 mm or less, rigid and erect, mixed with fine trichomes; leaflets 4 to 8 pairs; Mexico (Michoacán and Oaxaca) . . . . . *M. tricephala* var. *nelsonii*
1b. Legumes with valves and margin strigose to hispid and pubescent or only pubescent; floral bracts ⅕–⅓ of corolla length; stipules glabrous or hispid.
  3a. Legumes with valves and margin strigose to hispid and pubescent; floral bracts ⅓–½ of corolla length; calyx ¼ of corolla length; stipules hispid; Mexico (Baja California Sur, Michoacán, Guerrero, Oaxaca, and Chiapas), Guatemala, and Honduras . . . . . *M. tricephala* var. *xanti*
  3b. Legumes with valves and margin only pubescent; floral bracts ⅕–⅓ of corolla length; calyx 1/10–⅛ of corolla length; stipules glabrous; Mexico (Michoacán) . . . . . *M. tricephala* var. *lignosa*

4. Series **Leiocarpae** Bentham

I accept the synonymy of series *Leiocarpae* Bentham as given by Barneby (1991: 119), and to that synonymy I would add series *Distachyae* Britton & Rose ex Barneby, Mem. New York Bot. Gard. 65: 67. 1991. Syn. nov.

Bentham (1875) described series *Leptostachyae*, including all the species known till then, with diplostemonous flowers disposed in spikes and with articulate legumes. Within the *Leptostachyae*, Bentham distinguished four informal, unnamed groups: the first one was comprised of unarmed species, with lepidote or tomentose-stellate indumentum, among them, *M. schomburgkii* Bentham; the second group included species also unarmed, but pubescent to tomentose and never canescent to glabrous, among others, *M. puberula* Bentham; the third group included prickly and tomentose-vellose species, such as *M. guatemalensis* (Hooker & J. D. Arnold) Bentham; and the fourth one, included species also prickly, but glabrous to scarcely pubescent, among them, *M. adenantheroides* (M. Martens & Galeotti) Bentham, *M. arenosa* (Willdenow) Poiret, and *M. tenuiflora* (Willdenow) Poiret.

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Willdenow) Poiret.
) abandoned the name series

Leptostachyae because it is a nomen illegitimum—Bentham included within it the types of two other prior series. Barneby (1991: 67–68) distributed the species of Bentham's series *Leptostachyae* into series *Leiocarpae* and series *Distachyae*; Barneby (1991: 68) pointed out that "It must be admitted that there are not very cogent technical reasons for segregating discrete series from series *Leptostachyae* sensu lato . . .." The *Distachyae* have predominantly 5-merous flowers and leaves with 1 to 30 pairs of pinnae, each pinna with 1 to 25 pairs of leaflets. The series is primarily Mexican, with one species extending to the Caribbean lowlands of Colombia and Venezuela (*Mimosa distachya* Cavanilles). By contrast, Barneby viewed the *Leiocarpae* as comprising species with flowers predominantly 4-merous and leaves with more than four pairs of pinnae, the leaflets more than 10 per pinna. The series is mostly South American, with only three species extending to Central America and Mexico (*Mimosa schomburgkii*, *M. arenosa*, and *M. tenuiflora*).

Obviously, as Barneby acknowledged, delimitation of series *Leiocarpae* and *Distachyae* is not clear. A detailed analysis of number of pinnae and leaflets of the 27 species included in the *Leiocarpae* demonstrated a variation of 1–38 pairs of pinnae and of 5–70 pairs of leaflets per pinna, although only four species have 42–70 pairs of leaflets per pinna. Moreover, within the *Distachyae*, the Mexican species *Mimosa costenya* McVaugh with 8–12 pairs of pinnae and 17–25 pairs of leaflets and *M. benthamii* J. F. Macbride with 8–30 pairs of pinnae and 12–25 pairs of leaflets bridge the gap between the two series.

Mimosa schomburgkii (*Leiocarpae*) and *M. benthamii* (*Distachyae*) have both tetra- and pentamerous flowers, even in the same spike, as do other Mexican species of *Distachyae*, such as *M. guatemalensis*, *M. xochipalensis* R. Grether, *M. luisana* Brandegee, and *M. dysocarpa* Bentham, the latter occurring also in the southern United States. I disagree with Barneby (1991) and consider that this group of species, characterized by their diplostemonous flowers, these disposed in spikes, with articulate legumes and shrubby or arboreous habit, should be maintained as a single series, even though diversification at the specific level has been noteworthy both in Mexico and in South America.

5. Series **Mimosa**

Within this group, the following new combination is proposed:

Mimosa velloziana Martius var. **maxonii** (Standley) R. Grether, comb. et stat. nov. Basionym: *Mimosa maxonii* Standley, Contr. U.S. Natl. Herb. 17: 432. 1914. TYPE: Guatemala. Vicinity of Mazatenango, 20 Feb. 1905, *W. R. Maxon & R. Hay 3497* (holotype, US; photo and fragments, NY ex US).

Mimosa maxonii was described by Standley, who mentioned its close relationship with *M. velloziana* Martius. The original description indicates pentamerous flowers; nevertheless, the type specimen as well as additional material examined have tetramerous flowers, as do those of *M. velloziana*. The main observed differences, with respect to typical *M. velloziana*, are the fruits with puberulent valves, the puberulent corolla lobes, and the always sessile, puberulent ovary. I conclude that this merits recognition as a variety of *M. velloziana*; Barneby (1991: 541) commented, "*Mimosa maxonii* represents a relatively uncommon variant with pod-valves densely puberulent." The species as a whole is a widespread opportunistic weed. *Mimosa velloziana* var. *maxonii*, however, is endemic to Mesoamerica and known from Deptos. Mazatenango and Zacapa in Guatemala as well as from Mpios. Mapastepec, Acacoyagua, and Tapachula, Chiapas, in Mexico.

Mimosa velloziana var. *maxonii* can be distinguished from the typical variety by the following key:

1a. Legumes with valves glabrous and venation prominent, 0.8–1.5 cm wide, apex apiculate to mucronate; calyx ⅛–⅕ of corolla length; corolla glabrous; leaflets obliquely lanceolate to narrowly elliptic, sometimes slightly falcate; Mexico (Nayarit, Veracruz, Oaxaca, Tabasco, and Chiapas), Guatemala, Costa Rica, Panama, Colombia, Brazil, and northern Argentina . . . . . *M. velloziana* var. *velloziana*

1b. Legumes with valves densely puberulent, without prominent venation, 0.7–0.9 cm wide, apex acute to apiculate; calyx 1/10–⅛ of corolla length; corolla lobes puberulent; leaflets obliquely lanceolate to lanceolate-oblong, never falcate; Mexico (Chiapas) and Guatemala . . . *M. velloziana* var. *maxonii*

6. Series **Quadrivalves** Barneby

Species previously included in the genus *Schrankia* Willdenow form a very distinct group. Barneby (1991) transferred them to *Mimosa*, and established series *Quadrivalves*, including the whole genus *Schrankia*, which had been maintained apart from *Mimosa* because of its tetragonal, unarticulate legumes; the fruits are apparently tetragonal, because the margin is as wide as or wider than the valves, in most cases.

The genus *Mimosa* encompasses a wide variation in legume form, often used to distinguish series within the sections. In this way, series *Acanthocarpae* and *Acantholobae* present legumes with entire valves and a thin margin, while in other series, such as *Pachycarpae*, legumes with entire valves and conspicuously wide margins are found, as in species of series *Quadrivalves*. Further, several taxa of *Quadrivalves*, such as *Mimosa quadrivalvis* L. var. *platycarpa* (A. Gray) Barneby, have legumes with valves wider than the margin, resembling those of *M. diplotricha* C. Wright ex Sauvalle of series *Paucifoliatae*, although the latter are articulate.

On this basis, I agree with Barneby (1991) in treating *Schrankia* as a series of *Mimosa*, while I disagree with the incorporation of all known taxa of this former genus as varieties of a single species. *Mimosa candollei*, *M. robusta*, and *M. tetragona* are morphologically and geographically well delimited. In addition, *M. hystricina* (Small ex Britton & Rose) B. L. Turner from Texas, is easily distinguished by its leaves with 5 pairs of pinnae and 11 pairs of leaflets per pinna; prickly, very long peduncles (9–12 cm) and small legumes (2.5–4 cm), densely setose, with valves 5 mm wide and margin 2–2.5 mm wide.

Turner (1994a, 1994b, 1995) recognized at the species level eight other varieties of *Mimosa quadrivalvis*, sensu Barneby; these occur in Texas and Mexico.

Series *Quadrivalves* still requires a biosystematic study or at least, more and better collections and field observations to delimit several taxa with precision, and to determine its relationships within *Mimosa*.

The following new names and synonymy are proposed within this series:

Mimosa candollei R. Grether, nom. nov. Replaced name: *Mimosa quadrivalvis* L. var. *leptocarpa* (DC.) Barneby, Mem. New York Bot. Gard. 65: 298. 1991. *Schrankia leptocarpa* DC., Prodr. 2: 443. 1825. *Leptoglottis leptocarpa* (DC.) Standley, J. Wash. Acad. Sci. 15: 458. 1925; non *Mimosa leptocarpa* Rose, Contr. U.S. Natl. Herb. 1: 326. 1895. TYPE: Santo Domingo, *Poiteau s.n.* (holotype, G-DC not seen, microfiche IDC: 800–12. 416: III. 3).

This species was originally described under *Schrankia*, from Santo Domingo; De Candolle (1825) characterized it by its tetragonal branches, leaves with 2–3 pairs of pinnae, numerous pairs of leaflets, straight, subulate, largely acuminate legumes, 10 times as long as the peduncle, solitary or geminate heads, as well as prickly branches and petioles. In 1925, it was transferred to the genus *Leptoglottis* by Standley; it was considered as a variety of *Mimosa quadrivalvis* L. by Barneby (1991).

This taxon differs from *M. quadrivalvis* sensu stricto by its longer petioles, up to 5(–8) cm, slightly longer and wider leaflets, up to 10 × 3 mm, shorter and puberulent peduncles, up to 1.5 cm, longer legume, up to 9(–12) cm, with less thickened margin, 2–3.5 mm wide, and apex largely rostrate, the rostrum 0.6–2 cm. The range of *M. quadrivalvis* L. var. *quadrivalvis*, sensu Barneby (1991), is restricted to the state of Veracruz in Mexico, while *M. quadrivalvis* L. var. *leptocarpa* (DC.) Barneby ranges from Brazil and Bolivia to the states of Tabasco and Chiapas in Mexico. In my opinion, the latter merits recognition at the specific level. The name *Mimosa candollei* honors A. P. De Candolle for his important contributions to the taxonomy of *Mimosa* and other Mimosoideae.

Mimosa robusta R. Grether, nom. nov. Replaced name: *Mimosa quadrivalvis* L. var. *distachya* (DC.) Barneby, Mem. New York Bot. Gard. 65: 295. 1991. *Schrankia distachya* DC., Prodr. 2: 443. 1825. *Leptoglottis distachya* (DC.) Britton & Rose, N. Amer. Fl. 23: 141. 1928; non *Mimosa distachya* Cavanilles, Icon. 3: 48, t. 295. 1795. TYPE: [Mexico]: (fl. mex. ic. ined.) . . . in Nova Hispania. (holotype, sheet 6331.560 in Icones of Sessé & Mociño (as *Mimosa intsia*), Hunt Library).

Schrankia palmeri (Britton & Rose) Standley, Publ. Field Mus. Nat. Hist., Bot. Ser. 8: 14. 1930. Basionym: *Leptoglottis palmeri* Britton & Rose, N. Amer. Fl. 23: 143. 1928. TYPE: Mexico. Jalisco: Guadalajara, July–Oct. 1886. *E. Palmer 267* (holotype, NY; isotype, US).

My study of *Mimosa quadrivalvis*, sensu Barneby (1991), in order to determine material from Mesoamerica, drew my attention to *M. quadrivalvis* L. var. *distachya* (DC.) Barneby. This is a very common taxon on the Pacific slope and in the Sierra Madre Occidental, from Sinaloa to Oaxaca in Mexico. Among members of series *Quadrivalves*, I consider it is a species distinct from *M. quadrivalvis*, because of its robust branches, large leaves, very dense capitula, 1.5–2 cm in diameter, and legume densely prickly with recurved prickles and margin wider than the valves. On the basis of these characters, I propose the new name, *Mimosa robusta* R. Grether, for this species.

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2b. Petiole 7–11 cm
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Guerrero, and Oa
1b. Peduncles 0.5–1.5 cm
diam.; apex of legume
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3a. Pinnae 1 to 3 pai
inent eccentric v

Schrankia palmeri (Britton & Rose) Standley to the synonymy of this species.

Mimosa tetragona Poiret, in Lamarck, Encycl. Méth. Bot. Suppl. 1: 56. 1810. *Mimosa quadrivalvis* L. var. *tetragona* (Poiret) Barneby, Mem. New York Bot. Gard. 65: 297. 1991. *Schrankia hamata* Humboldt & Bonpland ex Willdenow, Sp. Pl. 4: 1042. 1806. *Leptoglottis hamata* (Humboldt & Bonpland ex Willdenow) Standley, J. Wash. Acad. Sci. 15: 458. 1925; non *Mimosa hamata* Willdenow, Sp. Pl. 4: 1033. 1806. TYPE: "Habitat in America meridionali," *Humboldt & Bonpland 4800* (holotype, B-W not seen, microfiche IDC: 7440. 1385: I. 4).

This species was originally described as *Schrankia hamata* Humboldt & Bonpland ex Willdenow, and transferred to the genus *Leptoglottis* by Standley in 1925. However, Poiret had in 1810 transferred it to *Mimosa*, assigning a new name, *M. tetragona*, due to the existence of a different species named *M. hamata* Willdenow, occurring in India. Despite Poiret's transfer, material of this taxon had commonly been placed in *Schrankia*. Woodson and Schery (1950) cited *S. hamata* for Panama; they included *M. tetragona* Poiret and *Leptoglottis hamata* (Humboldt & Bonpland ex Willdenow) Standley in the synonymy.

Barneby (1991) treated this taxon at the varietal level, as *M. quadrivalvis* L. var. *tetragona* (Poiret) Barneby. I agree with Poiret and consider this taxon a distinct species whose correct name at specific rank is *Mimosa tetragona*.

The latter three species can be distinguished from *Mimosa quadrivalvis* L. by the following key:

1a. Peduncles 1.5–3.5 cm long; capitula 1–2 cm diam.; apex of legumes acute to apiculate.
  2a. Petiole 2–3.5 cm long; pinnae 1 to 3 pairs; leaflets 8 to 11 pairs, glabrous, with one prominent eccentric vein on the lower surface; stipules 2–3 mm long, lanceolate to ovate; legumes 4–5 cm long, 6 mm wide, glabrous, margin 4–5 mm wide; Mexico (Veracruz) . . . . . *M. quadrivalvis*
  2b. Petiole 7–11 cm long; pinnae 3 to 5 pairs; leaflets 12 to 17 pairs, puberulent, glabrescent, with prominent reticulate venation on the lower surface; stipules 6–10 mm long, filiform; legumes 7–12 cm long, 4–5 mm wide, with pilose, glabrescent margin 3–3.5 mm wide; Mexico (Sinaloa, Nayarit, Jalisco, Guerrero, and Oaxaca) . . . . . *M. robusta*
1b. Peduncles 0.5–1.5 cm long; capitula 0.5–1.2 cm diam.; apex of legumes rostrate, the rostrum 6–15 mm long.
  3a. Pinnae 1 to 3 pairs; leaflets with one prominent eccentric vein on the lower surface; stipules narrowly lanceolate; branches and peduncles sparsely prickly; legumes glabrous, sparsely prickly to unarmed, 3–4 mm wide; Antilles, Mexico (Tabasco and Chiapas), Belize, Nicaragua, Costa Rica, Colombia, Venezuela, Brazil, and Bolivia . . . . . *M. candollei*
  3b. Pinnae 2 to 4 pairs; leaflets with delicately reticulate venation on the lower surface; stipules filiform; branches and peduncles densely prickly; legumes pubescent, densely prickly, 5–6 mm wide; Cuba, Nicaragua, Panama, Colombia, and Ecuador . . . . . *M. tetragona*

7. Series **Setosae** Barneby

This is a group of eight species mostly distributed in Brazil, Paraguay, and Bolivia. Only *Mimosa setosa* Bentham subsp. *paludosa* (Bentham) Barneby var. *paludosa* occurs in Mexico as well as in Brazil and Paraguay.

A new synonym of this taxon is proposed here:

Mimosa occidentalis Britton & Rose var. *novogaliciana* Barneby, Mem. New York Bot. Gard. 65: 478. 1991. Syn. nov. TYPE: Mexico. Jalisco: Mpio. La Huerta, Cerro Huehuentón, 20–25 km al E de Chamela, 27 Aug. 1976, *J. Rzedowski & R. McVaugh 1370* (holotype, MICH not seen).

My study of *Mimosa occidentalis* Britton & Rose for *Flora Mesoamericana* included *Mimosa occidentalis* var. *novogaliciana* Barneby. The latter was originally described from the state of Jalisco and is also known from the state of Nayarit in Mexico. A paratype from Nayarit (3 mi. NE de Puga, *C. Feddema 875*, MEXU, NY) has glandular trichomes and large, subglobose capitula, corresponding to *Mimosa setosa* subsp. *paludosa* var. *paludosa*. This taxon is also found in the states of México and Guerrero in Mexico (Grether & Martínez-Bernal, 1996) and occurs in Brazil and Paraguay. With variety *novogaliciana* reduced to the synonymy of an otherwise South American plant, there remains no infraspecific taxon within *M. occidentalis*, which is a very distinct species occurring in Mexico and Belize.

8. Series **Teledactylae** (Barneby) Britton & Rose ex R. Grether

I propose the rank of series for the treatment of this group of section *Mimosa*:

Mimosa Series **Teledactylae** (Barneby) Britton & Rose ex R. Grether, stat. nov. Basionym: series *Mimosa* subseries *Teledactylae* Barneby, Mem. New York Bot. Gard. 65: 532. 1991. TYPE: *Mimosa teledactyla* Donnell Smith.

This group was established as a monotypic subseries of series *Mimosa* by Barneby (1991), who

resurrected the name Teledactylae (nom. nud.), which was included in the key for groups within the genus by Britton and Rose (1928).

It is important to point out that Standley and Steyermark described *Mimosa canahuensis* in 1944 and included it in the *Flora of Guatemala* (Standley & Steyermark, 1946), where they mentioned that this species is known only from the type locality. There are no more recent collections from Guatemala. They did not relate this species to *M. teledactyla*, even though they also included the latter in the *Flora of Guatemala*. This is due to their description of the legumes of *M. canahuensis* with entire valves and flowers not seen. They concluded that its affinities are uncertain and that it is not related to any other species known from Guatemala.

Barneby (1991) listed *Mimosa canahuensis* Standley & Steyermark in Appendix I, Nomina incertae sedis vel nuda, stating: "Not known to me and, since the flower and androecium were not described, of doubtful systematic status. The leaf-formula of IV–VI/7–11 suggests *M. teledactyla*, but leaflets (14–19 × 5–8 mm) are much too large, and the pod-valves said to fall entire, are not compatible with that species. The habit and armament of recurved prickles suggest *M. ervendbergii*, the pod *M. ceratonia*."

However, detailed examination of the holotype of *Mimosa canahuensis* (*J. A. Steyermark 43758*, F) demonstrated there are tetramerous, haplostemonous flowers remaining in fruiting capitula. I consider it to be closely related to *M. teledactyla* by its legumes which, indeed, are articulate, with valves and margin setose, by its striate branches with prickles along the striae, by its petiole and primary and secondary rachis prickly, as well as by its prickly peduncles and tetramerous, haplostemonous flowers.

This is the first record of *M. teledactyla* in Mexico (Chiapas: Mpio. Jitotol, 12 km SE de Pueblo Nuevo Solistahuacán, *M. Sousa et al. 12810*, MEXU, MO, NY).

I conclude that by incorporating *Mimosa canahuensis*, this group is now well delimited within section *Mimosa* by its leaves with 3–6 pairs of pinnae, well separated from each other, by the petiole and rachis armed with yellow, recurved prickles, prickly peduncles, and branches pubescent and hispidulous or densely hirsute. On this basis, I propose the rank of series for this group.

Species of this series can be distinguished by the following key:

1a. Leaflets obliquely elliptic to widely oblong; branches pubescent and hispidulous; peduncles 1.5–2.5 cm long, puberulent; petiole puberulent; stipules 2.5–3 mm; calyx ⅛–¼ of corolla length; legumes with valves and margin largely setose; Guatemala . . . . . *M. canahuensis*

1b. Leaflets obliquely oblong; branches densely hirsute; peduncles 3–4 cm long, hirsute; petiole sparsely setose; stipules 5–10 mm; calyx ⅛ of corolla length; legumes with valves and margin setose; Mexico (Chiapas), Guatemala, and Honduras . . . . . *M. teledactyla*

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