ISSN 0373-580 X
Bol. Soc. Argent. Bot. 50 (2): 221-233. 2015

Increasing reports in *Mimosa* (Mimosoideae, Leguminosae) for the Brazilian Flora

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Summary: Five species of *Mimosa* for the Brazilian Flora are reported: *M. strigillosa*, *M. leimonias, M. petraea, M. oligophylla,* and *M. barnebiana*. The three first ones are registered from Mato Grosso do Sul, while the remainder are registered from Paraná and Rio Grande do Sul. Descriptions, illustrations, distribution maps and morphologic, geographic and ecological comments are included. Original descriptions of *M. petraea* and *M. leimonias* are expanded, including fruit characterization.

Key words: Flora of Brazil*, Habbasia, Mimosa, Pedunculosae*, *Stipellares.*

Resumen: Nuevas citas en *Mimosa* (Mimosoideae, Leguminosae) para la flora brasilera. Se citan por primera vez para Brasil cinco especies de *Mimosa*: *M. strigillosa, M. leimonias, M. petraea, M. oligophylla,* y *M. barnebiana*. Las tres primeras se registran de Mato Grosso do Sul y las restantes se registran de Paraná y Rio Grande do Sul. Se incluyen descripciones, ilustraciones, mapas de distribución y comentarios sobre su morfología, distribución geográfica y ecología. Se amplían las descripciones originales de *M. petraea* y *M. leimonias,* incluyendo la caracterización de sus frutos.

Palabras clave: Flora de Brasil*, Habbasia, Mimosa, Pedunculosae*, *Stipellares.*

Introduction

The genus *Mimosa* L. comprises ca. 530 species, with pantropical and subpantropical distribution but mainly from the Neotropics (Bessega & Fortunato, 2011; Simon *et al*., 2011). This genus has two main centers of diversification: 1) México, Mesoamerica, La Hispaniola, and Orinoco Basin; and, 2) south of Amazonia, Brazilian Planalto and adjacent areas of Argentina, Paraguay and Uruguay (Barneby, 1991). Madagascar is a third center of diversification with ca. 34 species; almost all of them are endemic from this island (Lefèvre & Labat, 2006; Simon *et al*., 2011).

Certainly, Brazil is the most diversified country in *Mimosa*, comprising ca. 358 species and a high proportion of endemic taxa (Dutra & Morim, 2014). Central Brazil, especially Cerrado ecoregion, appears to be the most diversified area of the genus, although other ecoregions, such as Caatinga, are also well represented by their number of species (Barneby, 1991; Simon & Proença, 2000).

Even after the extensive revisions of Bentham (1876), Burkart (1948, 1964, 1979), Barneby (1991), and the catalogue of Brazilian Flora (Dutra & Morim, 2014), new species of *mimosas* were described in this country, especially in the southern region (Simon *et al.*, 2010; Morales *et al*., 2012, 2013; Dutra & Garcia, 2013a, 2013b; Grings & Ribas, 2013). It suggests that the diversity of this genus in Brazil still remains underestimate.

In the present work, five species of *Mimosa* are reported for the first time from Brazil, mainly from its southern region. The number of accepted Brazilian species of this genus increases from 358

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(Dutra & Morim, 2014) to 363. A short morphologic description and considerations about geographic distribution and ecology, as well as illustrations, are provided. In addition, some comments about the morphological variation and taxonomy of the species are included.

Material and Methods

Specimens of the genus *Mimosa* from the herbarium BAB and other herbaria of Argentina, Brazil and United States of America (BA, BAA, CTES, HUCS, ICN, NY, MBM, MO, SI) were identified and their morphological characters were described. Keys were added for identification of the species and their relatives; these keys are restricted to the immediate highest taxonomic hierarchy and southern Brazil (from Mato Grosso do Sul and São Paulo to Rio Grande do Sul). Ecoregions are named according to Olson *et al*. (2001).

In addition, a field trip to Paraná and Mato Grosso do Sul (Brazil) was carried out accompanying Brazilian colleagues in 2009, in order to collect specimens of *Mimosa* from the region. These specimens and duplicates were deposited in the following institutions: BAB, CTES, MBM, MO, and SI, and they were characterized as well as the previously examined specimens.

Taxonomical Treatment

Mimosa strigillosa Torrey & Gray. *Fl. N. Amer.* 1: 399. 1840. Typus: United States of America. Florida**,** Tampa Bay, also in east Florida from Arkansas, *Leavenworth s.n.* (*Lectotype* NY!, designated by Isely, 1971) (Fig. 1).

= *M. dolichocephala* Harms. *Rev. gen. pl.* 3(2): 66. 1898. Typus: Paraguay. Alto Paraguay, Puerto Esperanza, *Kuntze s.n.* (*Holotype* B†; *isotypes* NY! US!).

= *M. sabulicola* Chodat & Hassl. *Bull. Herb. Boissier* II, 4: 548. 1904. Typus. Paraguay. Presidente Hayes, in sabulosis insulae Chaco-y pr. Concepcion, Aug., *Hassler 7209* (G!) = F Neg. 28230; *isotypes* F! = F Neg. 57263, NY! US! W!

≡ *M dolichocephala* var. *sabulicola* (Chodat & Hassl.) Hassl. *Repert. Spec. Nov. Regni Veg.* 9: 6. 1910.

Herbs with an eventually stout woody taproot. Stems generally unarmed, strigose, with appressed setae, frequently with tapering roots. Leaves with stipules 1.5–5 × 1.5–4.5 mm, ovate to semicircular, glabrous to puberulent dorsally, 10–17–nerved; leaf-stalks 2.5–24 cm long; petioles 1–47 mm long; pinnae 2–7–jugate; rachis of the largest pinnae 5–45 mm; leaflets 7–21–jugate, 3–9 × 0.7–1.5 mm, narrowly oblong, glabrous or less frequently puberulent, 3–7–nerved. Inflorescence axillary; peduncles 2–141 mm; heads 8–25 × 4.5–8 mm, ellipsoid; bracts 1–2.5 × 0.2–0.5 mm, oblanceolate. Flower tetramerous, diplostemonous, with calyx 0.3–0.6 mm, campanulate; corolla 2–4 mm, strigose or hispid on the lobes, 1–nerved, lilac to whitish; filaments monaldephous 0.7–2 mm, pink or whitish. Craspedia 8–21 × 4.5–8 mm, obliquely oblong to oblanceolate, uniformly strigose on replum and valves, 3–5–seeded.

Distribution and ecology. Mimosa strigillosa is a perennial herb of warm temperate and subtropical grasslands, and it has bicentric distribution: 1) North America: southern United States of America: Georgia and Florida, and Arkansas to boundary with Mexico in the Gulf coast (Tamaulipas and Veracruz); and 2) South America: northern and central Argentina, western Paraguay, Uruguay (Burkart, 1948; Barneby, 1991; Martínez-Bernal *et al*., 2008), and now including the southwestern extreme of Brazil, according to our present results (Fig. 2).

The singular distribution of this species is similar to other legumes of subtropical and warm temperate grasslands, such as *Rhynchosia texana* Torr. & Gray*, R. bicentrica* B.L. Turner (Grear, 1978; Fortunato, 1983 sub nom *R. senna* Gilles ex Hook. var. *angustifolia* (A.Gray) Grear), *R. diversifolia* Micheli var. *prostrata* Burkart; Turner, 2011, 2012) with disjunctions in North America and the Southern Cone of South America. Since the series *Habbasia* DC. is more diversified in South America, Burkart (1948) postulated that South American populations could be the ancestors of North American populations of *M. strigillosa*. Barneby (1991) assumes that this species is native from North America.

In South America, this species has ample

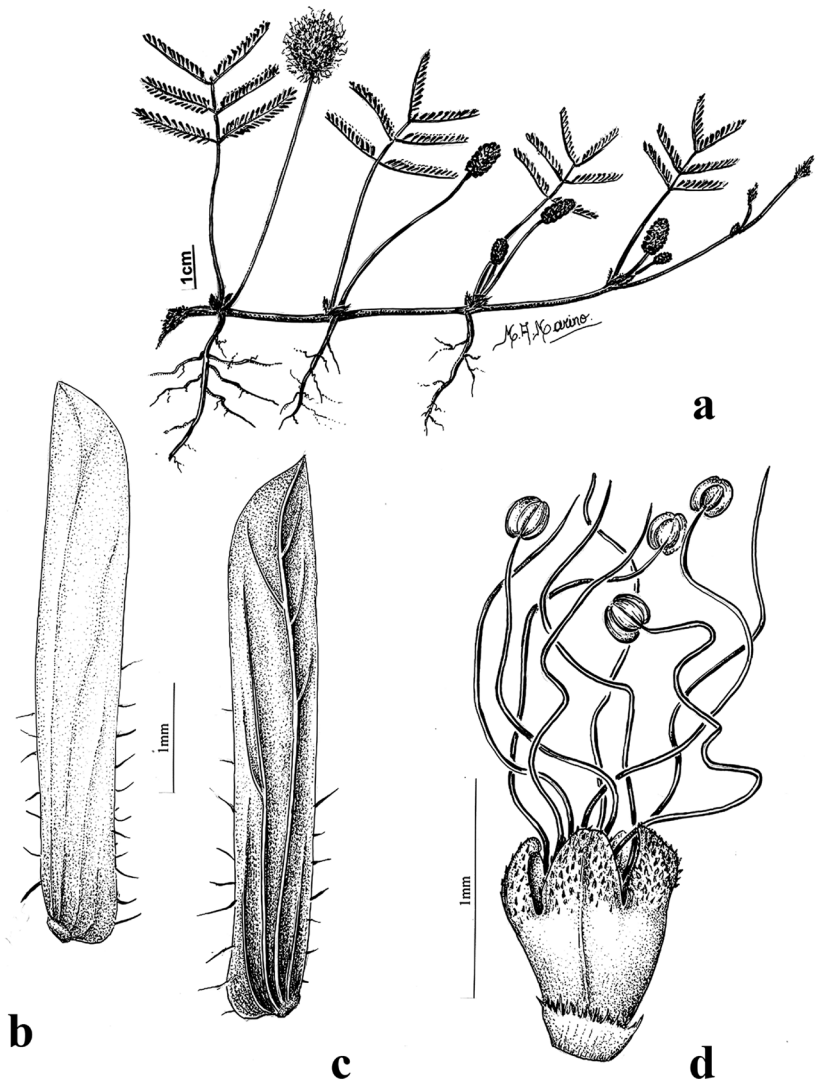

Fig. 1. *M. strigillosa.* A) Flowering branch. B) Leaflet, adaxial face. C) Leaflet, abaxial face. D) Flower. Drawn from M. Morales *et al.* 837 (BAB).

distribution in Chaco, Espinal, Mesopotamic Savannas and Uruguayan Savannas ecoregion. According to previous and present studies of the collections, in Brazil this species appears to be restricted to a small area of Mato Grosso do Sul, near Porto Murtinho; this region is considered a remnant of Chaco forests (Prado, 1993)**.** Distribution pattern as well as recent and previous collections (Dr. Gerdt G. Hatschbach and colleagues), suggest that *M. strigillosa* in Brazil is a typical element of Chaco region and does not occur in adjacent areas of Cerrado in Mato Grosso do Sul.

Selected specimens examined. UNITED STATES OF AMERICA. *ST Arkansas*: *Bradley Co.*, Ouachita river banks, P. O. Moro Bay, 18-IX-1938, D. Demarée 18363 (NY). *ST Florida: Seminole Co.*, town of Sanford, at the east end of Oakway, 28-IV-2008, W. D. Longbottom & D. H. Williams 11014 (NY). *ST Texas:* Brownsville, 27-X-1927, *J. N. Rose et al. 24250* (NY); in the valley

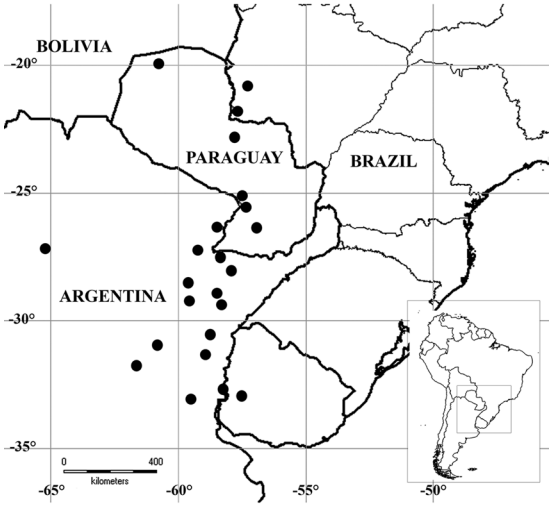

Fig. 2. Geographic distribution of *M. strigillosa* in South America.

of the Rio Grande, below Doñana, 06-V-1954, C. C. Parry *et al*. 313 (NY); *Refugio Co*. Greta Ranch, Highway 77, main entrance is 8.5 miles northeast of Refugio, north side of the road, 18-V-1977, S. R. Hill 5383 (NY). MEXICO. *Edo. Tamaulipas:* Washington Beach, VI-1923, R. Runyon 474 (NY). BRAZIL. *Edo. Mato Grosso do Sul: Mun. Porto Murtinho*, Estrada para Ingazeira, Retiro Ovo de Ema, 10-V-2009, M. Morales *et al*. 837 (BAB); margem do Rio Paraguai, 21-X-2003, G. Hatschbach *et al*. 76569 (BAB, MBM287145); rio Paraguai, 13-VI-2006, E. Barbosa & J. M. Silva 1518 (BAB, MBM320333); Rodovia Bonito–Campo dos Índios, Rio Aquidaban, 15-XI-2002, G. Hatschbach *et al*. 74225 (BAB, MBM323481); rio Paraguai, próximo do Porto de Embarque, 15-III-2004, G. Hatschbach *et al*. 77176 (BAB, MBM293913). PARAGUAY. *Dpto. Alto Paraguay:* Mayor Pedro Lagerenza, cauce seco del río Timane, 04-IV-1978, A. Schinini & E. Bordas 14861 (CTES91831). *Dpto. Concepción:* Itapucumí, II-1917, T. Rojas 3054 (SI). URUGUAY. *Dpto. Soriano:* Paso Yapeyú, 19-I-1903, M. Berro 2808 (SI). ARGENTINA. *Prov. Chaco: Dpto. Primero de Mayo,* Colonia Benítez, 28-XII-1941, A. G. Schulz 3132 (BAB). *Prov. Corrientes: Dpto. Mburucuyá,* Estancia Santa Teresa, 16-XI-1949, Schwarz 8751 (SI); *Dpto. Mercedes*, ruta a Perugorría, ca. 7-8 km desde el cruce con Ruta Nacional 119, 17-XII-2013, M. Morales & H. Bach 1486 (BAB). *Prov. Entre Ríos: Mun. E. Carbó,* Carbó, 02-XII-1930, A. Burkart 3455 (SI); *Dpto. Concepción del Uruguay*, La Salamanca, 24-XII-1941, E. G. Nicora 3140 (SI); *Dpto. Gualeguay,* Gualeguay, 21-XII-1948, A. Burkart 17751 (SI). *Prov. Formosa: Dpto. Formosa,* Ruta nacional 11, 17 km al S del aeropuerto Pucu, 06-III-2005, R. H. Fortunato *et al*. 8507 (BAB); *Dpto. Laishi,* Barranca de la costa del río Paraguay, subprefectura Herradura, frente a la isla Herradura, 15-XII-1967, B. G. Piccinini & A. L. García 1158 (BAB); *Dpto. Pilcomayo*, Estancia Bouvier, alrededores del Puerto de Prefectura, sobre la costa del Rio Paraguay, 20-XI-1991, R. H. Fortunato *et al*. 2473 (BAB). *Prov. Santa Fe:* Chaco Santafesino, Mocoví, no date, S. Venturi 107 (SI); *Dpto. General Obligado,* Puerto Reconquista, 17-XI-1987, Pensiero & Tivano 3130 (SI). *Prov. Tucumán: Dpto. Capital*, río Salí, 15-XI-1927, S. Venturi 5625 (MO960016).

Taxonomic considerations. Mimosa strigillosa is easily recognized by its herbaceous habit (which is exclusive of this species and *M. dormiens* Humb. & Bonpl. ex Willd. in the series *Habbasia*), stoloniferous stems with tapering roots, long, ellipsoid heads or spikes, and diplostemonous flowers with 1–nerved corollas. It is clearly included in the section *Habbasia* series *Habbasia* (Barneby, 1991).

There are morphological differences between the South and North America populations of *M. strigillosa,* with South American individuals having corolla lobes more densely strigulose than North American individuals, as was observed by, Burkart (1948), and Barneby (1991). However, we agree with previous authors (Burkart, 1948; Barneby, 1991), assuming that these differences are not be enough to infer different taxonomic entities.

Mimosa* section *Habbasia* series *Habbasia

Herbs or subshrubs to trees with generally primary nerves of leaflets parallel or almost, and secondary nerves tenuous or few visible. Flower 4–merous, diplostemonous.

Identification key of *Mimosa strigillosa* and allied species in Southern Brazil
(Modified from Barneby, 1991: 429–430, adding latter nomenclatural changes in *M. pigra* L. by Glazier & Mackinder, 1997)

1. Pinnae 1–jugate; southern Brazil (Mato Grosso do Sul) and eastern Bolivia..... *M. weddelliana* Benth.

1a. Pinnae pluri–jugate..... 2

2. Herbs procumbent with creeping, stoloniferous stems. Heads ellipsoid or cylindric, 1.5–3 times as long as diameter; bicentric dispersion: 1) southern United States of America and adjacent Mexico, and 2) southern South America: Brazil (Mato Grosso do Sul), Paraguay, Uruguay and Argentina... *M. strigillosa*

2a. Subshrubs to treelets lacking stoloniferous stems. Heads spheroid or almost..... 3

3. Stipules firm and tenuously 1–5–nerved, sometimes the venation not visible by the dense indumentum; pantropical..... *M. pigra*

3a. Stipules chartaceous, with 6–15 visible nerves..... 4

4. Corolla glabrous; longer filaments exserted 5–8 mm; articles of pod 3–4.5 mm long; coast of southern Brazil (Bahia to São Paulo)..... *M. elliptica* Benth.

4a. Corolla pubescent; longer filaments exserted 2 mm; articles of pod 5–10 mm long; southern Brazil (Mato Grosso do Sul), Paraguay, Uruguay and Argentina..... *M. tweedieana* Barneby ex Glazier & Mackinder

Mimosa petraea Chodat & Hassl. *Bull. Herb. Boissier* II, 4: 548. 1904. Typus: Paraguay. Paraguarí, in glareosis pr. Chololo, XII, *Hassler 6619* (*Holotype*: G!; *isotypes* BM!, F!, K!, NY!, P!, W!) (Fig. 3).

Herbaceous subshrubs attaining 30 cm tall, with peduncles shorter than the small leaves and heads crowded in the apex of stems. Stems unarmed, strigose, with appresed setae. Leaves with stipules 2.5–5.5 × 0.3–0.5 mm, triangular–lanceolate, glabrous dorsally and setose in the margin, 1–3–nerved; pinnae 1–jugate; petiole 1–4.5 mm long; rachis of the largest pinnae 10–19(22) mm long; leaflets 14–24–jugate, 2–3 × 0.5–1 mm, lanceolate or ovate, glabrous but setose in the margin, 1–2–nerved. Inflorescence axillary, spheroid; peduncles 5–9(19) mm long, solitary; heads 2.5–5 mm, ellipsoid to spheroid; bracts 1.5–2 mm long, lanceolate. Flowers tetramerous, haplostemonous, with calyx 0.3–0.4 mm, campanulate; corolla 0.5–1 × 0.4–0.6 mm, puberulent, 1–nerved, pink to lilac; staminal filaments free, pink. Craspedia 6–15 × 2.5–4 mm, narrowly oblong, with replum undulate, hispid on replum, valves glabrous, 2–3–seeded.

Distribution and ecology. Mimosa petraea was previously mentioned as confined to Central Paraguay, where it was collected in several localities of the departments of Caazapá, Cordillera, and possibly Amambay or Alto Paraguay (Barneby, 1991). Findings from Mato Grosso do Sul confirm the occurrence of this species in bordering Brazil region (Fig. 4).

Selected specimens examined. BRAZIL. *Edo. Mato Grosso do Sul: Mun Bela Vista*, Córrego Guaviral, 09-V-2009, M. Morales *et al*. 816 (BAB); Rodovia BR-267, Córrego Caracol, 11-III-2003, G. Hatschbach *et al*. 74584 (MBM323474); *Mun. Bonito*: Fazenda Baía das Garças, Cachoeira do Rio Aquidaban, 12-XI-2002, G. Hatschbach *et al*. 74132 (MBM323475). PARAGUAY. *Dpto. Amambay:* In Altiplanitie "Sierra de Amambay", II-1902/1903, Hassler 10989 (P). *Dpto. Caazapá:* Caapucú, Estancia Barrerito, I-1949, T. Rojas & Ramírez 14154 (SI). *Dpto. Paraguarí:* Piraretá-Piribebuy, VI-1969, A. Schinini 2594 (SI).

Taxonomic considerations. *Mimosa petraea* and *M. leimonias* are small herbs from subtropical grasslands of South America. They were assigned to the section *Mimosa* subseries *Pedunculosae* (Benth.) Barneby, because exhibit its typical exo-

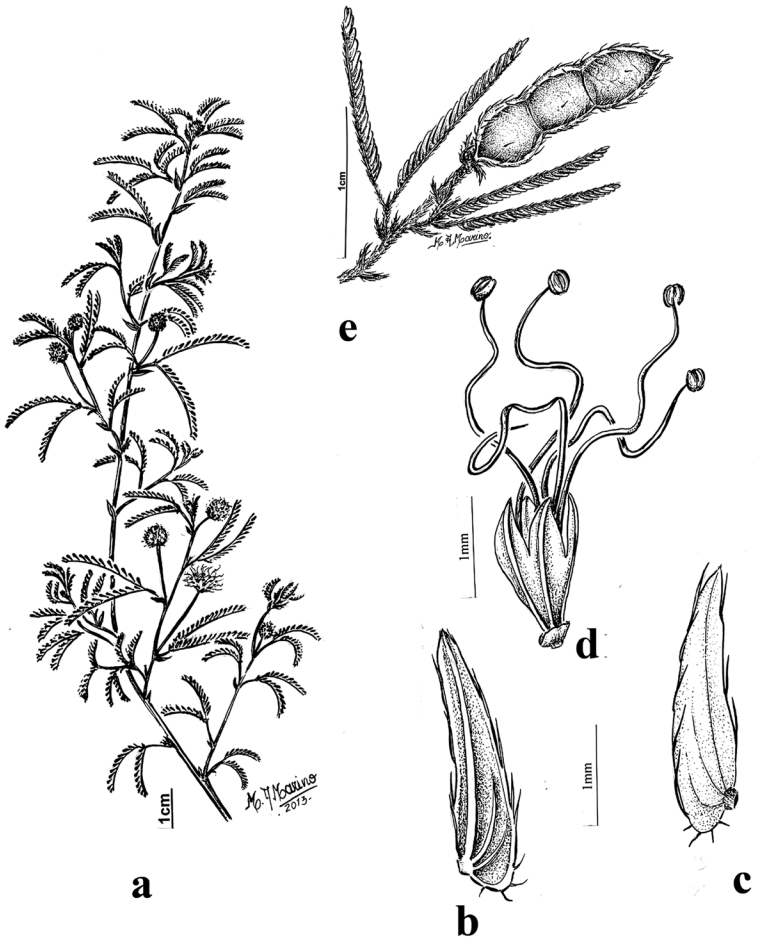

Fig. 3. *M. petraea.* a) Flowering and fruiting branch. b) Leaflet, adaxial face. c) Leaflet, abaxial face. d) Flower. e) Fruit with detail of the branch. Drawn from M. Morales *et al.* 816 (BAB).

Fig. 4. Geographic distribution of *M. petraea* and *M. leimonias.* Circles: *M. petraea.* Triangles: *M. leimonias.*

morphological characters: diminutive subshrubs with axillary inflorescences, spiculate leaf-stalks with parahyllidia linear or subulate, campanulate calyx with tube not more than 0.5 mm long, and craspedia (Barneby, 1991). Here we presented the full description of both species: previous works did not describe the fruits, which are craspedia like the remainder species of this subseries (Barneby, 1991).

The analyzed specimens of *M. petraea* differ slightly by the length of peduncles from the Barneby's (1991) description. However, habit and foliage are typical of this species: diminutive herbaceous subshrubs with crowded leaves at the apex of the stems.

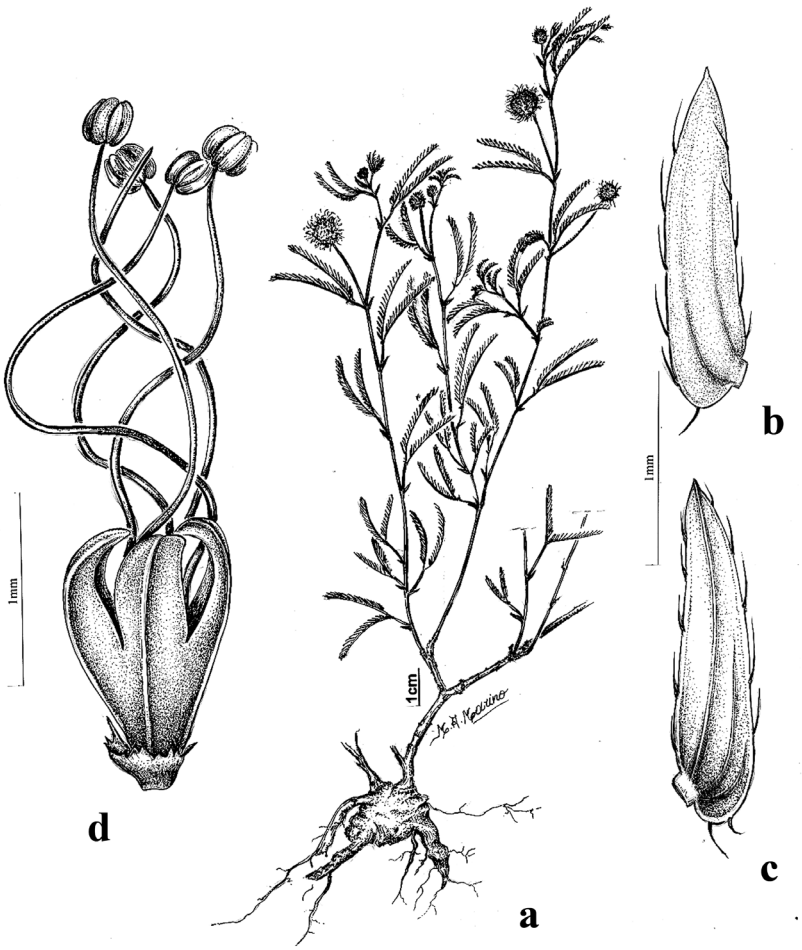

Fig. 5. *Mimosa leimonias*. a) Flowering branch. b) Leaflet, adaxial face. c) Leaflet, abaxial face. d) Flower. Drawn from A. Pott 10669 (MBM).

Mimosa leimonias Barneby & Fortunato. *Mem. New York Bot. Gard.* 65: 566. 1991. Typus: Paraguay. Concepción, Villa Sana, zwischen río Apa und Rio Aquidaban, I-1909, *K. Fiebrig 4863* (*Holotype* GH!; *isotypes* G!, P!, SI!). (Fig. 5).

Herbaceous subshrubs attaining 40 cm tall, with leaves and inflorescences generally axillary crowded at nodes. Stems unarmed, glabrous to hispid. Leaves with stipules 2–3 × 0.5–1 mm, triangular–lanceolate, glabrous dorsally, 3–5–nerved; pinnae 1–jugate; petiole 2–15 mm; rachis of the largest pinnae 20–30 mm long; leaflets 20–30–jugate, 3.5–5.5 × 0.5–1.5 mm, glabrous to hirsute, 1–3–nerved. Inflorescence generally axillary; peduncles 2–4 × 0.3 mm, heads 4 mm in diameter, spheroid; bracts 1–1.5 × 0.3–0.5 mm, oblong–elliptic. Flowers tetramerous, haplostemonous, with calyx 0.1–0.3 mm long, campanulate; corolla 1.5–2 mm long, dorsally carinate, glabrous to puberulent, 1–nerved, pink to lilac; staminal filaments free, pink; ovary glabrous. Craspedia 11–19 × 4–4.5 mm, narrowly oblong to linear, hispid on replum, valves glabrous, 3–4–seeded.

Distribution and ecology. As well as *M. petraea, M. leimonias* appears to be scarcely and insufficiently collected. *M. leimonias* was cited as an endemism of northeastern Paraguay (Barneby, 1991), and according to the nomenclatural type, occurs near Villa Sana, in the state of Concepción (not Amambay department, as was mistakenly reported by Barneby

(1991)), but it also occurs in adjacent Mato Grosso do Sul (Fig. 4). This species would share a similar ecological niche with *M. petraea*, growing on rocky soils of Cerrado environment.

Selected specimens examined. BRAZIL. *Edo. Mato Grosso do Sul: Mun. Bonito,* trilha para Cachoeira do Aquidaban, Fazenda Baía das Garças, Serra da Bodoquena, 12-XI-2002, A. Pott *et al*. 10669 (MBM203028).

Taxonomic considerations. Intermediate specimens between *Mimosa petraea* and *M. leimonias* have been observed; these are difficult to identify, forming a complex that requires a new taxonomic revision with detailed analyses of exo-morphological characters; this complex is currently studied by us (Morales, unpublished data).

Mimosa oligophylla Micheli**.** *Mém. Soc. Phys. Genéve* 28(7): 56. 1883. Typus: Paraguay. Paraguarí, in pratis humidis Yaguaron, B. Balansa 1459 (*Lectotype* G! = NY Neg. 11834!, designated by R. Barneby, 1991) (Fig. 6).

Subshrubs attaining 150 cm tall, erect to suberect. Stems unarmed, strigose. Leaves with stipules 2.5–9 × 1–2 mm, triangular–lanceolate, setose in the margin, 7–9–nerved; petioles 15–45 mm long; rachis of the largest pinnae 10–120 mm long; leaflets 28–45–jugate, 6–13 × 2–4.5 mm, commonly ovate to ovate–oblong, glabrous to strigose and puberulent on both surfaces, with discontinuously setose margin, 4–5–nerved. Inflorescence exserted, racemose, with 3–10–heads spheroid, solitary or paired per node; peduncles 10–40 mm; heads 6–8 × 5–6 mm, spheroid to ellipsoid; bracts 2–2.5 × 0.5–0.8 mm, lanceolate. Flowers tetramerous, haplostemonous, with calyx 0.2–0.4 mm long, campanulate but ciliate; corolla 0.7–1 mm, puberulent, 1–nerved, pink to lilac; stamens free almost to base, pink. Craspedia 24–30 × 4 mm, narrowly oblong, hispid on replum and valves, 5–8–seeded.

Distribution and ecology. This species occurs mainly in subtropical grasslands and savannas from northeastern Argentina and Paraguay (Burkart, 1948, 1987; Barneby, 1991; Fortunato *et al*., 2008). The Brazilian specimens were collected recently in Rio Grande do Sul state, close to the Argentinean–Brazilian border, and also in Paraná state (Fig. 7).

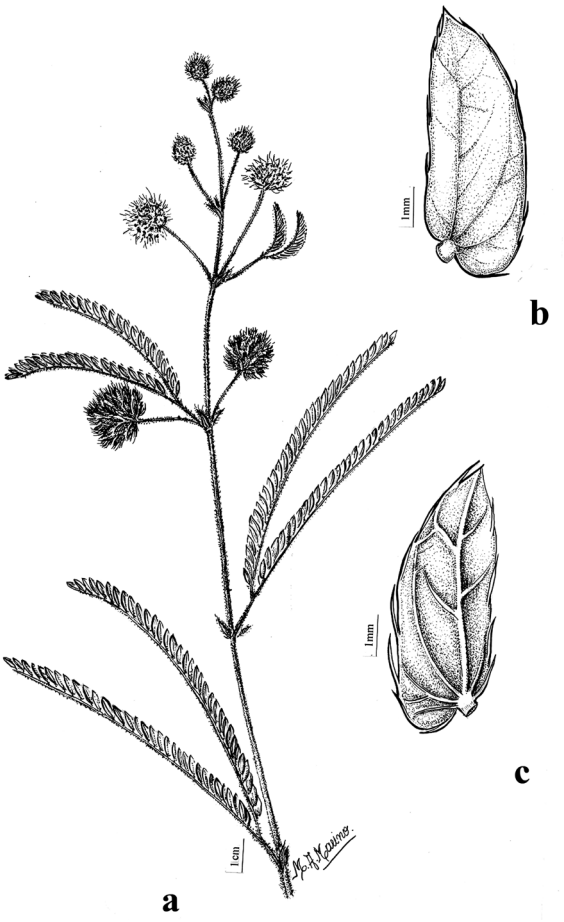

Fig. 6. *Mimosa oligophylla*. a) Flowering branch with immature fruits. b) Leaflet, adaxial face. c) Leaflet, abaxial face. d) Flower. Drawn from E. Barbosa 2589 (BAB).

Selected specimens examined. BRAZIL. *Edo. Paraná: Mun. Ipiranga*, Rodovia BR-277, 03-XII-1969, G. Hatschbach 23064 (SI). *Edo. Rio Grande do Sul: Mun. São Borja*, Arroyo Ivaí, 15-XI-2009, E. Barbosa *et al*. 2589 (BAB, MBM355626); *Mun. São Luis Gonzaga,* São Luiz Gonzaga, margem da estrada, 17-XII-2008, J. R. V. Iganci *et al*. 583 (ICN172206). PARAGUAY. *Dpto. Caazapá:* Tapytá, III-1931, P. Jorgënsen 4628 (LP13113). *Dpto. Cordillera*: Piribebuy, III-1991, F. Mereles 3981 (SI). *Dpto. Guairá:* Azucarera de Tebicuary, río Tebicuary, 12-I-1973, A. Schinini 5887 (SI). *Dpto. Paraguarí:* Parque Nacional Ybycu'í, campo cerrado, 3 km N

of Salto Cristal, 27-I-1989, E. M. Zardini & forest ranger 10206 (MO4275689). ARGENTINA. *Prov. Corrientes: Dpto. Mburucuyá*: Parque Nacional Mburucuyá, 28-XII-2004, M. S. Ferrucci *et al*. 2198 (BAB); *Dpto. San Martín,* Colonia Pellegrini, XII-1926, R. A. Spegazzini 10015 (BAB); *Dpto. San Miguel,* Carambola, 30-XII-1982, T. M. Pedersen 13470 (SI); Ruta Nacional 118 al NE de Loreto, 10-IV-2008, M. Múlgura de Romero *et al*. 4450 (SI); *Dpto. Santo Tomé:* 16,2 km por ruta provincial 37 del cruce con ruta provincial 94 en dirección a Virasoro, 10-III-2006, R. H. Fortunato *et al*. 9085 (BAB). *Prov. Entre Ríos: Dpto. Diamante,* Diamante, I-1945, M. M. Job 99 (LP). *Prov. Misiones: no identified department,* Arroyo San Juan, entre Candelaria y Santa Ana, X-1947, E. Grondona & R. Spegazzini 1454 (BAB); *Dpto. Candelaria,* Loreto, 28-I-1907, C. Spegazzini s.n. (BAB 19192); *Dpto. Capital,* Garupá, camino al balneario, 20-I-1992, G. J. Seijo 115 (BAB); Posadas, 14-I-1907, C. Spegazzini s.n. (BAB19881, 19883).

Taxonomic considerations. *Mimosa oligophylla* can be assigned to subseries *Pedunculosae* by the presence of spiculate leaflets, 4–merous, haplostemonous flowers, campanulate calyx with reduced tube and craspedia, among other characters. This is a well circumscribed species; its combination of leaf formula, margin, venation and size of leaflets, habit (erect subshrub) and exserted racemes does not appear in other species of the subseries *Pedunculosae* (Barneby, 1991). The Brazilian specimens exhibit the typical characters of the species.

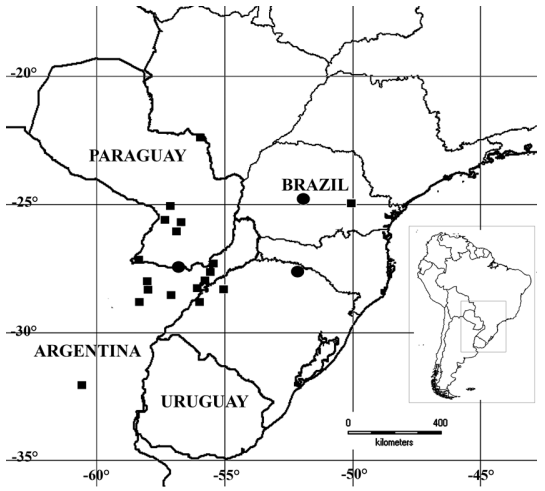

Fig. 7. Geographic distribution of *M. oligophylla* and *M. barnebiana*. Squares: *M. oligophylla*. Circles: *M. barnebiana*.

Section *Mimosa* series *Mimosa* subseries *Pedunculosae*

Virgate to procumbent or decumbent, sometimes herbaceous, subshrubs. Stems commonly unarmed. Pinnae 1–jugate. Leaf–stalks spiculate at the apex. Leaflets symmetrical at apex. Heads spheroid. Flowers tetramerous, haplostemonous; calyx campanulate; corolla and stamens lilac or pink. Craspedia.

Identification key to the species of subseries Pedunculosae from Southern Brazil
(Modified from Barneby, 1991: 560–561)

1. Subshrubs erect with simple stems few leaved; inflorescences exserted 30–90 cm above foliage; southern Brazil, Paraguay, Uruguay and northeastern Argentina..... *M. oligophylla*

1a. Subshrubs generally procumbent to decumbent, generally with several stems leafy or few leaved but inflorescences axillary, if rarely pseudoracemose then subtended by an early hysteranthous leaf. Leaflet pairs to 40–jugate or petioles less than 2 cm..... 2

2. Stems bifacial. Stipules ca. 20–nerved; southern Brazil (Santa Catarina)..... *M. filipetiola* Burkart

2a. Stems terete or subterete. Stipules 1–9–nerved..... 3

3. Macrophyllidious: largest leaflets 10–15.5 × 3.5–6 mm. Stems humifuse. Peduncles 5–14 mm; southern Brazil (Rio Grande do Sul), Paraguay, Uruguay amd northeastern Argentina..... *M. flagellaris* Benth.

3a. Microphyllidious: largest leaflets 2–12 × 1.5–4 mm. Peduncles of length variable, if to 5 cm, then the stems humifuse..... 4

4. Leaflets with primary nerves prominent, pallid, (3–)4–6–branched on each side, secondary nerves V-forked within the margin; Brazil (Mato Grosso do Sul) and Paraguay..... *M. alleniana* Morong

4a. Leaflets with primary nerves slender, 1–3–branched, secondary nerves not forked..... 5

5. Diminutive diffuse shrublets with larger leaflets 2–3 mm long and peduncles commonly 5–9 mm, rarely more than 10 mm long; Brazil (Mato Grosso do Sul) and Paraguay..... *M. petraea*

5a. Subshrubs or shrublets with larger leaflets 3.5–12 mm long and peduncles 10–90 mm long..... 6

6. Shrublets with foliage sparse, leaves scattered along stems. The longest peduncles 20–40 mm, subfiliform; Brazil (Mato Grosso do Sul) and Paraguay..... *M. leimonias*

6a. Subshrubs with foliage relatively dense, leaves commonly crowded along stem. The longest peduncles 10–90 mm, firm; southern Brazil (Mato Grosso do Sul and Rio Grande do Sul), Paraguay and northerastern Argentina..... *M. brevipetiolata* Burkart

Mimosa barnebiana Fortunato & Tressens. *Candollea* 44: 35 (fig. 1). 1989. Typus: Argentina. Corrientes, Ituzaingó, isla Apipé Grande, Panco Cué, 05-X-1978, A. Schinini & R. Vanni 15802 (*Holotype* CTES!; *isotypes* BAB!, NY!). (Fig. 8).

Subshrubs attaining 2–3 m tall. Stems armed with recurved or straight, ascendant infranodal aculei, indumentum of stalked glandular trichomes. Leaves with stipules 1.5–2.5 × 1.5–2.5 mm, ovate, with glandular trichomes especially on the margin, 1–nerved; leaf-stalks 29–40 mm long; petiole 5–22 mm long; pinnae 3–6–jugate; rachis of the largest pinnae 6–45 mm long; leaflets alternate or subopposite along rachis, 20–32–jugate, 2–6.5 × 0.5–1 mm, narrowly oblong, glandular, especially in the margin, 1–2–nerved or nerveless. Inflorescence axillary spikes; peduncles 15–23 mm long; spike axis 35–80 mm long; bracts ±1 × 0.2 mm, ovate. Flowers tetramerous, diplostemonous, with calyx ca. 0.5 mm long, campanulate; corolla 2–3 mm long, 1–nerved; ovary densely glandular–setose. Craspedia 20–53 × 3–5 mm, narrowly oblong, with glandular trichomes on replum and valves, 3–10–seeded.

Distribution and ecology. Distribution of this species was originally characterized as highly restricted, occurring in seasonally flooded savannas with sandy soils of islands of the Paraná River, on the Paraguay–Argentina border (Fortunato & Tressens, 1989; Barneby, 1991). However, according to the analyzed collections, *M. barnebiana* occurs also in sparse localities of southern Brazil (states of Rio Grande do Sul and Paraná), on humid soils in disturbed roadsides, *capoeira* (disturbed soils in agricultural land) and *vargedo* (swampy or sporadically flooded areas) (Fig. 7).

Selected specimens examined. BRAZIL. *Edo. Paraná: Mun. Santa Maria do Oeste,* Santa Maria do Oeste, arredores, 19-II-2004, G. Hatschbach *et al*. 76848 (MBM293901). *Edo. Rio Grande do Sul: Mun. Erechim*, ca. 5 km do trevo em direção a Gaurama, 29-I-1993, J. A. Jarenkow (MBM238773); Estrada para Gaurama, 25-I-1985, A. Butzke & M. Nodari HERBARA7626 (HUCS11363); Gaurama, em beira do asfalto, 25-I-1985, A. Butzke *et al*. s.n. HERBARA22778 (HUCS22778). PARAGUAY. *Dpto. Itapúa:* Yaciretá Dam Island Reserve, 05-XII-2002, E. M. Zardini & R. Gamarra 59298 (BAB).

Taxonomic considerations. Mimosa barnebiana is a well-circumscribed species; its inclusion in the section *Batocaulon* series *Stipellares* Benth. is not doubtful because the presence of paraphyllidia simulating small stipules at the base of pinnae, and diplostemonous, tetramerous flowers. Among the members of *Stipellares, M. barnebiana* is clearly distinguishable by its glandular indumentum, its alternate or subopposite leaflets and its long and ellipsoid inflorescences (spikes). *M. barnebiana* can be included –together with *M. bifurca* Benth., *M. sobralii* Grings & Ribas, *M. strobiliflora* Burkart, *M. urugüensis* Hook. & Arn., *M. glycyrrhizoides* Barneby, *M. lepidota* Herzog and *M. intricata* Benth.– in the set of species of *Stipellares* with alternate or subopposite leaflets. José N. C. Marchiori and Marcos Sobral identified the Brazilian specimens from Rio Grande do Sul as *M. megapotamica* Marchiori & Sobral, apparently unpublished. However, in our opinion these specimens were misidentified and correspond to *M. barnebiana.*

Section *Batocaulon* series *Stipellares* Bentham *pro parte*

Indumentum with stalky glandular trichomes, but leaflets generally with immersed sessile glandular trichomes. Leaflets alternate or subopposite, with the first pair resembling ovate stipels. Flowers 4–merous, diplostemonous. Craspedia or legumes glabrous to glandulose.

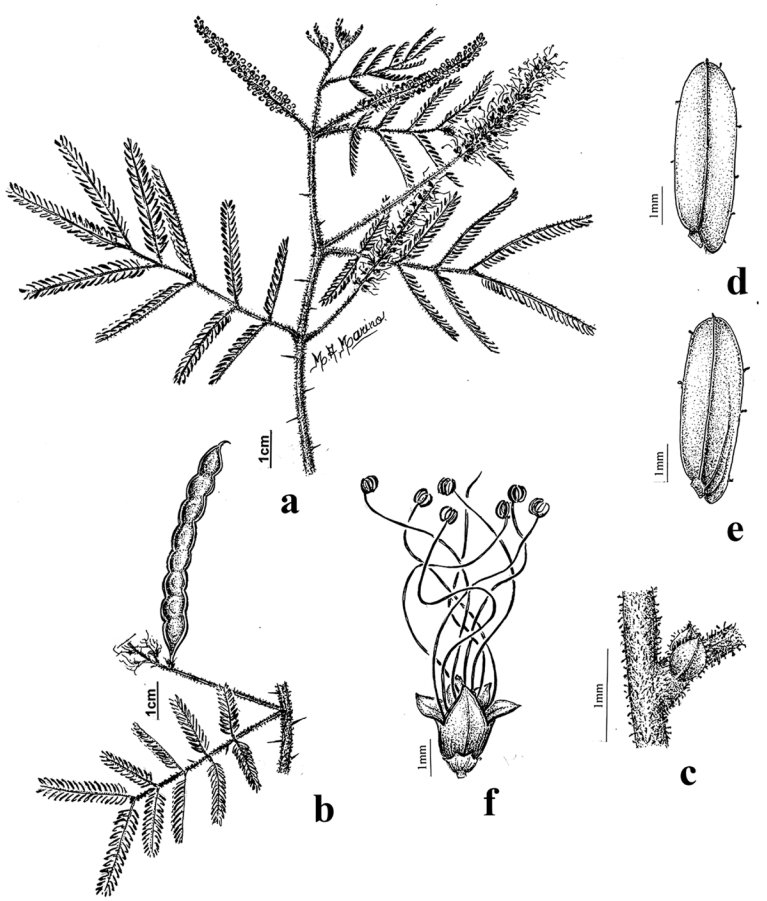

Fig. 8. *Mimosa barnebiana.* a) Flowering branch. b) Fruiting branch, detail. c) Base of pinnae showing paraphyllidia. d) Leaflet, adaxial face. e) Leaflet, abaxial face. f) Flower. Drawn from G. Hatschbach 76848 (MBM).

Identification key of *Mimosa barnebiana* and allied species from Southern Brazil
(Modified from Barneby, 1991: 236–237)

1. Spikes. Glandular trichomes of leaflet surface subsessile or stalky; southern Brazil (Paraná and Rio Grande do Sul) and Paraguay–Argentina border..... *M. barnebiana*

1a. Heads globose or ellipsoid. Glandular trichomes of leaflet surface sessile, impressed or absent..... 2

2. Glandular trichomes absent on the leaflet surface. Stems armed with recurved aculei. Dehiscence of fruits frequently valvate; southern Brazil (Rio Grande do Sul), Argentina and Uruguay..... *M. urugüensis*

2a. Glandular trichomes of leaflet surface sessile or impressed. Stems armed or unarmed. Dehiscence of

fruits constantly craspedial..... 3

3. Heads prior to anthesis conelike, with 2–3 lowest bracts 2–3 lobed and 4 mm long, forming an involucral cup. Bracts oblanceolate concealing the floral buds; southern Brazil (Paraná)..... *M. strobiliflora*

3a. Heads prior to anthesis moriform, with interfloral bracts not forming an involucral cup and shorther than floral buds..... 4

4. Longer leaf-stalks 8–18 mm and longer pinna-rachises 5–8.5 mm; larger leaflets 1–1.4 mm; southern Brazil (Rio Grande do Sul)..... *M. intricata*

4a. Longer leaf–stalks 20–70 mm and longer pinna–rachis 14–90 mm..... 5

5. Trees and shrubs up to 8 m tall with yellow flowers; southern Brazil (Rio Grande do Sul)..... *M. sobralii*

5a. Treelets and shrubs up to 4 m tall with reddish, pink or whitish flowers..... 6

6. Spiny shrubs; stems armed with straight internodal aculei. Craspedia hispid; southern Brazil (Paraná to Rio Grande do Sul) and Paraguay..... *M. glycyrrhizoides*

6a. Unarmed shrubs. Craspedia glandular but esetose; southern Brazil, Paraguay, Uruguay and northeastern Argentina..... *M. bifurca*

Acknowledgments

We are grateful to the curators of the cited herbaria, for facilitate the loans and the access to revise the specimens. Field trips were supported by Troels Myndel Botanica Foundation (Grant 2009, given to Renée H. Fortunato and collaborators). Visits to Brazilian herbaria were supported by Myndel Botanica Foundation (Grant 2010, given to Matías Morales), Agencia de Promoción Científica y Tecnológica, Argentina (PICT 2011 0821) and Universidad de Morón, Argentina. Visits to the herbaria of New York Botanical Garden and Missouri Botanical Garden, in United States of America were supported by CONICET (Consejo Nacional de Investigaciones Científicas y Técnicas, Argentina). We thank the collaboration of Angélica Marino (INTA), for the illustrations, and the staff of the Museu Botânico Municipal (Curitiba, Brazil), who performed the field trip to Mato Grosso do Sul.

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Recibido el 4 de diciembre de 2014, aceptado el 1 de abril de 2015.