

ADDITIONAL NOTES ON THE GENUS LIPPIA. XI

Harold N. Moldenke

LIPPIA Houst.

Additional & emended bibliography: J. C. & M. Willis, Rev. Cat. Flow. Pl. Ceyl. [Parad. Man. Bot. 2:] 68 & 159. 1911; A. & I. Nehrling, Easy Gard. Drought-resist. Pl., imp. 1, 304. 1968; Rouleau, Guide Ind. Kew. 111. 1970; A. & I. Nehrling, Easy Gard. Drought-resist. Pl., imp. 2, 304. 1975; Hocking, Excerpt. Bot. A. 28: 170, 257, & 259. 1976; Lelong, Sida 7: 140. 1977; Moldenke, Biol. Abstr. 64: 6575. 1977; Powell, Econ. Bot. 31: 418, 419, & 421. 1977; Moldenke, Phytologia 38: 230--266, 385--406, 474--482, 504--508, 510, & 512 (1978) and 39: 24--46, 78--106, 162--182, 252--267, & 391--395. 1978; A. L. Moldenke, Phytologia 39: 64. 1978.

The Turner & Crutchfield 6262, distributed as a Lippia sp., is Lantana macropoda f. albiflora Moldenke, while Graham & Frohlich 1128 is Lantana velutina Mart. & Gal.

An additional excluded taxon is Lippia scaberrima Altschul, Drugs & Foods 244. 1973 = Phyla scaberrima (A. L. Juss.) Moldenke.

LIPPIA ABYSSINICA (Otto & Dietr.) Cuf.

Additional bibliography: Moldenke, Phytologia 38: 263--266 & 385 (1978) and 39: 31, 32, 80, 81, 105, 181, & 395. 1978.

LIPPIA ALBA (Mill.) N. E. Br.

Additional bibliography: Moldenke, Phytologia 38: 386--406 & 474 (1978) and 39: 29, 86, 99, 104, 105, 167, 260, & 264. 1978.

Material of this species has been misidentified and distributed in some herbaria as Aloysia chiapensis Moldenke. On the other hand, the Tharp, Follansbee, & Thompson 51-1671, distributed as L. alba, actually is Lantana macropoda Torr.

Additional citations: MEXICO: Chiapas: Ton 2186 (Ld).

LIPPIA ALBA var. GLOBIFLORA (L'Hér.) Moldenke

Additional bibliography: Moldenke, Phytologia 38: 474 (1978) and 39: 99, 104, 105, & 260. 1978.

The Humboldt & Bonpland photograph, cited below, is a transfer from the Britton Herbarium.

Emended citations: VENEZUELA: Apure: Humboldt & Bonpland s.n. [Macbride photos 39485] (Z--photo).

LIPPIA AMERICANA L.

Additional bibliography: Moldenke, Phytologia 38: 474--477 & 482 (1978) and 39: 93 & 95. 1978.

LIPPIA AMERICANA f. PILOSA Moldenke

Additional bibliography: Moldenke, *Phytologia* 38: 476--477. 1978.

Nee describes this plant as a shrub, 2 m. tall, and found it growing in open weedy roadsides and open to brushy savanna pastures, at 100 m. altitude, flowering in November. The corollas on Nee 8221 are said to have been "greenish-white" when fresh.

Material of this taxon has been misidentified and distributed in some herbaria as "Labiatae".

Additional citations: PANAMA: Veraguas: M. Nee 8221 (N).

LIPPIA ARECHAVALETAE Moldenke

Additional bibliography: Moldenke, *Phytologia* 38: 478--479 (1978) and 39: 28. 1978.

LIPPIA ASPERRIMA Cham.

Additional bibliography: Moldenke, *Phytologia* 38: 479--480 (1978) and 39: 180. 1978.

LIPPIA BAHIENSIS Moldenke

Additional bibliography: Hocking, *Excerpt. Bot. A.* 28: 170. 1976; Moldenke, *Phytologia* 38: 480. 1978.

LIPPIA BRACTEOSA (Mart. & Gal.) Moldenke

Additional bibliography: Moldenke, *Phytologia* 39: 24, 27, & 87. 1978.

Additional citations: MEXICO: Chiapas: Breedlove 23049 (Mi).

LIPPIA CALLICARPAEFOLIA H.B.K.

Additional bibliography: Moldenke, *Phytologia* 39: 25--27, 95, 252, & 256. 1978.

LIPPIA CARDIOSTEGIA Benth.

Additional bibliography: Moldenke, *Phytologia* 39: 28--30, 32, 36, 168, 252, 253, 258, & 266. 1978.

Recent collectors have encountered this species along roadsides in "dry mountain forest zone, most natural vegetation cleared for milpas", flowering in July.

Additional citations: GUATEMALA: Guatemala: Harmon & Dwyer 3076 (N).

LIPPIA CHIAPASENSIS Loes.

Additional bibliography: Moldenke, *Phytologia* 39: 30, 32--34, & 36. 1978.

Recent collectors have found this species growing on slopes with montane rainforest of Liquidambar, Magnolia, and Vochysia, flowering in February and November. The corollas are said to have been "yellow" on Breedlove 33433.

Additional citations: MEXICO: Chiapas: Breedlove 33433 (Mi); Breedlove & Dressler 29502 (Mi); Breedlove & Thorne 21323 (Mi).

LIPPIA CONTROVERSA Moldenke

Additional bibliography: Moldenke, *Phytologia* 39: 30, 32--34, 166, & 168. 1978.

Recent collectors have encountered this plant on "steep slopes with tropical deciduous forest along ravines". The corollas are said to have been "pale-yellow" on Breedlove 28294.

Additional citations: MEXICO: Chiapas: Breedlove 20375 (Mi), 28294 (Mi).

LIPPIA CORYMBOSA Cham.

Additional bibliography: Moldenke, *Phytologia* 39: 34--35 & 44. 1978.

Irwin and his associates encountered this plant on brown sandy soil in cerrado and describe it as growing "from a thick root"; the corolla-tube on their no. 27508 is said to have been "white".

Additional citations: BRAZIL: Minas Gerais: Irwin, Fonsêca, Souza, Reis dos Santos, & Ramos 27508 (Ld).

LIPPIA COSTARICENSIS Moldenke

Additional bibliography: Moldenke, *Phytologia* 39: 30, 35--36, 252, & 253. 1978.

Recent collectors refer to this species as a tree, 7 m. tall, and have encountered it in fencerows, at 1300 m. altitude, flowering in July.

Additional citations: PANAMA: Chiriquí: Mori & Bolten 7398 (N).

LIPPIA ELEGANS Cham.

Additional bibliography: Moldenke, *Phytologia* 39: 38--39, 263, & 264. 1978.

Additional citations: BRAZIL: Minas Gerais: Irwin, Fonsêca, Souza, Reis dos Santos, & Ramos 27193 (Ac).

LIPPIA ELLIPTICA Schau.

Additional bibliography: Hocking, *Excerpt. Bot. A.* 28: 170. 1976; Moldenke, *Phytologia* 39: 24 & 39. 1978.

LIPPIA ELLIPTICA var. **SILVICOLA** Moldenke

Additional bibliography: Hocking, *Excerpt. Bot. A.* 28: 170. 1976; Moldenke, *Phytologia* 39: 39. 1978.

LIPPIA GRAVEOLENS H.B.K.

Additional & emended bibliography: Coult., *Contrib. U. S. Nat. Herb.* 2: 328. 1892; Moldenke, *Phytologia* 39: 82--88, 91, 92, 256, 262, 264, & 267. 1978.

Recent collectors have found this species in shrubby second-growth on slopes and on slopes with Pinus, Quercus, and Acacia.

Additional citations: MEXICO: Chiapas: Breedlove 27656 (Mi), 28468 (Mi).

LIPPIA HARLEYI Moldenke

Additional bibliography: Hocking, *Excerpt. Bot. A.* 28: 170.

1976; Moldenke, Phytologia 39: 89. 1978.

LIPPIA HEDERAEOFOLIA Mart. & Schau.

Additional bibliography: Moldenke, Phytologia 39: 90. 1978.

Irwin & al. 28442 originally consisted of a mixture of Lippia hederaefolia and the type collection of L. rosella Moldenke, the latter portion now cited as no. 28442a.

Additional citations: BRAZIL: Minas Gerais: Irwin, Fonsêca, Souza, Reis dos Santos, & Ramos 27267 (Ld), 28442 (Ac).

LIPPIA HIRSUTA var. **MORITZII** (Turcz.) López-Palacios

Additional bibliography: Moldenke, Phytologia 39: 92—95. 1978.

The Steiermark 104919, distributed as L. hirsuta var. moritzii, actually is L. schlimii Turcz.

LIPPIA JAVANICA (Burm. f.) Spreng.

Additional bibliography: Moldenke, Phytologia 39: 99—106, 393, & 395. 1978.

Additional citations: SOUTH AFRICA: Cape Province: Collector undetermined s.n. [Mo. Bot. Gard. photos A.865] (W--photo).

LIPPIA LINDMANII Briq.

Synonymy: Lippia lindmannii Briq. ex Moldenke, Phytologia 39: 166, sphalm. 1978.

Additional bibliography: Hocking, Excerpt. Bot. A.28: 170. 1976; Moldenke, Phytologia 39: 166. 1978.

LIPPIA LINDMANII f. **OPPOSITIFOLIA** Moldenke

Synonymy: Lippia lindmannii f. oppositifolia Moldenke, Phytologia 39: 166, sphalm. 1978.

Additional bibliography: Hocking, Excerpt. Bot. A.28: 170. 1976; Moldenke, Phytologia 39: 166. 1978.

LIPPIA LUPULINA Cham.

Additional bibliography: Moldenke, Phytologia 39: 168—172 & 266. 1978.

Additional citations: BRAZIL: Distrito Federal: Irwin, Fonsêca, Souza, Reis dos Santos, & Ramos 26361 (Ld).

LIPPIA MICROCEPHALA Cham.

Additional bibliography: Moldenke, Phytologia 39: 174—175. 1978.

Additional citations: BRAZIL: Minas Gerais: Irwin, Fonsêca, Souza, Reis dos Santos, & Ramos 28309 (Ac).

LIPPIA MICROMERA Schau.

Additional bibliography: Hocking, Excerpt. Bot. A.28: 170. 1976; Moldenke, Phytologia 39: 175—178. 1978.

LIPPIA MYRIOCEPHALA Schlecht. & Cham.

Additional bibliography: Moldenke, *Phytologia* 39: 252--258. 1978.

Recent collectors have encountered this plant on "slopes with small streams, tropical rainforest along the ridges".

Additional citations: MEXICO: Chiapas: Breedlove 26515 (Mi).

LIPPIA MYRIOCEPHALA var. **HYPOLEIA** (Briq.) Moldenke

Additional bibliography: Moldenke, *Phytologia* 39: 252--258. 1978.

Recent collectors have found this plant growing on "steep slopes with montane rainforest".

Additional citations: MEXICO: Chiapas: Breedlove & Thorne 20947 (Mi).

LIPPIA POHLIANA Schau.

Additional bibliography: Moldenke, *Phytologia* 39: 395. 1978.

Recent collectors have encountered this plant in "grassy campo with scattered trees, on crystal sand, wet in some places" and in "quartzite rock outcrops and sandy soil with cerrado", at altitudes of 1000--1370 m., flowering in January, April, and May, fruiting in January. Irwin and his associates refer to it as "occasional".

The corollas are said to have been "white" on Anderson 8063, "dark-rose" on Hatschbach & al. 29099, "red-violet, the throat white" on Irwin & al. 22254, and "tube yellow, lobes white" on Anderson 9995.

The *Lippia nepetacea* Schau., previously regarded by me as conspecific with *L. pohliana*, is now regarded by me as distinct, after careful examination of type material of both taxa. In *L. pohliana* the bracts are wide-spreading and long-acuminate, while in *L. nepetacea* they are closely appressed and merely acute.

Additional citations: BRAZIL: Goiás: W. R. Anderson 8063 (Ac, N), 9995 (Ld, N); J. E. Pohl s.n. [in Brasilia] (Mu--115--cotype, Mu--116--cotype, Z--cotype). Minas Gerais: Hatschbach, Smith, & Ayensu 29099 (Ld, W--2744564); Irwin, Reis dos Santos, Souza, & FONSECA 22254 (N, Z), 22466 (Ac, N).

LIPPIA POHLIANA var. **LONGIBRACTEOLATA** Moldenke, *Phytologia* 31: 385. 1975.

Bibliography: Moldenke, *Phytologia* 31: 385. 1975; Hocking, *Excerpt. Bot. A.28*: 170. 1976; Moldenke, *Phytologia* 39: 78. 1978.

Anderson and his associates describe this plant as a shrub, 0.4 m. tall, the corollas pink with a yellow eye, and found it growing in cerrado in an area of rocky sandstone cerrado and open rocky hillsides with white sandy soil sloping down to grassy brejo (sedge meadow), creek, and gallery forest, at 1220 m. altitude, flowering in February.

Material of this variety has been misidentified and distributed in some herbaria as *L. gracilis* Schau.

Citations: BRAZIL: Minas Gerais: Anderson, Stieber, & Kirkbride 35371 (Ld--isotype, N--type, W--2709310--isotype).

LIPPIA POLYTRICHA Briq.

Additional bibliography: Burkart, Excerpt. Bot. A.5: 586. 1962; Moldenke, Phytologia 12: 355--356. 1965; Moldenke, Fifth Summ. 1: 186 (1971) and 2: 893. 1971; Troncoso, Darwiniana 18: 340 & 410. 1974.

LIPPIA POSSENSIS Moldenke, Phytologia 32: 457. 1975.

Bibliography: Moldenke, Phytologia 32: 457 (1975) and 34: 258. 1976; Anon., Biol. Abstr. 61: AC1.640. 1976; Hocking, Excerpt. Bot. A.28: 259. 1976.

Citations: BRAZIL: Goiás: Gottsberger & Gottsberger 138-25771 (Z--type).

LIPPIA PRAECOX Mildbr.

Additional bibliography: Moldenke, Phytologia 12: 356--357. 1965; Moldenke, Fifth Summ. 1: 250 (1971) and 2: 893. 1971.

LIPPIA PRETORIENSIS H. H. W. Pearson

Additional & emended bibliography: H. H. W. Pearson in Thiselt.-Dyer, Fl. Cap. 5: 193 & 197. 1901; Watt & Breyer-Brandwijk, Med. & Poison. Pl. S. Afr., ed. 2, 1052 & 1410. 1962; Moldenke, Phytologia 13: 365. 1966; C. A. Sm., Common Names S. Afr. Pl. 320, 321, 323, & 601. 1966; Moldenke, Fifth Summ. 1: 257 (1971) and 2: 542, 553, & 893. 1971; Hegnauer, Chemotax. Pfl. 6 [Chem. Reihe 21]: 674. 1973.

Smith (1966) reports the vernacular names, "laventelbos", "laventelbossie", "lekkerruickbossie", and "leventelbossie", and asserts that sheep eating this plant become jaundiced and photosensitive. Watt & Breyer-Brandwijk (1962) report "photosensitization accompanied by icterus....It is less toxic than Lippia rehmanni", citing their nos. 1049, 1050, 1052, & 1067.

Pearson (1901) separates this species from the other South African species known to him as follows:

1. Calyx distinctly 2-lobed.
 2. Bracts more than 2 lines long and 1 1/2 lines broad, exceeding the flowers.....L. scaberrima.
 - 2a. Bracts less than 2 lines long and 1/2 line wide, not exceeding the flowers.....L. javanica.
 - 1a. Calyx truncate, subtruncate, or obscurely lobed.
 3. Leaves serrate or crenate-serrate.
 4. Bracts more than 2 lines long; calyx truncate or obscurely 4-toothed.....L. wilmsii.
 - 4a. Bracts less than 2 lines long; calyx obscurely 2-lobed.
 5. Adult leaves elliptic, not more than 1 inch long.....L. rehmanni.
 - 5a. Adult leaves ovate, more than 1 1/2 inches long.....L. bazeiana.
 - 3a. Leaves crenate.....L. pretoriensis.

The Meebold 12829, distributed as L. pretoriensis, actually is L. wilmsii H. H. W. Pearson.

Additional citations: SOUTH AFRICA: Transvaal: Burke 402 (Pd).

LIPPIA PRIMULINA S. Moore

Additional bibliography: Moldenke, *Phytologia* 13: 365. 1966; Angely, *Fl. Anal. & Fitogeogr. S. Paulo*, ed. 1, 4: 835 & xi. 1971; Moldenke, *Fifth Summ.* 1: 156 (1971) and 2: 893. 1971; Troncoso, *Darwiniana* 18: 339 & 410. 1974; Moldenke, *Phytologia* 34: 258 (1976) and 39: 44 & 80. 1978.

Irwin and his associates describe this plant as a simple shrub or subshrub, 0.75—1 m. tall, the bracts red- or rose-violet, and found it growing on wet campo slopes, at 950 m. altitude, flowering in June and October. They refer to it as "infrequent". The corollas are said to have been "magenta" on Irwin & al. 17812 and "rose-violet" on Irwin & Soderstrom 7115.

The Angely (1971) work cited above bears an incorrect "1970" titlepage date.

Material of L. primulina has been misidentified and distributed in some herbaria as L. gardneriana Schau.

Additional citations: BRAZIL: Goiás: Irwin & Soderstrom 7115 (Ac, N); Irwin, Souza, Grear, & Reis dos Santos 17812 (N, Z).

LIPPIA PRIMULINA var. GOYAZENSIS S. Moore

Additional bibliography: Moldenke, *Phytologia* 12: 360. 1965; Moldenke, *Fifth Summ.* 1: 156 (1971) and 2: 893. 1971; Moldenke, *Phytologia* 39: 80. 1978.

Recent collectors describe this plant as an herb to 30 cm. tall, from a woody root, and have found it in burned-over cerrado, flowering just after the burning from August to October, at altitudes of 700—1200 meters.

The corollas are said to have been "rose" on Fonsêca 294, "rose-lavender" on Maguire & al. 56346, "rose-violet, the throat white" on Irwin & al. 8577, "rose-lavender, throat yellow with a white border" on Irwin & al. 8739, and "purple with yellow eye in center surrounded by a white area, some purple without eye" on Prance & al. 18949.

Material of this variety has been misidentified and distributed in some herbaria as "L. grandiflora Mart.", L. grandiflora Mart. & Schau., and Lantana sp.

Additional citations: BRAZIL: Distrito Federal: Irwin, Souza, & Reis dos Santos 8577 (Ac, N), 8739 (Ld, N). Goiás: S. da Fonsêca 294 (Z); Lützelburg 1465a (Mu). Mato Grosso: Maguire, Murça Pires, Maguire, & Silva 56346 (N); Prance, Lleras, & Coêlho 18949 (Ld, N).

LIPPIA PRINGLEI Briq.

Additional synonymy: Lippia longifolia Pavon ex Moldenke, *Fifth Summ.* 1: 559, in syn. 1971 [not L. longifolia Sessé & Moc.,

1940].

Additional bibliography: Cummins, Lloydia 3: 16 & 62. 1940; Hocking, Excerpt. Bot. A.7: 454. 1964; Moldenke, Phytologia 14: 414. 1967; Uphof, Dict. Econ. Pl., ed. 2, 315. 1968; Gibson, Fieldiana Bot. 24 (9): 213 & 216. 1970; Moldenke, Fifth Summ. 1: 72 & 366 (1971) and 2: 550—552, 557, 559, & 893. 1971; Farnsworth, Pharmacog. Titles 7 (10): ix. 1972; Fong, Trojánková, Trojáněk, & Farnsworth, Lloydia 35: 147. 1972; Moldenke, Phytologia 23: 414. 1972; Altschul, Drugs & Foods 244. 1973; [Farnsworth], Pharmacog. Titles 7, Cum. Gen. Ind. [72]. 1975; Hinton & Rzedowski, Anal. Esc. Nac. Cienc. Biol. 21: 75. 1975; Moldenke, Phytologia 39: 25, 27, 253, & 256. 1978.

Recent collectors describe this plant as a large shrub or small tree, 3—10 m. tall, the trunk 8—15 cm. in diameter at breast height, the "branches whorled" and weak, the foliage "heavy", the leaves odorous, the bracts greenish-white or pale greenish-yellow, the "inflorescence pale-green" or "heads pale", and the flowers aromatic, visited by Hymenoptera, and have found it growing in wet or medium-wet soil in oak woods, in open sun, on the sides of arroyos, in ravines and narrow valleys, in secondary matorral, in woods of Ipomoea and legumes, and near water in shady canyon bottoms, at altitudes of 20—2400 meters, flowering from November to February and in April and September, fruiting in February and November. Delgadillo says "fruto café". The leaf-blades on the Zuccarini Herbarium material cited below are 26—33 cm. long and 9—10.5 cm. wide, the petioles 2.5—4.5 cm. long!

Kruse reports the species "frequent on slopes with woods of Quercus elliptica and Lysiloma acapulcensis in association with Acacia pennatula, 'crece en suelos de arcilla pedregosa con pH6'". Rzedowski & McVaugh found it on "calizas kársticas con vegetación de matorral secundario" and "fondo de la barranca". The Dunns encountered it "in thorn forests on slopes of basaltic block knolls" and the Andersons found it to be "common shrubs or trees in regenerating pine forests with other trees mixed and adventive". McVaugh speaks of it as "abundant on shaded outcrops of dogtooth limestone in oak forests with some Pinus lumholtzii on steep rocky slopes", "abundant in tall humid forests with Fraxinus, Quercus, Abies, Alnus, and Clusia", and "in steep valley in decaying granitic soils with oak-pine forest on ridges and Ficus, Couepia, and other broad-leaves trees in the valley". Breedlove found it "on slopes with Quercus and Erythrina along small streams", on "steep moist north-facing slopes with Carpinus, Cornus, Clethra, Pinus, and Quercus", and "on steep east-facing slopes with Pinus lumholtzii, P. herrerae, Quercus epileuca, Q. viminea, and Arbutus xalapensis". McVaugh reports it "locally abundant", Dieterle "fairly common", and Alava & Cook "common in shrubbery".

The corollas are said to have been "white" on Breedlove 18678 and Ortega 6548, "yellow" on Anderson & Anderson 5605 & 5606, Breedlove & Kawahara 16943 & 17073, Dieterle 4211, Ernst 2446,

Kruse 55, MacDougall H.284, Palacios s.n., and Rzedowski 21881, "yellowish" on Rzedowski 25255, "creamish-yellow" on Alava & Cook 1616, "yellowish-white" on Ortega 5707, "greenish-yellow" on McVaugh 25993, "greenish" on McVaugh 26108, "greenish-white to yellow" on McVaugh 25494, "pale-orange" on Hinton 13482, and "rose" on Delgadillo 209.

Vernacular names reported for *Lippia pringlei* include "bacarton", "choila", "chokili", and "matayaki". Altschul (1973) reports the occurrence of a medicinal sap in this plant useful in treating toothache (by chewing of the bark?) and that the leaves are also put into hot water, then coated with mentholatum, and applied to bruises and sores, in the treatment of headaches, etc.

It should be noted here that the *L. longifolia* of Pavon appears to be based on Pavon 36, labeled, doubtless in error, as from "Peru", deposited in the Paris herbarium. The *L. longifolia* of Sessé & Mocino is a synonym of *Phyla stoechadifolia* (L.) Small. Uphof (1968) reduces *L. pringlei* to the synonymy of *L. umbellata* Cav. Gibson (1970) thinks that *L. jurgensenii* Briq., regarded by me as a synonym of *L. pringlei*, may, instead, actually be the oldest name for the plant now known as *L. salamensis* Loes.

Cummins (1940) reports the parasitic fungi, *Prosopodium conjunctum* (D. & H.) Cummins and *P. lippiae* (Speg.) Arth., from *Lippia pringlei* in Mexico, based on Holway s.n. [Oaxaca, Oct. 23, 1899, type] and Holway 5399 for the former and Holway s.n. [Iguala, Guerrero, Oct. 4, 1900] and s.n. [Oaxaca, Oct. 23, 1899, type of *Uredo lippiae* D. & H.].

Loesner (1912) cites Seler 1460 & 1743 from Oaxaca, Mexico.

Material of *L. pringlei* has been misidentified and distributed in some herbaria as *L. callicarpaefolia* H.B.K., *L. hypoleia* Briq., *L. umbellata* Cav., "*L. umbellata* Cav. sensu lato", and *Buddleia* sp. On the other hand, the Wiggins 13187, distributed as *L. pringlei*, actually is *L. gentryi* Standl.

Additional citations: MEXICO: Guerrero: Hinton 11278 (Ld); Kruse 55 (Ip); J. Rzedowski 25255 (Ip, Mi); Rzedowski & McVaugh 307 (Ip, Ld). Jalisco: Breedlove 17678 (Ld); R. McVaugh 25494 (Mi), 25993 (Mi), 26108 (Mi); Pringle 1733 (Ms—30881—isotype, Mu—1812—isotype, Mu—1813—isotype), 2743 (Ln—70014); J. Rzedowski 21881 (Ip, Mi, Ws); Villarreal de Puga 68 (Ip), 166 (Ip). Michoacán: Hinton 12949 (Se—97685, Tu—112082), 13482 (Se—110740, Tu—92068, Tu—112024), 13614 (Se—97683, Tu—112039). Morelos: Bourgeau 1217 (Mi); Dunn & Dunn 18631 (N); R. Palacios s.n. [14/IX/1964] (Ip), s.n. [2/XI/1964] (Ip), s.n. [14.XI.1964] (Ip), s.n. (Mi); Pringle 13982 (Bl—149656, Tu—134745). Nayarit: Alava & Cook 1616 (Ca—1322452); Gentry, Barclay, & Arguelles 19637 (Ld); R. Palacios s.n. [17/XI/1968] (Mi); Templeton

7003a (N). Oaxaca: Anderson & Anderson 5605 (Sd--78919), 5606 (Mi); L. Conzatti 4826 (Ld); Delgadillo 209 (W--2790790), 220 (W--2790793); Dieterle 4211 (Mi); Ernst 2446 (Mi, W--2798515), 2476 (Mi, W--2798516), 2558 (W--2798514); T. MacDougall H.284 (N); R. McVaugh 22282 (Ip); Makrinus 568 (W--1842816); J. Rzedowski 19280 (Au--243566, Ip); Seler & Seler 1460 [Macbride photos 17497] (W--1205956, W--photo), 1743 (W--1205962). Sinaloa: Breedlove & Kawahara 16943 (Ac), 17073 (Ld); Cummins 70-220H (Tu--178283); J. G. Ortega 5707 (Mu), 6548 (Mu); C. L. Smith 193 (Tu--183232). Sonora: Gentry 4814 (Tu--98608). State undetermined: Gregg 930 (E--116644, E--116646), 937 (E--116645); Karwinski s.n. [Hab. in Mexico] (Mu--139); Pavon 36 ["Peru", 1868] (P); K. Reiche 1029 [Esperanza] (Mu). CULTIVATED: Germany: Herb. Zuccarini s.n. [h. Monac. 1835] (Mu--142), s.n. [Hortus Monac. anno 1845] (Mu--141), s.n. [Hortus bot. Monacensis] (Mu--143); Kummer s.n. [Hort. Monac. 1849.3.I] (Mu--140. MOUNTED DESCRIPTIONS: Loes in Fedde, Repert. Spec. Nov. 9: 366. 1911 (W).

LIPPIA PRINGLEI f. INTECTA Moldenke

Additional bibliography: Moldenke, *Phytologia* 12: 365. 1965; Moldenke, *Fifth Summ.* 1: 72 (1971) and 2: 893. 1971; Moldenke, *Phytologia* 23: 414. 1972.

McVaugh refers to this plant as a tree, 5 m. tall, with flowers that are "orange-yellow on opening, fading to pale-cream", and found it to be "locally abundant in sunny spots in steep rocky valley in tall subdeciduous forest of Hura, Brosimum, Bursera, Psidium, and Hymenaea", at 150 m. altitude, flowering in December.

Additional citations: MEXICO: Jalisco: R. McVaugh 25543 (Mi).

LIPPIA PSEUDO-THEA (A. St.-Hil.) Schau.

Additional synonymy: Lantana pseudothea L. ex Friese, Bol. Agricult. São Paulo 34: 317. 1933.

Additional & emended bibliography: J. Grah., Pl. Bomb. 156. 1839; Spach, Hist. Nat. Veg. Phan. 9: 243. 1840; Lindl., Veg. Kingd. 663. 1846; Schau. in A. DC., Prodr. 11: 582 & 608. 1847; Twining, Ill. Nat. Ord. Pl. 2: 104. 1855; Buek, Gen. Spec. Syn. Candoll. 3: 253 & 266. 1858; Schnitzl., Iconogr. Fam. Nat. 2: 137 Verbenaceae [2]. 1856; Archer, Profit. Pls. 126. 1865; T. Peckolt, Bericht. Deutsch. Pharm. Gesell. 14: 470. 1904; Friese, Bol. Agricult. São Paulo 34: 317. 1933; Darlington & Janaki Ammal, Chrom. Atl. 271. 1945; Grieve, Modern Herb. 486. 1967; Moldenke, *Phytologia* 14: 414. 1967; Uphof, Dict. Econ. Pl., ed. 2, 315. 1968; Moldenke, *Fifth Summ.* 1: 157 (1971) and 2: 542, 563, & 893. 1971; Hedrick, Sturtevant's Edible Pl. 338. 1972; Moldenke, *Phytologia* 31: 402 (1975) and 39: 42. 1978.

Recent collectors describe this plant as a small shrub, 1--2 m. tall, and have encountered it on campos and rocky campos, as well as in sandy soil near rivers, at 1200--1300 m. altitude, flowering in June and September. Hatschbach says that he found

it in "solo arenoso junto com afloramentos de arenito". The corollas are said to have been "yellow" on Williams & Assis 7160, "rose" on Hatschbach 27252 & 27491, and "purple" on Hatschbach 30140. Hatschbach reports the plant as being "Untuoso ao tacta".

The Schnitzlein (1856) reference, cited above, is often cited as having been published in "1843-1870", the titlepage dates, but the pages relating to the Verbenaceae were actually issued in 1856.

Spach (1840) says "Cette espèce croît au Brésil, dans la province des Minas. Ses feuilles ont une odeur très-aromatique; séchées et prises en infusion, elle donnent une boisson très-agréable et fort estimée dans le pays". Uphof (1968) reports its leaves used as a tea in some parts of Brazil; Grieve (1967) also reports its use as a "substitute for tea and its fruit is eaten". Twining (1855) adds that it is employed in Chile in aromatic baths.

Friese (1933) says "Lantana pseudothea L.parcialmente conhecidas sob o nome de camarã ou camarã (veja-se este verbete) encontram emprego medicamentoso das suas folhas que, provavelmente por causa das pequenas quantidades de óleo essencial que encerram, em infuso mostram efeitos sudoríficos e antipiréticos".

Peckolt (1904) tells us concerning Lippia pseudo-thea: "Auf den Steppengebieten des Staates Minas mit mehreren Volksnamen: Chá de frade - Mönchstea, Capitaõ do mato - Negerfängertee und als häufigste Benennung Chá de pedestre - Tee des Fussreisenden". He describes the plant as a "Strauchartige Pflanze mit lanzettlichen, spitzen, an der Basis abgerundeten, ganzrandigen, oberseits papillös-borstigen, unterseits rauhaarigen Blättern. Blüten klein und weiss. Die Blätter sind ungemein wohlriechend, dem Steppenbewohner ein tägliches, wohlschmeckendes Getränk; es ersetzt ihm Kaffee, Tee usw. Auch als Heilmittel sehr geschätzt bei allen katarrhalischen Affektionen sowie als Stimulans und Diuretikum. Die Pflanze verdiente kultiviert zu werden, sie würde für die Parfümerie ein wertvolles ätherisches Öl liefern".

Material of this species has been misidentified and distributed in some herbaria as L. florida Cham.

Additional citations: BRAZIL: Minas Gerais: Glazion 19709 (Mu-4328); Hatschbach 27250 (W-2706627), 27252 (Ld), 27491 (Ld), 30140 (N, W-2706992, Z); Williams & Assis 7160 (G, N).

LIPPIA PUMILA Cham.

Additional synonymy: Lippia pumila Cham. & Schl. ex Moldenke, Phytologia 36: 44, in syn. 1977.

Additional bibliography: Buek, Gen. Spec. Syn. Candoll. 3: 266. 1858; Angely, Fl. Anal. Paran., ed. 1, 576. 1965; Hocking, Excerpt. Bot. A.10: 271 (1966) and A.11: 103. 1967; Moldenke, Phytologia 14: 414. 1967; Moldenke, Fifth Summ. 1: 157 (1971) and 2: 892. 1971; Moldenke, Phytologia 36: 44 (1977) and 39: 259. 1978.

The Irwin, Souza, & Reis dos Santos 9085, distributed as L. pumila, actually is L. nana Schau., while Martius s.n. [Serra de

S. Ant.] is Lantana glaziovii Moldenke.

LIPPIA RADULA J. G. Baker

Additional & emended bibliography: J. G. Baker in Thiselt.-Dyer, Fl. Trop. Afr. 5: 278 & 279. 1900; Moldenke, Phytologia 12: 430—431. 1965; Moldenke, Fifth Summ. 1: 241 (1971) and 2: 542, 564, & 893. 1971; Moldenke, Phytologia 39: 181 & 394. 1978.

The Kassas, Khalifa, & Mobarak 128, distributed as L. radula, actually is L. multiflora Moldenke.

LIPPIA RAMBOI Moldenke

Additional bibliography: Moldenke, Phytologia 13: 366. 1966; Moldenke, Biol. Abstr. 50: 12950. 1969; Hocking, Excerpt. Bot. A.15: 422. 1970; Reitz, Sellowia 22: 81. 1970; Moldenke, Fifth Summ. 1: 157 (1971) and 2: 893. 1971.

Additional citations: BRAZIL: Rio Grande do Sul: Rambo 52156 (B), 54583 (B).

LIPPIA RAMBOI var. **PILOSA** Moldenke, Phytologia 18: 294. 1969.

Bibliography: Moldenke, Phytologia 18: 294. 1969; Hocking, Excerpt. Bot. A.15: 422. 1970; Moldenke, Fifth Summ. 1: 157 (1971) and 2: 893. 1971.

Citations: BRAZIL: Rio Grande do Sul: Palacios & Cuezco 1516 (N—type).

LIPPIA RECOLLETAE Morong

Additional synonymy: Lippia recolletae Mold. ex Moldenke, Phytologia 26: 374, in syn. 1973.

Additional & emended bibliography: Briq. in Chod. & Hassler, Bull. Herb. Boiss., ser. 2, 4: 1156—1157. 1904; Briq. in Chod. & Hassler, Pl. Hassler. 2: 492—493. 1904; Michalowski, Serv. Tecn. Interam. Coop. Agr. Bol. 169. 1954; Teague, Anal. Mus. Hist. Nat. Montev., ser. 2, 7 (4): 45. 1965; Moldenke, Biol. Abstr. 47: 6792. 1966; Hocking, Excerpt. Bot. A.11: 450. 1967; Moldenke, Phytologia 14: 414. 1967; Moldenke, Fifth Summ. 1: 183, 186, & 199 (1971) and 2: 564 & 893. 1971; Moldenke, Phytologia 26: 374. 1973.

Recent collectors describe this plant as a semiprostrate herb, shrub, or subshrub, 0.3—1 m. tall, erect, and aromatic, and found it growing in sandy loam, on campos, among grass on dry hills, and at the edge of gallery forests, at altitudes of 216—3350 m., flowering in January, February, May, and October, and in fruit in January and October. They record the vernacular names, "falsa salvia" and "salvia blanca". The corollas are said to have been "whitish" on Hatschbach 23841, "white" on Quarín & al. 1567, "yellow" on King & Bishop 7577, "yellowish" on Lourteig 2012, "white and orange" on Fiebrig 4452, and "rojiso purpurino pálido" on Steinbach 740. King & Bishop refer to the plant as "abundant spreading coarse herb".

Teague (1965) reports that the plant is "common" and ruderal in Paraguay, sometimes spreading to cotton or manioc fields, and cites Teague 267.

Additional citations: BRAZIL: Mato Grosso: Hatschbach 23841 (N), 39200 (Ld). BOLIVIA: Cochabamba: King & Bishop 7577 (W—2813112); R. F. Steinbach 740 (N, Ws). PARAGUAY: Fiebrig 4452 (Mu—4125), 5139 (Mu—4132); Lourteig 2012 (N); Montes 10996 (Mu); Quarín, Ishikawa, & Schinini 1567 (Ld); Schinini 9171 (Ld); Woolston 173 (N), 1637 (N). ARGENTINA: Corrientes: Burkart 19390 (N); Krapovickas & Cristóbal 11816 (W—2481392), 15792 (Ld, Ws). Misiones: Bertoni 2 [Herb. Inst. M. Lillo 99229] (Ut—3305458); T. Meyer 11378 (N); Montes 430b (N), 15091 (Ba), 27655 (Au—271297, Ld, N, W—2556006).

LIPPIA RECOLLETAE var. **PICKELII** (Moldenke) Moldenke

Additional bibliography: Moldenke, Biol. Abstr. 47: 6792. 1966; Hocking, Excerpt. Bot. A.11: 450. 1967; Moldenke, Phytologia 14: 414. 1967; Moldenke, Fifth Summ. 1: 186 (1971) and 2: 563 & 894. 1971.

LIPPIA REHMANNI H. H. W. Pearson

Emended synonymy: Lippia rehmannii H. H. W. Pearson ex Moldenke, Résumé 316, in syn. 1959; Dyer, Verdoorn, Codd, & Letty, Wild Fls. Transv. 281. 1962.

Additional & emended bibliography: Rimington & al., Onderstepoort Journ. Vet. Sci. 9: 225—255. 1937; Roets, Onderstepoort Journ. Vet. Sci. 9: 583—588. 1937; Anon., U. S. Dept. Agr. Bot. Subj. Index 15: 14358. 1958; Karrer, Konstit. & Vork. Organ. Pflanzenst. 20 & 819. 1958; Anderson, De Kock, & Enslin, Journ. S. Afr. Chem. Inst. 14: 58. 1961; Dyer, Verdoorn, Codd, & Letty, Wild Fls. Transv. 281 & [282], pl. 140, fig. 4. 1962; Watt & Breyer-Brandwijk, Med. & Poison. Pl. S. & East. Afr., ed. 2, 479, 1049, 1050, 1052—1053, 1067, & 1410. 1962; H. K. Urban, Pharmazie 21: 336—339. 1966; Moldenke, Phytologia 14: 414. 1967; H. K. Urban, Bioresearch 1967: 1467. 1967; J. M. M. Br., Journ. S. Afr. Vet. Med. Assoc. 39 (3): 35—48. 1968; Anon., Biol. Abstr. 50 (1): S.107 (1969) and 50 (6): S.114. 1969; J. M. M. Br., Biol. Abstr. 50: 2969. 1969; Moldenke, Fifth Summ. 1: 230, 255, & 257 (1971) and 2: 536, 542, 551, 564, & 894. 1971; Boar & Allen, Phytochem. 12: 2575. 1973; Farnsworth, Pharmacog. Titles 8 (12): vii. 1973; Hegnauer, Chemotax. Pfl. 6 [Chem. Reihe 21]: 673—675. 1973; Moldenke, Phytologia 34: 261 (1976) and 39: 105. 1978.

Emended illustrations: Dyer, Verdoorn, Codd, & Letty, Wild Fls. Transv. [282], pl. 140, fig. 4 [in color]. 1962.

Recent collectors describe this plant as a rather spreading subshrub with a woody base and thick softish roots, the leaves pleasantly and strongly aromatic, and the flowers odorous, and have found it growing at altitudes of 1300—1400 meters. The corollas are said to have been "white" on Werderman & Oberdieck 1289 and "white to cream" on Winter 7518.

Smith (1966) records the vernacular names, "laventelbossie", "lekkerruickbossie", and "leventelbossie".

A notation on the label indicates that root material of Winter 7518 was collected for chemical analysis. Karrer (1958) reports that rehmannic acid or lantaden A, $C_{35}H_{52}O_5$, occurs in Lippia rehmanni as well as in Lantana camara and notes the presence of icterogenin A & C, $C_{35}H_{52}O_6$, only in Lippia rehmanni. Anderson and his associates (1961) report the presence of hederagenin (22 β angeloyloxy) and treleasegenic acid.

Watt & Breyer-Brandwijk (1962) assert that a condition almost indistinguishable from tribulosis and geeldikkop in sheep is caused by ingestion of the foliage of Lippia rehmanni (as well as those of Tribulus spp. and Panicum spp.), apparently due to the presence in the leaves of icterogenin A, B, & C and rehmannic acid mostly in the root bark but also in the leaves. They also report that in Vietnam the plant is used as a diuretic.

Brown (1968) describes the hematology and chemical pathology of icterogen from Lippia rehmanni intoxication in sheep, indicating typical intrahepatic cholestasis and severe photosensitivity. The main effects of icterogenin are on the membrane permeability, especially the liver cell membranes, with the membranes of the kidneys, muscle cells, and erythrocytes affected to a lesser degree. Urban (1966) states that the plant's extract can be used to induce tripерpenoid icterogenin dermatological reversible jaundice in the treatment of psoriasis and bed sores in rats.

Some Pretoria botanists reduce L. rehmanni to the synonymy of L. wilmsii H. H. W. Pearson, but Pearson (1901) separates the three closely related taxa as follows:

Leaves crenate.....L. pretoriensis.
Leaves serrate.

Bracts 4 mm. or more in length.....L. wilmsii.

Bracts less than 4 mm. long.....L. rehmanni.

It should also be noted here that Codd 6554, originally distributed as L. rehmanni, is regarded by me as representing L. javanica (Burm. f.) Spreng. although it appears to match perfectly the photograph of the type specimen of L. rehmanni preserved in the New York Botanical Garden herbarium. Meeuse may be correct in his belief that the two taxa are conspecific.

Material of L. rehmanni has been misidentified and distributed in some herbaria as L. asperifolia Rich., L. wilmsii H. H. W. Pearson, Corchorus kirkii N. E. Br., and even Peucedanum cafferum Phillips. On the other hand, the Schweickerdt 1222, distributed as L. rehmanni, definitely is L. javanica (Burm. f.) Spreng. and Scheepers 1492 is L. scaberrima Sond.

Additional & emended citations: NAMIBIA: Baum 250 (F—photo, K, N, N—photo, Sg—photo, Z—photo). SOUTH AFRICA: Transvaal: Meebold 12830 (Mu); Werdermann & Oberdieck 1289 (W—2586066); Winter 7518 (Mu).

LIPPIA RETICULATA Hayek

Additional bibliography: Moldenke, *Phytologia* 12: 436—437. 1965; Moldenke, *Fifth Summ.* 1: 157 (1971) and 2: 894. 1971.

LIPPIA RHODOCNEMIS Mart. & Schau.

Additional synonymy: Lippia rhodocnemis Mart. ex Moldenke, *Phytologia* 36: 44, in syn. 1977.

Additional bibliography: Buek, *Gen. Spec. Syn. Candoll.* 3: 266. 1858; Farl., *Proc. Am. Acad. Sci.* 18: 83. 1883; Speg., *Anal. Soc. Ci. Argent.* 17: 93. 1884; Sydow, *Monog. Ured.* 1: 309. 1902; Sydow, *Ann. Myc.* 5: 338. 1907; Speg., *Anal. Mus. Nac. Buenos Aires* 19: 313. 1909; H. S. Jacks., *Mycologia* 24: 64. 1932; Moldenke, *Phytologia* 12: 437—438. 1965; A. L. Moldenke, *Phytologia* 18: 121 & 123. 1969; Moldenke, *Fifth Summ.* 1: 157 (1971) and 2: 564 & 894. 1971; Troncoso, *Darwiniana* 18: 339 & 410. 1974.

Recent collectors have described this plant as a shrub, 2 m. tall, and have encountered it on outcrops in areas of campo on white sand and cerrado among outcrops, at 1200 m. altitude, flowering in March.

Jackson (1932) records the fungus, Puccinia lantanae Farl. (1883) from this host on the basis of Holway 1006 from Rio de Janeiro, Brazil, listing as synonyms P. accedens Sydow (1902), P. privatae Sydow (1907), Uromyces lantanae Speg. (1884), and U. lippiae Speg. (1909).

The Tavares 630, distributed as L. rhodocnemis, actually is Lantana radula Sw.

Additional citations: BRAZIL: Minas Gerais: Irwin, Fonsêca, Souza, Reis dos Santos, & Ramos 28507 (Ld); Martius 1474 (Mu—123—type, Z—isotype). MOUNTED ILLUSTRATIONS: Schau. in Mart., *Fl. Bras.* 9: pl. 40. 1851 (N, Z).

LIPPIA RIEDELIANA Schau.

Additional bibliography: Buek, *Gen. Spec. Syn. Candoll.* 3: 266. 1858; Moldenke, *Phytologia* 12: 439. 1965; Angely, *Fl. Anal. & Fitogeogr. Est. S. Paulo*, ed. 1, 4: 835 & xi. 1971; Moldenke, *Fifth Summ.* 1: 152 (1971) and 2: 894. 1971.

LIPPIA RIGIDA Schau.

Additional bibliography: Buek, *Gen. Spec. Syn. Candoll.* 3: 266. 1858; Moldenke, *Phytologia* 12: 439—440. 1965; Moldenke, *Fifth Summ.* 1: 157 (1971) and 2: 894. 1971.

Recent collectors describe this plant as a spindly erect shrub, 2—3 m. tall, with brittle erect or steeply ascending stems and branches, the leaves dark- or mid-green above, paler or gray-green beneath, strongly rugose, and the bracts pale-green. They have found it growing in burned-over grassland and in low woodland on sand with laterite, along a "small stream with marsh on white sand and surrounding cerrado on sandstone rock exposures", and "in damp open sandy areas and small streams with poorly developed gallery forest", at 950—1200 m. altitude, flow-

ering and fruiting in January and March. The corollas are said to have been "Cream-color" on Harley & al. 16708.

Additional citations: BRAZIL: Bahia: Harley, Renvoize, Erskine, Brighton, & Pinheiro in Harley 15602 (Z), 15756 (Ld), 16708 (Ac); Martius s.n. [in sylvis Catingas prope Maracas, Nov.; Macbride photo 20332] (Mu--124--type, Z--isotype).

LIPPIA RODRIGUEZII Moldenke

Additional bibliography: Moldenke, *Phytologia* 12: 440--441. 1965; Moldenke, *Fifth Summ.* 1: 199 (1971) and 2: 564 & 894. 1971; Troncoso, *Darwiniana* 18: 340 & 410. 1974.

This species has been encountered by recent collectors "entre el pasto", in anthesis in March, April, and September to January, in fruit in January. The corollas are said to have been "orange" on Schwarz 5114 and "yellow" on Schinini & al. 8344.

Through a typographic error, the surname "Schwarz" appears as "Schulz" in *Phytologia* 12: 441 (1965).

Additional citations: ARGENTINA: Corrientes: Schinini, Arbo, González, Ishikawa, & Tressens 8344 (Ld). Misiones: J. E. Montes 14764 (Au--271306, N, Z); G. J. Schwarz 1533 (Ms--34188), 4924 (N), 5030 (N), 5114 (N), 5398 (N), 5634 (N), 5782 (N).

LIPPIA RONDONENSIS Moldenke, *Phytologia* 20: 79. 1970.

Bibliography: Moldenke, *Phytologia* 20: 79. 1970; Anon., *Biol. Abstr.* 52 (3): B.A.S.I.C. S.134. 1971; Moldenke, *Biol. Abstr.* 52: 1316. 1971; Moldenke, *Excerpt. Bot. A.* 18: 445. 1971; Moldenke, *Fifth Summ.* 1: 157 & 183 (1971) and 2: 894. 1971; Heslop-Harrison, *Ind. Kew. Suppl.* 15: 80. 1974; Moldenke, *Phytologia* 38: 398. 1978.

Recent collectors describe this plant as an herb or straggling shrub, 0.5--1 m. tall, and found it in flower in June and July. The corollas are said to have been "pale-violet" on Prance & al. 5847 and "lilac-pink, with yellow throat" on Prance & al. 5351.

Material of this species has been misidentified and distributed in some herbaria as L. alba (Mill.) N. E. Br., to which it is obviously closely related, and as Labiatae sp.

Citations: BRAZIL: Rondonia: Prance, Philcox, Forero, Coêlho, Ramos, & Farias 5351 (Ac, N); Prance, Forero, Wrigley, Ramos, & Farias 6761 (N--type, W--2571128A--isotype). BOLIVIA: Pando: Prance, Forero, Coêlho, Ramos, & Farias 5847 (Mu, N, W--2571127A).

LIPPIA ROSELLA Moldenke, sp. nov.

Suffrutex fragilis basaliter xylopodiiformis; caule solitario gracile usque ad 20 cm. alto tetragono dense puberulo stricto densissime folioso; foliis parvis arcte imbricato-adpressis ellipticis ca. 1 cm. longis 5 mm. latis apicaliter obtuso-subacutis basaliter truncato-subcordatulis marginaliter regulariter serrulatis revolutis utrinque dense puberulis supra impresso-subbullatis; inflorescentiis solitariis apicaliter axillaribus; pedunculo gracile 1.8--2 cm. longo canescenti-puberulo; capitulis solitariis subglobosis multifloris ca. 1.5 cm. latis; bracteis involucrifor-

ibus ovatis perconspicuis arcte imbricatis ca. 7 mm. longis 4 mm. latis apicaliter acutis vel brevissime acuminatis extus puberulis ciliatis.

A brittle subshrub rising from a woody xylopodium; stems usually solitary per season, very slender, about 20 cm. tall, tetragonal, strict and unbranched, densely puberulent throughout, densely leafy (except toward the base); internodes mostly quite regular and abbreviated, 1 cm. long or less; nodes slightly enlarged; leaves very numerous, closely antorsely appressed and imbricate, very uniform, elliptic, small, about 1 cm. long and 5 mm. wide, apically obtuse or subacute, basally truncate or slightly subcordate, marginally regularly serrulate and revolute, densely puberulent on both surfaces, sessile; inflorescence solitary (per season), axillary toward the tip of the season's growth, ascending-erect; peduncles filiform, 1.8—2 cm. long, canescent-puberulent; head solitary, hop-like, small, subglobose, many-flowered, about 1.5 cm. long and wide; bracts forming a distinct basal involucre, large and conspicuous, apparently reddish or purplish when fresh, ovate, closely imbricate in many series, about 7 mm. long and 5 mm. wide, apically acute or very shortly cuspidate, marginally ciliate, externally puberulent; corolla hypocrateriform, rose-pink, its tube equaling the subtending bract, the limb 2—2.5 mm. wide.

The type of this curious little species was collected by H. S. Irwin, S. F. de Fonsêca, R. Souza, R. Reis dos Santos, and J. Ramos (no. 28442a) -- as a mixture with their no. 28442, L. hederæfolia Mart. & Schau. -- in cerrado in an area of cerrado and campo ca. 3 km. north of São João da Chapada, on the road to Inhaí, at 1200 m. altitude, in the Serro do Espinhaco, on the Planalto do Brasil, Minas Gerais, Brazil, on March 29, 1970, and is deposited in my personal herbarium.

Citations: BRAZIL: Minas Gerais: Irwin, Fonsêca, Souza, Reis dos Santos, & Ramos 28442a (Z--type).

LIPPIA ROSMARINIFOLIA Anderss., Ver. Akad. Handl. Stockh. 1853: 198. 1854.

Synonymy: Lippia rosmarinifolia var. rosmarinifolia Moldenke in Wiggins & Porter, Fl. Galáp. Isls. 491 & 493, fig. 129c. 1971.

Additional & emended bibliography: Anderss., Vet. Akad. Handl. Stockh. 1853: 198. 1854; Hocking, Excerpt. Bot. A.12: 424. 1967; Moldenke, Phytologia 14: 414--415. 1967; Moldenke, Résumé Suppl. 15: 4. 1967; Colinvaux, Schofield, & Wiggins, Science 162: 1144. 1968; Moldenke, Biol. Abstr. 49: 1325. 1968; Moldenke in Wiggins & Porter, Fl. Galáp. Isls. 491--494, fig. 129c. 1971; Wiggins & Porter, Fl. Galáp. Isls. 253 & 989. 1971; Eliasson, Bot. Notiser 125: 53, 55, & 57. 1972; Balgooy, Pacif. Fl. Areas 3: 244. 1975; Van der Werff, Bot. Notiser 130: 96. 1977.

Illustrations: Moldenke in Wiggins & Porter, Fl. Galáp. 491, fig. 129c. 1971.

Howell refers to this plant as shrubby, 3--5 feet tall, the branches loosely spreading, the stems arching and growing toward the ground, and, when lodged in suitable crevices, rooting to form new

plants -- if the stem does not root directly it creeps along the surface of the rock in prostrate condition. Wiggins & Porter describe it as a slender shrub, 2--3 m. tall, with more or less arcuate branches, while Wiggins & Duncan call it a slender tree, 8 m. tall, the trunk 1 dm. in diameter 1 m. from the ground.

The corollas are said to have been "pale creamy-yellow or flesh-color" on Howell 9448 and "white" on Wiggins & Porter 255. Collectors have found it growing on cinder ridges, at 125--470 m. altitude, flowering in January and May.

Fosberg describes the plant as a "shrub 1--2 m. tall (others seen tree-like, to 4 m.)", the flowers pinkish to yellowish-pink, and found it growing on the southwest slope of Narborough island, where it was "common in [a] broad green strip running from [the] summit to [the] sea, on well vegetated aa lava with pumice in the cavities", at 300 m. altitude, flowering in February. Eliasson found it at 400--450 m. altitude "among patches of old lava weathered into gravel with sparse vegetation, with Alternanthera filifolia, Froelichia nudicaulis ssp. lanigera, Jasminocereus thouarsii var. sclerocarpus, etc., and on caldera with such other dominant trees and shrubs as Bursera graveolens, Croton scouleri, Scalesia microcephala, and Macraea laricifolia; also on tufa cones". Wiggins & Porter (1971) report that it is sometimes host to Phoradendron henslovii (Hook. f.) Robinson.

Van der Werff (1977) feels that the stewarti form, which see, is only the juvenile form of the species.

The Howell 9585, distributed as typical L. rosmarinifolia, appears better regarded as f. stewarti (Moldenke) Moldenke.

Additional citations: GALAPAGOS ISLANDS: Albemarle: J. T. Howell 9448 (Gg--262952, Gg--462954, Gg--462966); Wiggins & Porter 255 (Z). James: Wiggins & Duncan 278 (W--2813285). Narborough: F. R. Fosberg 45014 (Ac).

LIPPIA ROSMARINIFOLIA var. LATIFOLIA Moldenke

Additional bibliography: Hocking, Excerpt. Bot. A.12: 424. 1967; Moldenke, Phytologia 14: 415. 1967; Moldenke, Résumé Suppl. 15: 4. 1967; Moldenke, Biol. Abstr. 49: 1325. 1968; Moldenke, Fifth Summ. 1: 138 (1971) and 2: 894. 1971; Moldenke in Wiggins & Porter, Fl. Galáp. Isls. 493 & 494. 1971; Wiggins & Porter, Fl. Galáp. Isls. 989. 1971; Vander Werff, Bot. Notiser 130: 96. 1977.

Wiggins & Porter describe this plant as a slender tree, 8 m. tall, with a trunk diameter to 10 cm. at 1 m. above the ground, growing on ridges at 470 m. altitude, flowering and fruiting in February. Vander Werff (1977) says "L. rosmarinifolia var. latifolia, described from Santiago, also has entire or obscurely toothed leaves when mature and lobed leaves when juvenile".

Additional citations: GALAPAGOS ISLANDS: James: Wiggins & Porter 278 (Z).

LIPPIA ROSMARINIFOLIA f. **STEWARTI** (Moldenke) Moldenke, stat. nov.

Synonymy: Lippia rosmarinifolia var. stewartii Moldenke, Phytologia 2: 415—416. 1948. Lippia rosmarinifolia var. stewartii Moldenke in Wiggins & Porter, Fl. Galáp. Isls. 492 & 494. 1977.

Additional bibliography: Moldenke, Phytologia 14: 415. 1967; Moldenke, Fifth Summ. 1: 138 (1971) and 2: 564 & 894. 1971; Moldenke in Wiggins & Porter, Fl. Galáp. Isls. 492 & 494. 1971; Wiggins & Porter, Fl. Galáp. Isls. 989. 1971; Van den Werff, Bot. Notiser 130: 96. 1977.

Howell reports that the stems in this plant may layer (as they do on the typical form), the tips rooting when they touch the ground, creating a shrubby tangle difficult to traverse. He maintains that only the juvenile leaves are lobed, and found the plant growing at 2500 feet altitude. Actually, the type specimen, with distinctly pinnately lobed leaves, is in full anthesis, certainly not "juvenile" in the usual sense of that word. Van den Werff (1977) also feels that this form is not taxonomically valid. He says "Moldenke.....gives as diagnostic characteristics for var. rosmarinifolia: leaves entire or obscurely toothed. Var. stewartii is described as having pinnately lobed leaves. Howell, on the label of his collection.....states that the juvenile leaves are lobed. My own field observations confirm this: van der Werff 2337 is a juvenile, non-flowering plant from the coast below Volcán Alcedo, and has distinctly lobed leaves. All flowering Lippia plants in the area had entire leaves. Apparently L. rosmarinifolia keeps the lobed leaves longer on the top of the volcanoes than in the coastal areas, but such plants with juvenile, lobed leaves do not deserve taxonomic recognition."

Additional citations: GALAPAGOS ISLANDS: Albemarle: J. T. Howell 9585 (Gg—462946, Gg—462947).

LIPPIA ROTUNDIFOLIA Cham.

Additional bibliography: Buek, Gen. Spec. Syn. Candoll. 3: 266. 1858; T. Peckolt, Bericht. Deutsch. Pharm. Gesell. 14: 471. 1904; Moldenke, Phytologia 12: 443—445. 1965; Moldenke, Fifth Summ. 1: 157 (1971) and 2: 543, 564, 568, & 894. 1971; Troncoso, Darwiniana 18: 339 & 410. 1974; Moldenke, Phytologia 31: 385 (1975) and 39: 162. 1978.

Recent collectors describe this plant as a shrub or small subshrub, 0.5—2 m. tall, erect, or as an "herb with rather lignified shoots to 1.5 m." long, the leaves apically acute or subacute, and have found it growing in red sandy loam or vermillion soil, in rocky campo, cerrado, cerrado with many shrubs, tall savanna woodland, "cerrado woodland on deep red latosol", and in moist parts of campo near roadways, at 1050—1100 m. altitude, flowering in May, June, and August to October, and fruiting in June, September, and October. The corollas are said to have been "lilac" on Hatschbach 36987 and Taxonomy Class Univ. Bras. 92, "pale-lilac" on Murça Pires 57939, "rose" on Hatschbach 27021 & 29926, and "mauve-purple with yellow throat" on Ratter & al. 2600.

Peckolt (1904) reports that L. rotundifolia is used as an aromatic in parts of Brazil.

Material of this species has been misidentified and distributed in some herbaria as L. lacunosa Mart. & Schau. or as Hyptis sp. On the other hand, the W. R. Anderson 9747, Hunt & Ramos 6256, A. Lutz 1095, Martius s.n. [in campis editis deserti, Jul. 1818], Murça Pires, Silva, & Souza 9409, and Pohl s.n. [in Brasilia], distributed as L. rotundifolia, are all L. lacunosa Mart. & Schau., while Carmo & Macedo s.n. [Macedo 5411] is Hyptis sp. in the Lamiaceae.

Additional citations: BRAZIL: Distrito Federal: Hatschbach 36987 (Ld); Lindeman & Haas 6031 (Ld); Ratter, Fonsêca, & Castro R.2600 (N); Taxonomy Class Univ. Bras. 92 (W—2757739). Minas Gerais: Duarte 8079 [Herb. Jard. Bot. Rio Jan. 122466] (N); Hatschbach 27021 (Ld, N, W—2744641), 29926 (Ld, N); Macedo 3773 (E—1647189); Martius 1036 (Mu—126, Mu—127), s.n. [in campis ad fl. Arassuahy et prope Munbucas in desertis] (Mu—125); Murça Pires 57939 (N, W—2571101A). MOUNTED ILLUSTRATIONS: Schau. in Mart., Fl. Bras. 9: pl. 39 (sin.). 1851 (N, Z).

LIPPIA RUBIGINOSA Schau.

Additional bibliography: Buek, Gen. Spec. Syn. Candoll. 3: 266. 1858; Moldenke, Phytologia 14: 415. 1967; Angely, Fl. Anal. & Fitogeogr. Est. S. Paulo, ed. 1, 4: 835 & xi. 1971; Moldenke, Fifth Summ. 1: 157 (1971) and 2: 564, 565, & 894. 1971; Moldenke, Phytologia 25: 229. 1973; Troncoso, Darwiniana 18: 337. 1974.

Troncoso (1974) cites this species as the lectotype of the Section Goniostachyum Schau., a section which she fully describes there and circumscribes geographically. The Angely (1971) reference in the bibliography above is often cited by the incorrect title-page date "1970".

Recent collectors describe L. rubiginosa as a shrub, 1 m. tall, and have encountered it on the "outer edge of river terraces along shore, top edge of terrace before few-meter descent to river", at 150 m. altitude, flowering in February. They report the vernacular name, "alecrim". The corollas are said to have been "white" on Eiten & Eiten 10730.

Additional citations: BRAZIL: Maranhão: Eiten & Eiten 10730 (N, W—2700166).

LIPPIA RUGOSA A. Chev.

Additional & emended bibliography: Meikle in Hutch. & Dalz., Fl. W. Trop. Afr., ed. 2, 2: 432, 436, & 437. 1963; Hepper, Bull. Inst. Fond. Afr. Noire 27: 419 & 495. 1965; Moldenke, Phytologia 14: 412 & 415—416. 1967; Moldenke, Résumé Suppl. 15: 7. 1967; Moldenke, Fifth Summ. 1: 217, 222, & 224 (1971) and 2: 894. 1971; Moldenke, Phytologia 39: 31 & 181. 1978.

Hepper (1965) tells us that this plant is "common in disturbed areas" on the savannas of Northern Nigeria, where the stems are

used as faggots, for building purposes, and in the manufacture of beds. He gives its distribution as "in uplands of Guinea, N. Nigeria, E. & W. Nigeria, and W. Cameroon".

Meikle (1963) reduces to synonymy here the "L. adoensis of F. W.T.A., ed. 1, 2: 270, partly, not of Hochst." and L. nigeriensis Moldenke. He cites the following specimens from the Kew herbarium: GUINEA: Chevalier 20410. NORTHERN NIGERIA: Coombe 9, Hepper 1892, Latilo FHI.37974, Lely 582, MacGregor 429, Meikle 824, Monod 9361 & 9872. SOUTHERN NIGERIA: Hambler 585. CAMEROONS: Hepper 1269, Keay FHI.28522, Latilo & Daramola FHI.28795, Maitland 1697. It has been collected in anthesis from September to January and in fruit in December and January.

LIPPIA RZEDOWSKII Moldenke

Additional bibliography: Moldenke, Biol. Abstr. 47: 6794. 1966; Moldenke, Phytologia 13: 367. 1966; Hocking, Excerpt. Bot. A.11: 103. 1967; Heslop-Harrison, Ind. Kew. Suppl. 15: 80. 1974.

LIPPIA SALAMENSIS Loes.

Additional bibliography: Moldenke, Phytologia 12: 448--449. 1965; Gibson, Fieldiana Bot. 24 (9): 207 & 213. 1970; Moldenke, Fifth Summ. 1: 80 (1971) and 2: 894. 1971.

Gibson (1970) feels that L. jurgenseni Briq. may be conspecific with L. salamensis, but I regard it as a synonym of L. pringlei Briq.

LIPPIA SALICIFOLIA Anderss.

Additional bibliography: Moldenke, Phytologia 14: 415 & 416. 1967; Moldenke, Fifth Summ. 1: 138, 183, & 186 (1971) and 2: 894. 1971; Moldenke in Wiggins & Porter, Fl. Galáp. Isls. 492--494. 1971; Wiggins & Porter, Fl. Galáp. Isls. 989. 1971; Balgooy, Pacific Pl. Areas 3: 244. 1975.

LIPPIA SALSA Griseb.

Additional bibliography: V. J. Chapm., Salt Marshes & Salt Deserts, ed. 1, 265 & 381. 1960; Ruiz Leal, Revist. Facult. Cienc. Agrar. Mendoza 11: 170, 172, & 173, fig. 7. 1964; Moldenke, Phytologia 12: 450--452. 1965; Ruiz Leal, Biol. Abstr. 49: 3256. 1968; Moldenke, Fifth Summ. 1: 199 (1971) and 2: 894. 1971; V. J. Chapm., Salt Marshes & Salt Deserts, ed. 2, 265 & 381. 1974; Troncoso, Darwiniana 18: 334, 338, & 410. 1974.

Additional illustrations: Ruiz Leal, Revist. Facult. Cienc. Agrar. Mendoza 11: 172, fig. 7. 1964.

Recent collectors describe this plant as a subshrub, 30 cm. tall, with spreading branches, and have encountered it at 240 m. altitude, flowering in January.

Troncoso (1974) cites Covas 18541 in the San Isidro herbarium and gives the distribution of the species in Argentina as Córdoba, Santiago del Estero, Tucumán, La Rioja, and Mendoza. The corollas are said to have been "white" on Cabrera & al. 16651 and on Krapo-

vickas & Cristóbal 17766.

Additional citations: ARGENTINA: Córdoba: Cabrera, Solbrig, Torres, & Vuillemier 16651 (S); Ellenberg 4410 (Ld). Mendoza: Krapovickas & Cristóbal 14569 (Z); Ruiz Leal 9099 (Tu—162096); Semper s.n. [5/III/1944] (N). Santiago del Estero: Krapovickas & Cristóbal 17766 (Ld); T. Meyer 12800 (N).

LIPPIA SALVIAEFOLIA Cham.

Additional & emended bibliography: Buek, Gen. Spec. Syn. Candoll. 3: 266. 1858; Briq. in Chod. & Hassl., Bull. Herb. Boiss., ser. 2, 4: [1155]—1156. 1904; Briq. in Chod. & Hassl., Pl. Hassler. 2: [481]—492. 1904; R. C. Foster, Contrib. Gray Herb. 184: 170. 1958; Moldenke, Phytologia 14: 416. 1967; Moldenke, Résumé Suppl. 15: 21. 1967; Angely, Fl. Anal. & Fitogeogr. Est. S. Paulo, ed. 1, 4: 835, 836, & xi. 1971; Moldenke, Fifth Summ. 1: 157 & 199 (1971) and 2: 549, 563, 565, 566, & 894. 1971; Moldenke, Phytologia 24: 136. 1972; Troncoso, Darwiniana 18: 335, 337, & 410. 1974; Moldenke, Phytologia 39: 82. 1978.

Recent collectors refer to this plant as a shrub, 0.8—3 m. tall, or branched and subprostrate, the stem to 2 cm. in diameter 1 m. above the ground, and the flowers fragrant. They have found it growing in rocky soil, cerrado, and among cutover cerrado vegetation, as well as on roadside banks in cerrado areas, at 500—1200 m. altitude, flowering from February to April and in November and December. Anderson and his associates encountered it "in forest in areas of sloping rocky cerrado bordered by forest along streams and by grassy recently burned campo, in sandy soil and sandstone".

The corollas are said to have been "white" on Anderson & al. 36169, Eiten & al. 6026, Fiebrig 4234, Hassler 6720, Pereira 10760, Schulz 7107, and Schwarz 3456, "white, the tube yellow within" on Irwin & al. 28042, and "cream-white" on Leitão & al. 4301.

The Angely (1971) reference cited in the bibliography above is sometimes cited as published in 1970, the erroneous titlepage date. This author recognizes both L. polycephala Briq. and L. salviaefolia Cham. as distinct species; for the former he gives the distribution as Paraguay, Piauí, Minas Gerais, and São Paulo and for the latter Mato Grosso, Minas Gerais, and São Paulo. I regard the two taxa as conspecific. Troncoso (1974) cites Martínez Crovetto 9754 from Misiones in the San Isidro herbarium and gives the geographic distribution of the species as "Brasil austral, Paraguay, Bolivia y NE Argentina: Misiones".

Material of L. salviaefolia has been misidentified and distributed in some herbaria as Lantana sp. and as "Lippia mollis Mart. var." On the other hand, the Martius s.n. [in pascuis ad V. N. da Rainha, Mart.], distributed as L. salviaefolia, is the type collection of L. grata Schau.

Additional citations: BRAZIL: Mato Grosso: Martius 1032 (Mu--127, Mu--1218, Z). Minas Gerais: Anderson, Stieber, & Kirkbride 36169 (Ld, N, W--2709300); Irwin, Fonsêca, Souza, Reis dos Santos, & Ramos 28042 (Ld). São Paulo: Eiten, Eiten, & Mimura 6026 (N, W--2687156); I. S. Gottsberger 47 [8] (Ld), 136 [8] (Ld); Labouriau 57 (W--2548179); Leitão & al. 4301 (N); E. Pereira 10760 [Herb. Brad. 52686] (Mp). PARAGUAY: Fiebrig 4234 (Mu--4148); Hassler 6720 (Ca--944346); Schinini 4349 (Ld). ARGENTINA: Misio-
nes: A. G. Schulz 7107 (N); G. J. Schwarz 3456 (N), 5733 (N).

LIPPIA SANDWITHIANA Moldenke

Additional bibliography: Moldenke, *Phytologia* 12: 456--457. 1965; Moldenke, *Fifth Summ.* 1: 186 (1971) and 2: 894. 1971.

LIPPIA SATUREIAEFOLIA Mart. & Schau.

Synonymy: Lippia saturejaefolia Mart. & Schau. ex Solered., *Syst. Anat. Dicot. Ergänzt.* 255. 1908. Lippia saturaeaeefolia Mart. ex Moldenke, *Phytologia* 36: 44, in syn. 1977.

Additional bibliography: Buek, *Gen. Spec. Syn. Candoll.* 3: 266. 1858; T. Peckolt, *Bericht. Deutsch. Pharm. Gesell.* 14: 470. 1904; Solered., *Syst. Anat. Dicot. Ergänzt.* 255. 1908; J. F. Macbr., *Field Mus. Publ. Bot.* 13 (5): 649. 1960; Moldenke, *Phytologia* 12: 457--458. 1965; Moldenke, *Fifth Summ.* 1: 157 (1971) and 2: 894. 1971; Moldenke, *Phytologia* 23: 433. 1972.

Peckolt (1904) records the vernacular name, "alecrim do mato" (which he translates as "wilder Rosmarin"), for this species.

Additional citations: BRAZIL: Minas Gerais: Martius 1377 [Macbride photos 20333] (Mu--128--type, Z--isotype).

LIPPIA SAVORYI Meikle

Additional & emended bibliography: Meikle in *Hutch. & Dalz., Fl. W. Trop. Afr., ed. 2*, 2: 432, 436, & 437. 1963; Townsend, *Excerpt. Bot. A.7*: 364. 1964; Moldenke, *Phytologia* 14: 417. 1967; Moldenke, *Résumé Suppl.* 15: 6. 1967; G. Taylor, *Ind. Kew. Suppl.* 14: 79. 1970; Moldenke, *Fifth Summ.* 1: 220, 222, 231, & 244 (1971) and 2: 549, 560, 568, & 894. 1971; Hegnauer, *Chemotax. Pfl.* 6 [Chem. Reihe 21]: 661. 1973; Moldenke, *Phytologia* 38: 263 & 266 (1978) and 39: 31, 32, 80, 91, 92, & 181. 1978.

Recent collectors describe this plant as a small, erect, pale-green perennial or annual herb, 12--16 inches tall, strongly aromatic (but not of lemons) and have encountered it on flats of red loamy sand and on dry Acacia savannas, at 2800 feet altitude, flowering in February, March, October, and November, fruiting in March, October, and November. The corollas are said to have been "white" on Merxmüller & Giese 666 and "creamy-white" on Noel 2403. Leistner refers to it as "occasional" in the Transvaal. Kinges notes of his no. 1869 that the leaves are narrower than in no. 1868 and that "the herbs have an overall different appearance". Meikle (1963) notes that the species is related to L. chevalierii Moldenke.

[to be continued]



Moldenke, Harold N. 1978. "Additional notes on the genus *Lippia*. XI." *Phytologia* 39, 434–456. <https://doi.org/10.5962/bhl.part.7623>.

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