

MATERIALS TOWARD A MONOGRAPH OF THE GENUS LIPPIA. XI

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LIPPIA VILLIAFLORIDANA Kuntze

Additional bibliography: Moldenke, *Phytologia* 13: 167—168. 1966.

Rambo (1965) describes this plant as a "Small plant, leaves almost rosette like, stalk of the inflorescence comparatively longer than the stem", growing on "Dry, grassy Campos" in the "Northwestern Highlands only" in Rio Grande do Sul, with a general distribution of "Paraguay, RGS".

In all, 10 herbarium specimens, including type material of most of the names involved, and 5 mounted photographs have been examined by me.

Citations: BRAZIL: Rio Grande do Sul: Castellanos s.n. [Santa Ana do Livramento; Herb. Inst. Miguel Lillo 15763] (N); Rambo 3033 (Rb). PARAGUAY: Kuntze s.n. [Villa Florida, 2/X/92; Macbride photos 17553] (It—photo of isotype, Kr—photo of isotype, N—type, N—photo of isotype, N—photo of isotype, W—photo of isotype). URUGUAY: Castellanos s.n. [cerce Arroyo Catalancito; Herb. Inst. Miguel Lillo 15764] (N), s.n. [Rio Yi; Herb. Inst. Miguel Lillo 15773] (N); Gallinal, Aragone, Bergalli, Campal, & Rosengurttt PE.5171 (N); Legrand 3489 (N), 4524 (N, Ug); Rosengurttt B.4581 (N).

LIPPIA VOLKII Moldenke, *Phytologia* 5: 226—227. 1955.

Bibliography: Moldenke, *Phytologia* 5: 226—227. 1955; Moldenke, *Résumé* 152 & 463. 1959; G. Taylor, *Ind. Kew. Suppl.* 12: 82. 1959; Moldenke, *Biol. Abstr.* 30: 3551. 1956; Anon., *Assoc. Etud. Fl. Afr. Trop. Ind.* 1955: 63. 1956.

Stems apparently long and slender, obtusely tetragonal, more or less longitudinally striate-sulcate, glabrous or minutely puberulous in the sulcations on the younger parts, with rather few short side-branches; nodes annulate; principal internodes 3—8 cm. long; leaves decussate-opposite, usually clustered on greatly abbreviated twigs, usually conduplicate-folded in pressing; petioles very slender, 1—2 mm. long, very minutely puberulous; leaf-blades thin-chartaceous, uniformly grayish-green on both surfaces, oblong or oblong-lanceolate, 2—5 cm. long, 4—10 mm. wide, acute or subacute at the apex, shallowly crenate or subentire, acute at the base, glabrous and densely resinous-punctate on both surfaces; midrib very slender, impressed above, prominulous beneath; secondaries very slender, 5 or 6 per side, arcuate-ascending, not anastomosing at the margins, somewhat impressed above and prominulous beneath; veinlet reticulation sparse, inconspicuous on both surfaces; inflorescence capitate, fasciculate in the twig-axils and uppermost leaf-axils, usually 4 or 6 per node, 1—2.7 cm. long, ascending; peduncles very slender, very minutely puberulous and resinous-punctate, 3—15 mm. long; heads oblong, 5—10 mm. long, 5—7 mm. wide, densely many-flowered, compact, not elongating af-

ter anthesis; bractlets broadly ovate, about 3 mm. long and 2.5 mm. wide, acuminate at the apex, densely puberulent and resinous-punctate, ciliolate along the margins; corolla-tube 3--3.5 mm. long, densely puberulent outside, the limb about 2 mm. wide, densely puberulent on the outer face.

The type of this species was collected by Otto Heinrich Volk -- in whose honor it was named -- somewhere in Southwest Africa in or about 1951 and is deposited in the Staatsherbarium at Munich. In all, 2 herbarium specimens, including the type, have been examined by me.

Citations: SOUTHWEST AFRICA: Volk s.n. (Mu--type, Z--isotype).

LIPPIA WHYTEI Moldenke, Phytologia 1: 428--429. 1940.

Bibliography: Moldenke, Phytologia 1: 428--429 (1940) and 1: 504. 1941; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 1], 51 & 96. 1942; Moldenke, Phytologia 2: 340 & 341. 1947; E. J. Salisb, Ind. Kew. Suppl. 10: 134. 1947; H. N. & A. L. Moldenke, Pl. Life 2: 89. 1948; Moldenke, Alph. List Cit. 2: 585 (1948), 3: 815, 903, & 977 (1949), and 4: 1032, 1049, 1060, 1123, & 1248. 1949; Moldenke, Phytologia 3: 138. 1949; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 115--120 & 191. 1949; Brenan, Mem. N. Y. Bot. Gard. 9 (1): 36. 1954; Moldenke, Résumé 142, 143, 145, 146, 148, 149, & 463. 1959; Moldenke, Phytologia 12: 230, 233, & 307. 1965.

Strongly aromatic herb, shrub, or subshrub, 0.8--2 m. tall; stems and branches slender, obtusely tetragonal, brownish, the younger parts densely short-pubescent with sordid hairs, the older parts puberulent with minute brownish hairs; nodes plainly annulate; principal internodes 1.5--4.5 cm. long; leaves decussate-opposite; petioles 2--5 mm. long, alate-margined, sparsely short-pubescent; leaf-blades firmly chartaceous, dark-green above, lighter beneath, lanceolate or elliptic, 2.5--4 cm. long, 8--18 mm. wide, acute or short-acuminate at the apex, regularly crenulate from the base to the apex, acute or acuminate at the base, bullate and very scabrous above, densely tomentellous with sordid-grayish hairs beneath; midrib, secondaries, and veinlet reticulation deeply impressed above, only the larger portions (midrib and secondaries) prominulous beneath; inflorescence axillary, abundant toward the tips of the branches, a pair in each axil; spikes sessile or subsessile, subcapitate, to about 12 mm. long and 10 mm. wide, very densely many-flowered; bractlets ovate, about 2 mm. long, sharply acute or short-acuminate at the apex, strigose with short sericeous hairs; flowers very small, hardly surpassing the bractlets, described as green, white, or purple; fruit brown, dry.

The type of this species was collected by Alexander Whyte -- in whose honor it was named -- in northern Malawi, and is deposited in the Britton Herbarium at the New York Botanical Garden. It was originally confused with Lantana rugosa Thunb. of South Africa, which has long-pedunculate heads and fleshy fruit. It has been found growing in sandy soil, open forests, and alluvial soil at river edges, at altitudes of 1330 to 2500 meters, flowering in January, February, May, and August to October, fruiting in

March, May, September, and October. Dümmer refers to it as "locally frequent" in Uganda. A vernacular name recorded for it is "kengekoudet". The flowers are described as "white" on Dümmer 3736 and Garcia 315, "green" on T. H. E. Jackson 423, and "purple" on Borle 306.

Brenan (1954) reduces L. whytei to synonymy under L. javanica (Burm. f.) Spreng., saying "this plant appears to me to be scarcely more than a narrow-leaved, subsessile-flowered form of L. javanica."

Material has been misidentified and distributed in herbaria under the names L. adoensis Hochst., L. africana Moldenke, L. asperifolia A. Rich., "L. asperifolia Rich. vel forma", L. capensis (Thunb.) Spreng., L. javanica (Burm. f.) Spreng., L. oatesii Rolfe, and Lantana salviaefolia Jacq. In all, 31 herbarium specimens, including the type, and 4 mounted photographs have been examined by me.

Citations: CONGO LEOPOLDVILLE: Quarre 87 (N), 1146 (Br), 1950 (Br), 4486 (Br, N), 5240 (Br, N), 5384 (Br); "J. F. W." 469 (Br). UGANDA: Dümmer 3736 (W—1172961). TANGANYIKA: Piemeisel & Kephart 513 (W—1373312); Rounce 231 (K); Schlieben 319 (Br). KENYA: T. H. E. Jackson 423 (K); Mearns 256 (W—630270); Piemeisel & Kephart 52 (W—1373488). ZAMBIA: Borle 306 (Af, W—1028994). SOUTHERN RHODESIA: N. C. Chase 208 [Govt. Herb. Salisbury 14735] (K); Herb. Albany Mus. 3 (K); A. Peter 30691 [V.21] (B), 45347 [C.23] (B). MALAWI: McClounie 67 (K); Stolz 351 (S, W—633750); Whyte s.n. (F—photo of type, K—isotype, N—type, N—photo of type, Sg—photo of type, W—550845—isotype, Z—photo of type). PORTUGUESE EAST AFRICA: Manice e Sofala: Garcia 315 (Ul). Niassa: R. Monteiro 34 (Ul). Zambezia: Torre 3637 (Ul).

LIPPIA WILMSII H. H. W. Pearson in Thiselt.-Dyer, Fl. Cap. 5: 196. 1901.

Synonymy: Lippia africana Moldenke, Phytologia 2: 469. 1948. Lantana ochroleuca Dinter ex Moldenke, Résumé 306, in syn. 1959.

Bibliography: H. H. W. Pearson in Thiselt.-Dyer, Fl. Cap. 5: 196. 1901; A. W. Hill, Ind. Kew. Suppl. 6: 117. 1926; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 1], 52 & 96. 1942; Moldenke, Alph. List Invalid Names 29. 1942; H. N. & A. L. Moldenke, Pl. Life 2: 89. 1948; Moldenke, Phytologia 2: 469 & 483 (1948) and 3: 77. 1949; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 121, 122, 189, & 191. 1949; Moldenke, Phytologia 3: 292 & 293 (1950) and 3: 456—458. 1951; Wild, Victoria Falls Handb. 158. 1953; E. J. Salisb., Ind. Kew. Suppl. 11: 138. 1953; Moldenke, Phytologia 5: 98. 1954; Moldenke, Inform. Mold. Set 49 Spec. 2 (1954) and 51 Spec. 3. 1956; Moldenke, Résumé 145, 148—150, 153, 154, 306, 308, & 463. 1959; Moldenke, Résumé Suppl. 1: 10 (1959), 3: 16 & 33 (1962), and 12: 6, 7, & 11. 1965; Moldenke, Phytologia 12: 98, 172, 212, 229, 231, 232, 358, 436, 458, 459, 461, & 462. 1965;

Wild, *Kirkia* 5: 4. 1965.

Suffrutescent herb, undershrub, subshrub, or erect aromatic shrub, 0.5—1 m. tall; rootstock perennial; stems terete or subangular, scabrid-pubescent, glandular; branches rather slender, rather obtusely tetragonal, strigose with whitish antrorse hairs and rather densely resinous-granular; nodes annulate; principal internodes 3—5.8 cm. long; leaves decussate-opposite, sweet-scented when crushed, with the odor of lemon-rind, usually with a cluster of smaller ones on much abbreviated twigs in their axils; petioles very slender, 1—3 mm. long, antrorsely strigose and resinous-granular like the branches; leaf-blades chartaceous, bright-green on both surfaces, elliptic to narrowly elliptic or elliptic-oblong, 2.5—7.5 cm. long, 0.8—1.6 cm. wide, obtuse or subacute to acute at the apex, serrate or regularly appressed-serrate along the margins, acute at the base and cuneately narrowed into the petiole, rugose, scabrid-pubescent or strigose above with bulbous-based antrorse hairs and subbullate, densely short-pubescent and densely resinous-granular beneath or scabrid-pubescent only on the larger venation beneath and elsewhere glabrous but densely punctate (glandular-punctate); midrib very slender, impressed above, prominent beneath; secondaries 2—7 per side, very slender, ascending or arcuate-ascending, impressed above, prominent or only the larger parts prominulous beneath; inflorescence spicate, abundant, 2 or 3 per node, usually borne at each of the upper 8 or more nodes, surpassing the subtending leaves; peduncles slender, terete below, tetragonal upwards, 2—4.5 cm. long, striate, pubescent or scabrid-pubescent and glandular to densely strigillose and resinous-granular, rarely terminated by 2 equal divergent spikes; floriferous spikes subglobose or subcapitate, solitary or in pairs, elongating later to 1.4 cm, 6—9 mm. wide, densely many-flowered; bractlets narrowly ovate or ovate, acuminate or attenuate-acuminate at the apex, truncate at the base, pubescent and glandular or densely strigose and resinous-granular, the outer ones 8 mm. long and 2.5 mm. wide, the inner ones 5—6 mm. long and 1.5—2 mm. wide; flowers small; calyx 1.5—3.5 mm. long, distinctly 4-veined, pubescent outside, glabrous within, the rim truncate or obscurely 4-toothed; corolla hypocrateriform, yellow, pale yellowish-white, or white to violet, 5—6 mm. long, about twice as long as the calyx, usually subequaling the subtending bractlet, the tube pubescent on the upper portion outside or puberulent-granular at the apex on the back, more densely so in the lateral regions, glandular, glabrous within, the limb 1.5—2 mm. wide, the lobes entire, the anterior one larger; ovary and style together 3—3.5 mm. long; fruit shortly oblong, 2 mm. long, 1—1.5 mm. wide, plano-convex, flattened at the commissure, smooth or very delicately sculptured, glabrous.

The type of this perplexing species was collected by Frederick Wilms (no. 1180) -- in whose honor it was named -- near Lydenburg, Transvaal, South Africa. The type of *L. africana* was collected by Erik Wall also in the Transvaal, on October 3, 1938, and is deposited in the herbarium of the Naturhistoriska Riksmuseum at

Stockholm. The type of Lantana ochroleuca was gathered by Kurt Dinter (no. 5482) in January in Southwest Africa and is deposited in the herbarium of the Botanisches Museum at Berlin.

The species has been found growing in bankenveld and bush on quartzite ridges, herbaceous savannas, gallery forests, Acacia savannas, subtropical gum woodlands, grasslands and grassveld, grassveld with scattered trees and annual fires, burned grassland, and river valleys, on open hillsides and recently fireswept slopes, at altitudes of 480 to 1500 meters, flowering from October to February and in April and August, fruiting from October to December. Rattray calls it a "common shrub in open", Tanner says of it "growing in groups on loam and gravel", while on Herb. Centr. Research Stat. Mazabuka 186 we read "common, not grazed, suspected of causing acute gastro-enteritis". A vernacular name is "ubugorora".

The flowers are described as "violet" on Troupin 5702, "yellow" on N. C. Chase 1885 and Eyles 8770, "pale yellowish-white" on Meeuse 9029, and "white" on Acock 8373, L. E. Codd 4904, Eyles 5228, Liebenberg 2762, H. M. Lloyd 46, and Meeuse 9236.

Pearson (1901) distinguishes this species from some related South African ones as follows:

1. Calyx distinctly 2-lobed.
2. Bractlets more than 4 mm. long and 3 mm. wide, surpassing the flowers.....L. scaberrima.
- 2a. Bractlets less than 4 mm. long and 3 mm. wide, not surpassing the flowers.....L. javanica.
- 1a. Calyx truncate, subtruncate, or obscurely lobed.
3. Leaf-blades serrate or crenate-serrate.
4. Bractlets more than 4 mm. long; calyx truncate or obscurely 4-toothed.....L. wilmsii.
- 4a. Bractlets less than 4 mm. long; calyx obscurely 2-lobed.....L. rehmanni.
- 3a. Leaf-blades crenate.....L. pretoriensis.

Meeuse, in a letter to me dated December 9, 1953, says: "The Lippia material is extremely variable and some of Pearson's species definitely must be sunk. His calyx-character (distinctly lobed or indistinctly lobed to truncate) is useless, to my mind, so that L. wilmsii cannot on very good grounds be separated from L. scaberrima, and the three L. rehmannii-bazeiana-pretoriensis are also very close." In a letter dated September 28, 1953, he says: "I am inclined to believe that Pearson's L. rehmanni, L. wilmsii, L. bazeiana and L. pretoriensis can hardly be different from 'L. asperifolia' (= L. javanica)".

Miss J. L. Warren, in a letter to me dated July 5, 1961, says: "Three species of Lippia are found in the area, Lippia javanica (Burm. f.) Spreng., Lippia scaberrima Sond., and Lippia wilmsii Pearson. The first two are easily distinguishable using bract characteristics as in Flora Capensis but I do not consider the

criteria used in *Flora Capensis* to distinguish *Lippia wilmsii* Pearson infallible. I have studied the records of *Lippia* in the National Herbarium, Pretoria, amongst which are specimens personally identified by you, but I am still not satisfied as to the characteristics which have been used to separate *Lippia wilmsii* Pearson from *Lippia javanica* (Burm. f.) Spreng."

Material of *L. wilmsii* has been misidentified and distributed in herbaria under the names *L. asperifolia* Hochst., *L. asperifolia* Rich., *L. bazeiana* H. H. W. Pearson, *L. pedunculata* H. H. W. Pearson, *L. scaberrima* Sond., and *Lantana salvifolia* Jacq. On the other hand, the Troupin 6014 & II.832, distributed as *L. wilmsii*, are var. *villosa* (Moldenke) Moldenke, Troupin II.670 is *L. grandifolia* Hochst., and J. Buchanan 1381 and Shantz 267 are *L. woodii* Moldenke.

Pearson (1901) cites the following: KENYA: Scott-Elliot 6484. ZAMBIA: Cecil 219. MALAWI: J. Buchanan 1381; Whyte s.n. [Mount Zomba, 4000—6000 ft.]. SOUTH AFRICA: Transvaal: Wilms 1180.

In all, 67 herbarium specimens, including type material of all the names involved, and 10 mounted photographs have been examined by me.

Citations: RUANDA & URUNDI: Troupin 5702 (N), 8755 (N), 8871 (H—206785). TANGANYIKA: H. M. Lloyd 46 (K); Tanner 4562 (S). ZAMBIA: C. E. F. Allen 324 (Af, K, Rh); Herb. Centr. Research Stat. Mazabuka 186 (Af, Cb), 248 (Af). SOUTHERN RHODESIA: N. C. Chase 678 [Govt. Herb. Salisbury 20486] (N), 1885 (Rh—27086); F. Eyles 5228 (Rh), 8770 (K); J. C. Hopkins s.n. [15/11/37] (Rh—6632); Obermeyer 2238 (Af); A. J. Teague 186 (K); J. A. G. Walker 2427 (Rh); O. West 2286 (Rh—25384); Wild 2069 (Rh—17950). MALAWI: J. Buchanan 136 (N), 765 (W—248231, W—807104). PORTUGUESE EAST AFRICA: Mozambique: A. Peter 51166 [S.66] (B); Rattray 1103 (Rh—19549). SOUTHWEST AFRICA: Baum 250 (F—photo, K, N, N—photo, Sg—photo, Z—photo); Dinter 5482 (Af, B, Br, N, S). SOUTH AFRICA: Cape of Good Hope: J. P. H. Acock 8373 (N, S). Transvaal: Breyer s.n. [Herb. Transvaal Mus. 18325] (Af); L. E. Codd 3371 (Ss), 4904 (Ss); E. E. Galpin 578, in part (Af), 9411 (Af); Haptröm & Acock 1321 (S), 1324 (S, S); Kassner 139 (Br); H. Lang s.n. [Herb. Transvaal Mus. 32208] (Tm); Leendertz 1322 [Herb. Transvaal Mus. 5587] (Af), 2202 [Herb. Transvaal Mus. 7326] (Af, Cb), s.n. [20.X.1909] (Cb); L. C. C. Liebenberg 2762 (Af), 3187 (Af); Marloth 5448a (Af); Meese 9029 (Af), 9236 (Z); Mes s.n. [10.1917] (Cb); Nogg 14129 (Af); Pott 5648 (Cb); F. A. Rogers 25077 [Herb. Transvaal Mus. 20966] (Af); Schweickerdt 1299 (Af, Cb); C. A. Smith 744 (Af); E. Wall s.n. [1/10/1938] (N, S), s.n. [3/10/1938] (F—photo, K—photo, N—photo, S, Si—photo, Z—photo), s.n. [20/10/1938] (N, S); Wilms 1180 [Herb. Transvaal Mus 5889] (Af—isotype, N—photo of type).

LIPPIA WILMSII var. SCABERRIMA (Moldenke) Moldenke, Phytologia 4: 179. 1953.

Synonymy: Lippia africana var. scaberrima Moldenke, Phytologia 3: 38--39. 1948.

Bibliography: Moldenke, Phytologia 3: 38--39 (1948) and 3: 77 & 138. 1949; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 120, 122, & 189. 1949; Moldenke, Phytologia 3: 458 (1951) and 4: 179. 1953; Moldenke, Biol. Abstr. 27: 1887 & 2026. 1953; Hauman, Assoc. Etud. Tax. Fl. Afr. Trop. Index 1954; Moldenke, Résumé 149, 154, & 463. 1959; Moldenke, Résumé Suppl. 3: 16 & 33. 1962.

This variety differs from the typical form of the species in its leaf-blades being to 10 cm. long and 3.5 or more cm. wide, very scabrous above with decidedly bulbous-based hairs, and the spreading-hirsute hairs on the branches, branchlets, peduncles, bractlets, and calyx also being bulbous-based and interspersed in the inflorescence with resinous granules. It is described by Rodin as a bush, 1 m. tall, with white flowers and purple fruit.

The type of the variety was collected by P. Krook [Penther 1765] along the Tsitsa River, Griqualand East, South Africa, on January 22, 1895, and is deposited in the herbarium of the Naturhistoriska Riksmuseum at Stockholm. The plant has been found in mountainous areas with many springs and streams, with some wooded and some grassy areas on basically dolomites and limestone covered with deep humus in many places, flowering from December to February, fruiting in February, at altitudes of 6000 to 7000 feet.

Material has been misidentified and distributed in herbaria as Lantana salvifolia Jacq. In all, 5 herbarium specimens, including type material of both names involved, and 4 mounted photographs have been examined by me.

Citations: SOUTHERN RHODESIA: R. G. N. Young 882 (Rh). MALAWI: Whyte s.n. [Nyika Plateau] (K). SOUTH AFRICA: Cape of Good Hope: Krook s.n. [Penther 1765] (F--photo of type, N--isotype, N--photo of type, S--type, Si--photo of type, Z--photo of type). Transvaal: Rodin 3871 (Ca--802252).

LIPPIA WILMSII var. VILLOSA (Moldenke) Moldenke, Phytologia 4: 180. 1953.

Synonymy: Lippia africana var. villosa Moldenke, Phytologia 2: 469--470. 1948. Lippia wilmsii var. tomentosa Moldenke, Résumé 145 & 463, nom. nud. 1959.

Bibliography: Moldenke, Phytologia 2: 469--470 & 482 (1948) and 3: 137. 1949; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 116, 118, 119, & 189. 1949; Moldenke, Phytologia 3: 292 (1950), 3: 456--458 (1951), and 4: 180. 1953; Moldenke, Biol. Abstr. 27: 1887 & 2026. 1953; Hauman, Assoc. Etud. Tax. Fl. Afr. Trop. Index 1954; Moldenke, Résumé 142, 143, 145, 146, 148, 149, & 463. 1959; Moldenke, Résumé Suppl. 3: 16 & 33 (1962) and 12: 6, 7, & 11. 1965.

This variety differs from the typical form of the species in the villous pubescence on its branches, twigs, petioles, leaf-

blades, peduncles, and bractlets, and in its larger flowering-heads, the heads being to 13 mm. wide and the bractlets to 7 mm. long. It is described by collectors as a suffrutescent perennial herb, 30—60 cm. tall, erect, many-stemmed, with a taproot and thick rootstock; sap colorless; flowers aromatic; corollas white or yellowish-white to pale-yellow, yellow, yellowish-brown, or primrose-yellow.

The type of the variety was collected by Ake Holm (no. 32) on a steppe on the western side of Mount Elgon, at an altitude of 2200 meters, Uganda, on March 20, 1938, and is deposited in the herbarium of the Naturhistoriska Riksmuseum at Stockholm. Collectors have found the plant on steppes, deforested cattle-grazed hills in laterite soil sloping down to winding rivulets with a long fringe of trees, in grasslands and coppices, on dry open burned ground, in *Brachystegia* forests, and in gravel and stone on hillsides, at altitudes of 1400 to 2200 meters, flowering in March, May, and September to November. Quarré refers to it as "herbacée de 4/8 cm. de haut, racine souche ligneuse vivace, poussant 4 semaines après le passage des feux de brousse, début de végéta." Vernacular names recorded for it are "ubugorama" and "ubukorama".

Material has been misidentified and distributed in herbaria under the names *Lippia africana* Moldenke, *L. asperifolia* Rich., and *L. wilmsii* H. H. W. Pearson.

The flowers are described as "yellow" on Troupin 6014, "pale-yellow" on Troupin II.832, "yellowish-brown" on Tanner 1692, "white" on J. C. Hopkins s.n., "yellowish-white" on Maas-Geesteranus 4786, and "primrose-yellow" on Milne-Redhead 1155.

In all, 19 herbarium specimens, including type material of all the names involved, and 5 mounted photographs have been examined by me.

Citations: CONGO LEOPOLDVILLE: Cabu 66 (Br); Quarré 3531 (Br, Br, N). RUANDA: Troupin 6014 (W—2375316), II.832 (W—2375269). UGANDA: Holm 32 (F—photo of type, K—photo of type, N—isotype, N—photo of type, S—type, Si—photo of type, Z—photo of type). TANGANYIKA: Lynes D.15 (K), D.16 (K); Tanner 1692 (Ca—183151). KENYA: Maas-Geesteranus 4786 (Ca—92086, S); Thorold 2733 (K). ANGOLA: Huila: Dekindt 710 (Ul); E. J. Mendes 762 (Ul). ZAMBIA: E. Milne-Redhead 1155 (Br, K). SOUTHERN RHODESIA: J. C. Hopkins s.n. [15.12.40] (Rh—7863).

LIPPIA WOODII Moldenke, *Phytologia* 2: 318—319. 1947.

Bibliography: Moldenke, *Phytologia* 2: 318—319 & 341. 1947; Moldenke, *Known Geogr. Distrib. Verbenac.*, [ed. 2], 120, 122, & 191. 1949; Moldenke, *Alph. List Cit.* 3: 931 (1949) and 4: 1025, 1038, 1071, 1140, & 1191. 1949; Moldenke, *Phytologia* 3: 458. 1951; E. J. Salisb., *Ind. Kew. Suppl.* 11: 138. 1953; Moldenke, *Résumé* 149, 154, & 463. 1959.

Low herbaceous plant; stems subterete toward the base, subtet-

ragonal toward the apex, mostly unbranched, densely puberulent, less densely so in age; nodes not annulate; principal internodes 3--14.5 cm. long; leaves decussate-opposite, few, very fragrant, usually with a very much abbreviated branchlet and a few small leaves in their axils; petioles slender, 1--5 mm. long, strigose-puberulent; leaf-blades chartaceous, rather grayish-green on both surfaces, apparently erect on the stem, narrowly elliptic, 4--6 cm. long, 8--12 mm. wide, scabrous and subbullate above, densely puberulent or short-pubescent beneath; midrib slender, impressed above; secondaries very slender, 4--6 per side, impressed above, ascending, not much arcuate, prominulous beneath; veinlet reticulation impressed above, prominulous beneath; inflorescence capitate-spicate, 2 per node at the uppermost 2 or 3 nodes, about equaling the subtending leaves; peduncles slender, 2--4.5 cm. long, densely short-pubescent with brown hairs; spikes capitate, about 1 cm. long, 1.2--1.4 cm. wide, densely many-flowered; bractlets narrowly lanceolate, the lowest about 7 mm. long, 2--2.5 mm. wide, long-acuminate or caudate at the apex, densely short-pubescent with subappressed hairs, far surpassing the flowers; corolla hypocrateriform, 3--4 mm. long, densely short-pubescent with whitish hairs on the outer surface, the limb 1--1.5 mm. wide.

The type of this species was collected by John Buchanan [J. M. Wood 6937] at Blantyre, Malawi, and is deposited in the herbarium of the Chicago Natural History Museum as sheet number 83373. It was named in honor of John Medley Wood who distributed the type collection.

The species has been found growing in sand veld, flowering in October and December. Material has been misidentified and distributed in herbaria as L. wilmsii H. H. W. Pearson, a species which it closely resembles and to which it is obviously closely related.

In all, 7 herbarium specimens, including the type, and 5 mounted photographs have been examined by me.

Citations: MALAWI: J. Buchanan 1381 (K, W--807314), s.n. [J. M. Wood 6937] (F--83373--type, F--photo of type, K--photo of type, N--photo of type, Si--photo of type, Z--photo of type). SOUTHERN RHODESIA: J. C. F. Hopkins s.n. [6/12/39] (N, Rh--7497). SOUTH AFRICA: Transvaal: Shantz 267 (W--1595613).

LIPPIA YUCATANA Loes. in Fedde, Repert. Nov. Sp. 9: 364. 1911.

Synonymy: Lippia albicaulis Greenm., Field Mus. Publ. Bot. 2: 340--341. 1912.

Bibliography: Loes. in Fedde, Repert. Nov. Sp. 9: 364. 1911; Greenm., Field Mus. Publ. Bot. 2: 340--341. 1912; Prain, Ind. Kew. Suppl. 5: 153. 1921; P. C. Standl., Contrib. U. S. Nat. Herb. 23: 1246. 1924; P. C. Standl., Field Mus. Publ. Bot. 3: 402 & 403. 1930; Moldenke, Suppl. List Common Names 18 & 24. 1940; Moldenke, Prelim. Alph. List Invalid Names 30. 1940; Moldenke, Carnegie Inst. Wash. Publ. 522: 164, 167--168, 219, 220, & 222.

1940; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 1], 17 & 96. 1942; Moldenke, Alph. List Invalid Names 29. 1942; Moldenke, Phytologia 2: 107. 1945; Moldenke, Alph. List Cit. 1: 227—229, 299, 300, 316, 318, & 319 (1946), 2: 328 (1948), 3: 690 & 919 (1949), and 4: 1239. 1949; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 31 & 191. 1949; Moldenke, Résumé 37, 310, & 463. 1959; Moldenke, Phytologia 13: 35 & 162. 1966.

Shrub or tree, to 3 m. tall; trunk and stems white or silvery-white; older branches terete, covered with white bark, abundantly longitudinally fissured in age; young branchlets tetragonal, appressed-puberulent and minutely setose-aculeolate toward the apex, becoming glabrescent; petioles 4—8 mm. long, appressed short-puberulent; leaf-blades chartaceous, varying from oblong or ovate-oblong to ovate-elliptic, elliptic-lanceolate, or even obovate, 2.5—10 cm. long, 1—4 cm. wide, obtuse or rounded and short-apiculate at the apex or subacute, entire or densely crenulate-serrulate toward the apex with appressed teeth, cuneate at the base and rather conspicuously long-attenuate into the petiole, shortly and very densely hispidulous throughout above with bulbous-based hairs (the bases persistent), rather sparsely or more or less densely puberulent or appressed-puberulent to hirtellous beneath, especially on the venation, rather more velutinous beneath when young; peduncles axillary, 2—5 in each axil (rarely solitary), slender, often nutant, 0.8—3 cm. long, appressed-puberulent or substrigillose; heads subglobose, about 5 mm. long, 6—10 mm. wide; bractlets loosely imbricate, membranous, broadly ovate or subreniform, 4—7 mm. long, 4—9 mm. wide, acute or shortly subacuminate at the apex, cordate at the base, reticulate-veined, hirtellous-puberulent and glandular on the back, ciliate along the margins; calyx 1—2.5 mm. long, about 1.5 mm. wide, subvillous, its lobes obtuse and ciliolate; corolla small, hypocrateriform, its tube about 3 mm. long, ampliate toward the apex, sparsely pubescent and glandulose outside, pulverulent in the throat, 4-lobed, the lobes unequal, subrotund, the anterior one largest and about 2 mm. long.

The type of this species was collected by Georg Eduard and Caecilia Seler (no. 4918) at Chichen Itza, Yucatán, Mexico, on January 12, 1907, and was deposited in the herbarium of the Botanisches Museum in Berlin, where it was photographed by Macbride as his type photograph number 17554, but is now destroyed. The type of *L. albicaulis* was collected by George Franklin Gaumer (no. 971) near Izamal, Yucatán, and is deposited in the herbarium of the Chicago Natural History Museum.

This little-known species is said by Gaumer to be "shrubby, 10 feet high, uncommon, found only on the ancient mounds southwest of Izamal" and again "a shrub, 8 feet high, on brushlands, not common." The Selters describe it as a tree with silvery-white stems. Material has been misidentified and distributed in herbaria as *L. umbellata* Cav., a much-misunderstood species. The more striking characters distinguishing *L. yucatanana* from *L. umbellata* and the several other species of this immediate group are

its smooth ashy-white stems and branches, puberulent branchlets, and dark-green elliptic-lanceolate mostly obtuse leaves which are only short-pubescent on both surfaces and often only very slightly so.

The species has been collected in anthesis in January and March, in fruit in March. Gaumer 23627 & 24411 have the younger leaves more densely velutinous beneath than is seen on any of the other collections. Standley (1924, 1930) erroneously reduces this species to synonymy under L. umbellata and records the vernacular name "salvia poblana", as well as "xoltenuuc" and "xoltémuc".

In all, 25 herbarium specimens, including type material of all the names involved, and 17 mounted photographs have been examined by me.

Citations: MEXICO: Quintana Roo: Gaumer & sons 1475 (B, F—58273, S). Yucatán: G. F. Gaumer 871 (F—36674, G), 971 (Br, Ca—446213, Du—207660, F—37319, F—photo, G, Mi, N, N—photo, N—photo, S—photo, Si—photo, Z—photo, Z—photo), 2109 (F—58907, G, N), 23627 (F—466023, N), 23627 bis (F—466024), 24176 (F—552180, N, S), 24411 (F—552404); Hunnell 18293 (G); Seler & Seler 4918 [Macbride photos 17554] (F—663083—photo of type, G—istotype, G—photo of type, Kr—photo of type, N—istotype, N—photo of type, N—photo of type, N—photo of type, N—photo of type, S—photo of type, Z—photo of type, Z—photo of istotype).

ADDITIONAL NOTES ON THE GENUS VERBENA. I

Harold N. Moldenke

VERBENA [Dorst.] L.

Additional synonymy: Glanduria Troncoso, Biol. Abstr. 46 (21): B.53 & B.128, sphalm. 1965.

Additional bibliography: N. J. Anderss., Galap. Veg. 199—200. 1854; N. J. Anderss., Veb. Akad. Handl. Stockh. 1853: 199—200. 1855; H. B. Davis, Life & Works Pringle 21, 49, 104, 130, 132, 152, 169, & 193. 1936; Christie, Ark. Farm Res. 21 (9): 144. 1937; Dinlock & Ford, Phytopath. 40 (1): 7. 1950; Moldenke, Biol. Abstr. 33: 1215 (1959) and 35: 1688. 1960; Deitschman & Pruett, Proc. 17th N. Cent. Weed Control Conf. 1960; Goodspeed, Pl. Hunt. Andes 246. 1961; Reitz, Sellowia 13: 67 & 110. 1961; Clair, Of Herbs & Spices 153 & 232. 1961; Tergit, Fls. Through the Ages 233—234. 1961; Moldenke, Biol. Abstr. 36: 719, 2843, & 4036 (1961) and 37: 1062 & 2455. 1962; Brilmayer, All about Vines 350. 1962; Deitschman & Pruett, Weed Abstr. 11 (3): 211. 1962; Hocking, Excerpt. Bot. A.4: 592 (1962), A.5: 44 & 45 (1962), and A.6: 534—536. 1963; Rickett, New Field Book Am. Wild Fls. 280, fig. 98, & pl. 12. 1963; Bohm,



Moldenke, Harold N. 1966. "Materials toward a monograph of the genus *Lippia*. XI." *Phytologia* 13, 169–179.

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