

THE « COMBRETACEAE » OF ARGENTINA

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RESUMEN

Las Combretáceas de Argentina. — La familia de las Combretáceas es típicamente tropical, alcanzando su mayor desarrollo en el Africa tropical, donde hay muchas especies del género *Combretum*. Fuera de los trópicos, la familia está representada escasamente en Argentina, viviendo dos especies de *Combretum* y dos de *Terminalia*. Estas cuatro especies existen únicamente en las provincias septentrionales de este país, siendo *T. australis* Cambess. la más austral, llegando hasta Buenos Aires.

En este trabajo se describen únicamente las especies de Argentina.

The family Combretaceae is typically, pan-tropical, its greatest development occurring in tropical Africa, where the genus *Combretum* is very rich in species. Outside the tropics the family is poorly represented and in Argentina it is restricted to two species of *Combretum* and two species of *Terminalia*. These four species occur only in the more northerly provinces, *T. australis* Cambess., the species which extends furthest to the south, reaching the province of Buenos Aires.

The species listed are from the British Museum (BM), Kew (K), Stockholm (S), and United States National Herbarium (US): they are largely duplicates of specimens in the herbaria of the Instituto Miguel Lillo, Tucumán and of the Museo Nacional de Historia Natural, Buenos Aires.

The descriptions given apply only to the species as known in Argentina.

The ovary is completely inferior in all the American species forming an apparent pedicel at the base of the flower. The tissue enclosing the ovary is cauline in origin and is known as the lower receptacle. Above this is the upper receptacle or calyx-tube often divided into two regions, the lower containing the disk. The stamens are borne inside the upper receptacle and the petals (in *Combretum*) are attached near its mouth. The teeth at the mouth of the upper receptacle represent (when present) the calyx-lobes.

KEY TO THE GENERA

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|---|------------------------|
| Petals present (in the Argentine species) | 1. <i>Combretum</i> . |
| Petals absent. | 2. <i>Terminalia</i> . |

1. **COMBRETUM** Loeffl.

KEY TO THE SPECIES

- Flowers in stout lateral spikes; upper receptacle (calyx-tube) 5-8 mm. long, campanulate towards the apex, infundibuliform towards the base; stamens exerted for 10-15 mm. 1. *fruticosum*.
- Flowers much smaller, in branched terminal and lateral panicles; upper receptacle (calyx-tube) 1-2,5 mm. long, cupuliform; stamens exerted for 2-3 mm. 2. *laxum*.

1. Sect. **EUCOMBRETUM** Don(Sect. **Micropetalae** Engl. & Diels)1. **Combretum fruticosum** (Loeffl.) Stuntz

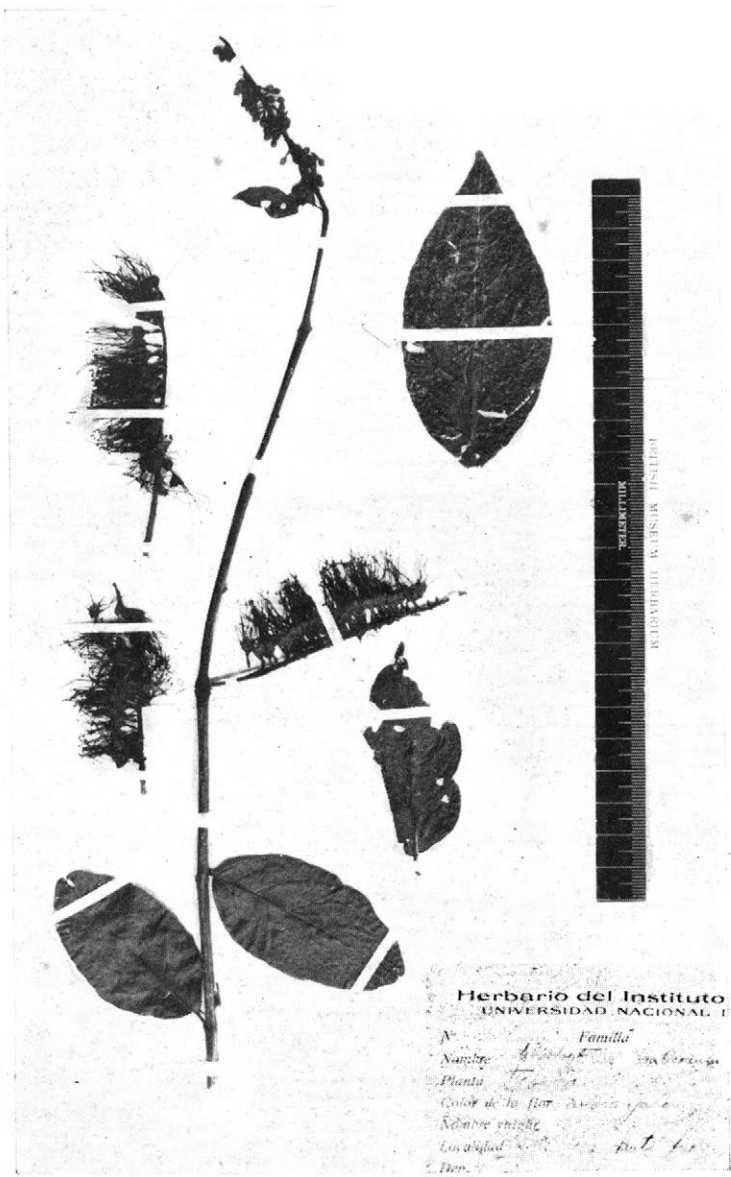
Stuntz in *U. S. Dept. Agric. Bur. Pl. Ind. Seeds and Pl. Import.* N° 31: 86 (1914).

Gaura fruticosa Loeffl., *Iter. Hispan.*: 248 (1758).

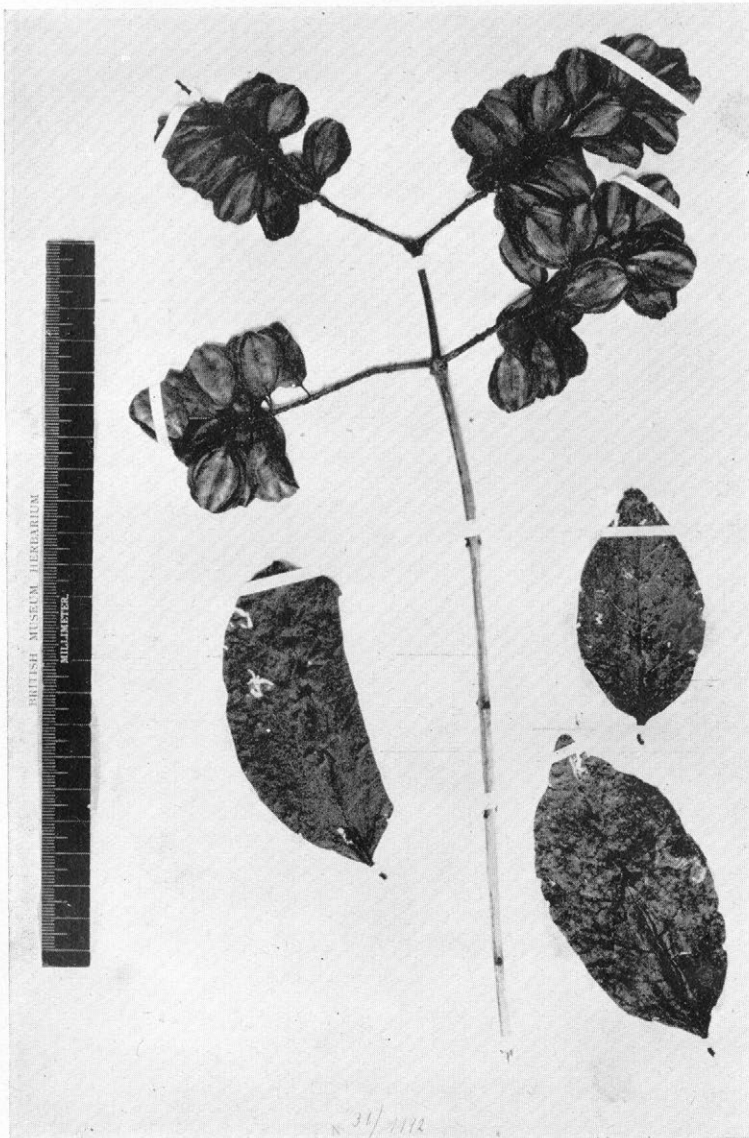
Combretum occidentale L., *Syst. Nat.* ed. 10, ii: 999 (1759) nomen illegit.

Combretum Loefflingii Eichl. in Mart., *Fl. Bras.* xiv, 2: 110 (1867) nomen illegit.

Description. — A *liane* or *climbing shrub* occasionally (probably erroneously) described as a small *tree*. *Branchlets* somewhat quadrangular, lepidote, sometimes sparsely pubescent (in Argentine specimens) when young, soon glabrescent. *Leaves* entire



Combretum fruticosum (Loefl.) Stuntz (in flower)



Combretum fruticosum (Loefl.) Stuntz (in fruit)

opposite. *Lamina* up to $10,5 \times 5$ cm., ovate, ovate-elliptic, elliptic or oblong-elliptic, gradually acuminate at the apex usually somewhat cuneate at the base, sparsely lepidote (conspicuously when young) and minutely verruculose above, otherwise glabrous, densely and conspicuously yellow-lepidote beneath with scales marginally contiguous or nearly contiguous, otherwise glabrous; lateral veins 7-9 pairs, slightly prominent on both surfaces. *Petioles* 3-7 mm. long, concave above, lepidote. *Inflorescence* a simple spike 5-10 cm. long, axillary or often borne in the axils of reduced or fallen leaves so that the inflorescence appears paniculate. *Flowers* sessile (the apparent pedicel is a receptacle surrounding the inferior ovary), tetramerous, yellow. *Upper receptacle* 5-8 mm. long, campanulate towards the mouth, infundibuliform towards the base, densely yellow-lepidote, scales contiguous, otherwise glabrous. *Lower receptacle* 2-3 mm. long, densely lepidote, scales contiguous, otherwise glabrous. *Calyx-lobes* broadly deltoid, about 1 mm. long. *Disk* infundibuliform, pilose at the margin. *Petals* 4, narrowly elliptic, about 1,5 mm. long, glabrous. *Stamens* 8, exserted for 10-15 mm. beyond the mouth of the upper receptacle. *Style* exserted. *Fruit* orbicular in outline, about $1,5 \times 1,5$ cm., shortly stalked, 4-winged, wings thin, 6-7 mm. broad, lepidote, otherwise glabrous, usually produced in abundance.

Geographical range. — Mexico, Central América, West Indies, tropical S. America, Paraguay and Argentina.

Specimens

Misiones: San Ignacio, 4-XII-1913 & 1-II-1914, Quiroga s. n. (BM); Santa Ana, 14 & 18-XII-1912, Rodríguez 316 (BM); Santa Ana, 24-IV-1910, Rodríguez 316a (BM); Posadas, XII-1906, Van de Venne s. n. (BM); Posadas, Vattuone & Bianchi 88 (US); Nacúgazú, Vattuone & Bianchi 172 (US).

Corrientes: Santo Tomé, II-1910, Venturi s. n. (BM).

Entre Ríos: Río Uruguay, Salto Grande, 5-II-1931, Castellanos s. n. (BM); Gualeguaychú, 1-III-1926, Jurado s. n. (BM); Concepción del Uruguay, V-1875, Lorentz s. n. (BM; K; US);

Puerto Yeruá, 20-XII-1923 & 5-I-1924, Pennington s. n. (BM); Swartz s. n. (K).

This widespread species, in the sense here adopted, shows great variation in the size of the flowers, shape and size of the petals, shape and pubescence of the upper receptacle, and shape and pubescence of the leaves. The Argentine material, however, from which the above description has been made, is comparatively uniform.

2. Sect. **COMBRETASTRUM** Eichl. emend. (1)

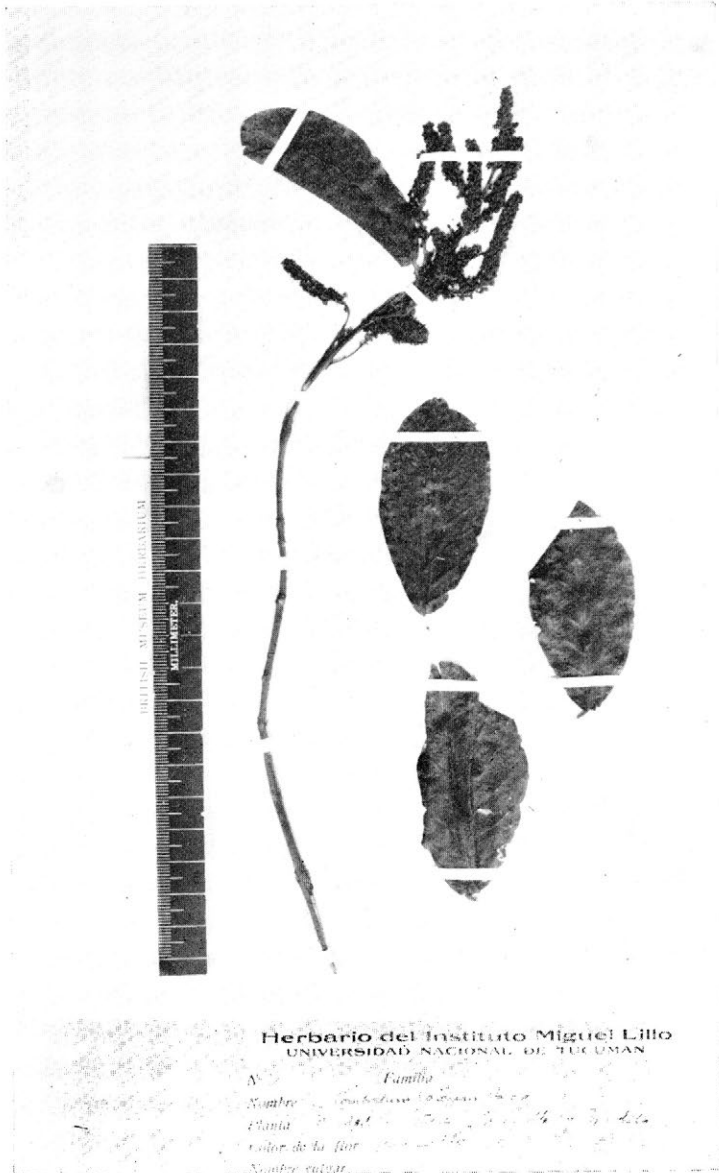
2. **Combretum laxum** Jacq.

Jacq., *Enum. Pl. Carib.* : 19 (1760); *Select. Stirp. Amer. Hist.* : 104 (1763).

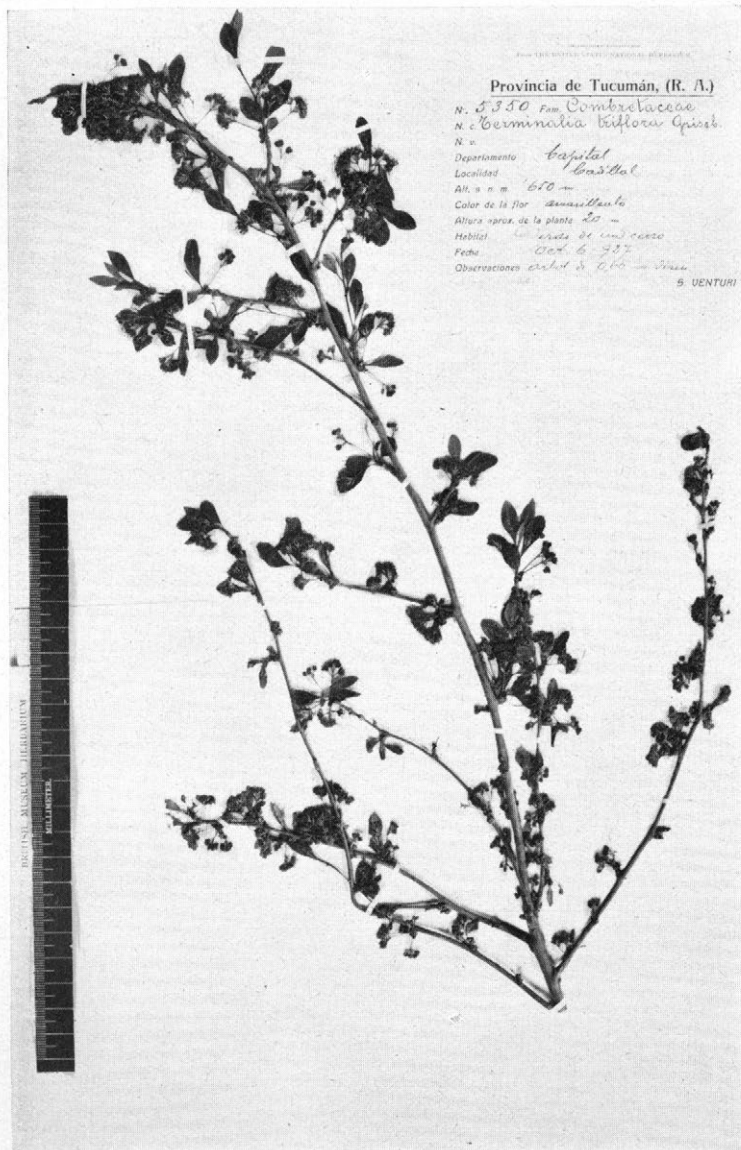
Combretum Jacquinii Griseb., *Fl. Brit. W. Ind.* : 275 (1860) nomen illegit.

Description. *Liane.* *Branchlets* terete or somewhat flattened, often with small rather inconspicuous scales, slightly pubescent or glabrous. *Leaves* entire, opposite. *Lamina* up to 12 × 7,5 cm., obovate, obovate-elliptic, broadly elliptic or rarely ovate-elliptic, rounded or abruptly acuminate at the apex, rounded and often slightly cordate at the base, usually with minute whitish scales on the upper surface, otherwise glabrous, sometimes shiny, usually densely but inconspicuously lepidote beneath, with hairs in the axils of the secondary veins, otherwise glabrous; lateral veins 7-9 pairs usually rather inconspicuous above, slightly prominent beneath. *Petioles* 3-6 mm. long, pubescent or glabrous. *Inflorescences* terminal or axillary panicles composed of congested spikes each about 2-4 cm. long, tawny- or ferruginous-tomentose or densely pubescent. *Flowers* sessile, tetramerous, white or yellowish, small. *Upper receptacle* cupuliform, 1-2,5 mm. long, pubescent. *Lower receptacle* up to 1 mm. long, tomentose. *Calyx-lobes* broadly deltoid, only slightly developed. *Disk* poorly developed, glabrous. *Petals* broadly obovate, about 1 mm. long, glabrous. *Stamens* 8, filaments exerted for

(1) Excl. *Combretum brevistylum* Eichl.



Combretum laxum Jacq. (in flower)



Terminalia triflora (Griseb.) Lillo (in flower)

2-3 mm. *Fruit* (unknown in Argentine material) oblong, narrowly ovoid or suborbicular, 4-ridged or 4-winged.

Geographical range. — Mexico, Central América, West Indies, tropical S. América, Paraguay and Argentina.

Specimens

Formosa: Villa Formosa, II-1918, Jörgensen s. n. (BM); Jörgensen 2062 (US).

Misiones: R. Paraná, XII-1907, Ekman 1726 (S); Frances Cue, VII-1919, Hauman s. n. (BM); Santa Ana, 14-XI-1909, Rodríguez 114 (BM).

This species is also very polymorphic when specimens from the whole of its area of distribution are considered; but the material as yet collected in Argentina is comparatively uniform. This species very rarely fruits and fruiting material from Argentina is badly needed.

2. **TERMINALIA** L.

Fruit 2-winged, suborbicular to transversely elliptic in outline, usually broader than long; leaves elliptic to narrowly elliptic, about 2-3 times as long as broad. 1. *triflora*.

Fruit 2-winged, broadly ovate in outline, usually slightly longer than broad; leaves narrowly elliptic to linear-elliptic, about 4-6 times as long as broad. 2. *australis*.

Sect. **DIPTERAE** Eichl. emend. Engl. & Diels

1. **Terminalia triflora** (Griseb.) Lillo

Lillo, *Contrib. Conoc. Arb. Argent.*: 20 (1910).

Chuncoa triflora Griseb. in *Abh. Königl. Gesell. Wiss. Gött.* xxiv: 132 (1879).

Myrobalanus Balansae Kuntze, *Rev. Gen.* iii, 2: 87 (1898).

Terminalia Balansae (Kuntze) K. Schum. in Just., *Jahresber.* xxvi, 7: 346 (1900). — Hassler in Fedde, *Rep. Nov. Spec.* viii: 45 (1910).

Terminalia Hassleriana Chod. in *Bull. Herb. Boiss.* Sér. 2, iii: 346 (1903).

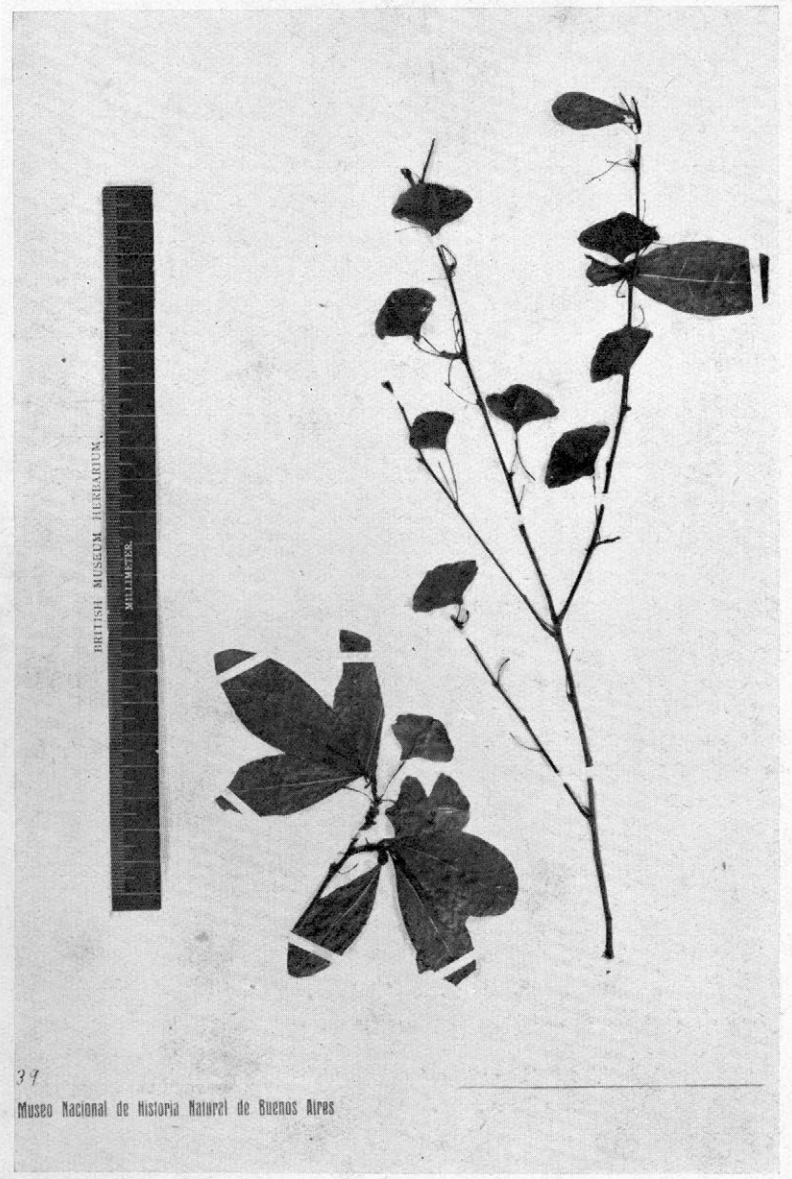
Description. Tree up to 20 m. high or sometimes a bush. *Branchlets* appressed-pubescent when young, soon glabrescent. *Leaves* entire alternate, often approximated in pseudo-verticels. *Lamina* up to $7,5 \times 2,8$ cm., usually $2-3 \times 1-1,2$ cm., narrowly to broadly elliptic or obovate-elliptic, usually acute, rarely rounded at the apex, cuneate at the base, appressed-pubescent and minutely verruculose, appressed-pubescent (often densely) beneath, midrib often sericeous beneath; lateral veins 4-7 pairs, reticulation often rather conspicuous beneath. *Petioles* 2.8 mm. long, slender, appressed-pubescent. *Inflorescences* composed of 3-7 flowers grouped in a subcapitate spike on a slender sericeous rhachis up to 2,5 cm. long, usually 1-1,5 cm. long; spikes usually borne in clusters of 2-5 on dwarf shoots or singly in the axils of the leaves. *Flowers* sessile, pentamerous, yellowish. *Upper receptacle* cupuliform, 2-2,5 mm. long, appressed-pubescent. *Lower receptacle* 2-3 mm. long, sericeous. *Calyx-lobes* ovate-triangular, about 1 mm. long. *Disk* pilose. *Petals* absent. *Stamens* 10, filaments 2-3.5 mm. long, exserted. *Style* 2 mm. long, exserted. *Fruit* transversely elliptic in outline, broader than long, very variable in size, $0,8-1,6 \times 1-2,5$ cm., appressed-pubescent, fundamentally 5-sided but with two edges extended laterally for 4-10 mm. into two thin wings and a third edge raised into a more or less prominent ridge, so that a two-winged fruit is formed, which is flat on one surface and slightly ridged on the other.

Geographical range. — Brazil, Paraguay and Argentina.

Specimens

Jujuy: Ledesma, 29-X-1906, Dinelli s. n. (BM); San Pedro, 30-X-1925, Schreiter 100 (BM); El Yuto, 7-XII-1909, Venturi 365 (BM); Sierra de Calilegua, Venturi 5215 (BM; K); San Pedro, 5-IX-1926, no collector, Herb. Inst. Lillo 5003 (BM); El Quemado, 30-X-1925, no collector, Herb. Inst. Lillo 5100 (BM).

Salta: Orán, X-1873, Lorentz & Hieronymus 9 (K); Orán, Río de las Piedras, 15-XI-1911 & 31-XI-1911, Rodríguez 83 (BM), 135 (BM); Orán, El Cedral, 18 & 20-X-1913, Rodríguez 1029 (BM); Tartagal, 24-X-1924, Schreiter 3379 (BM), 27-X-



Terminalia triflora (Griseb.) Lillo (in fruit)

1924, Schreiter 3437 (BM); Quebrada del Río Tartagal, 24-X-1924, Schreiter 3459 (BM); Sierra de la Candelaria, Venturi 9505 (BM; K).

Formosa: Villa Formosa, VIII-1918, Jörgensen 2378 (BM).

Chaco: Las Palmas, VIII-1917, Jörgensen 2102 (BM).

Tucumán: Cerro del Campo, I-1918, Bailetti 169 (BM); Tucumán, 24-IX-1913, Castellón 2975 (BM); Tucumán, X-1889, IX-1890, IX-1898, 8-XII-1898, 4-X-1903, 10-X-1907, 13-X-1907, 28-X-1907, 20-X-1908, 22-X-1908, 25-X-1911, Lillo s. n. (BM); near La Cruz, 22/28-XII-1872, Lorentz 103 (BM), s. n. (K); Río Chico, 19-XI-1913, Monetti 1514 (BM); Burruyacu, Cerro del Campo, 2-II-1914, Monetti 2110 (BM); Tafi, Quebrada de las Juntas, 29-XI-1920, Schreiter 458 (BM); Quebrada de las Juntas, 29-IX-1920, Schreiter 1536 (BM); Río Salí, Barranca de la Toma, 8-X-1923, Schreiter s. n. (BM); Barranca Colorada, 19-IX-1920, Venturi 956 (BM); Burruyacu, 20-IX-1922, Venturi 1895 (BM), 9-XI-1923, Venturi 2222 (BM); Caddillal, 6-X-1927, Venturi 5350 (BM).

Santa Fe: Ocampo, 2-XI-1909, Venturi 131 (BM), 30-XI-1905, Venturi 266 (BM).

Misiones: San Ignacio, 11-XI-1919, Muniez 103 (BM); Santa Ana, 18-IX-1912, Rodríguez 601 (BM).

2. *Terminalia australis* Cambess.

Cambess. in St. Hil., *Fl. Bras. Merid.* ii: 240, t. 128 (1829).

Myrobalanus australis (Cambess.) Kuntze, *Rev. Gen.* i: 237 (1891).

Description. — *Shrub* (or *tree?*) very closely resembling the preceding species (*T. triflora*) and differing only in having narrowly elliptic to linear-elliptic leaves up to $2.7 \times 0.5-1.8$ cm., but rarely more than 1 cm. broad, and in having fruits ovate to broadly elliptic in outline, $1.4-2 \times 0.8-1.9$ cm. with rather stiff wings not more than 4 mm. broad and the body of the fruit thicker than in *T. triflora*. In the absence of fruits the two species are sometimes difficult to distinguish.

Geographical range. — Paraguay, Uruguay and Argentina.

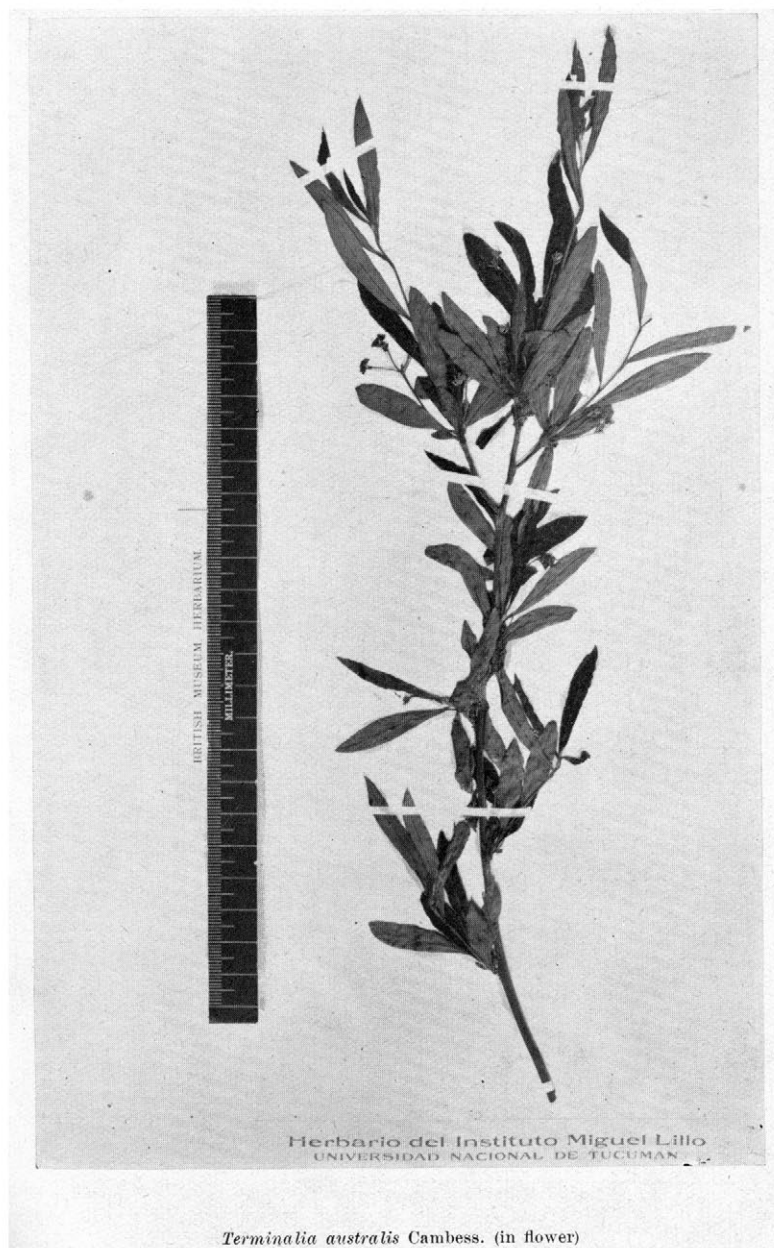
Specimens

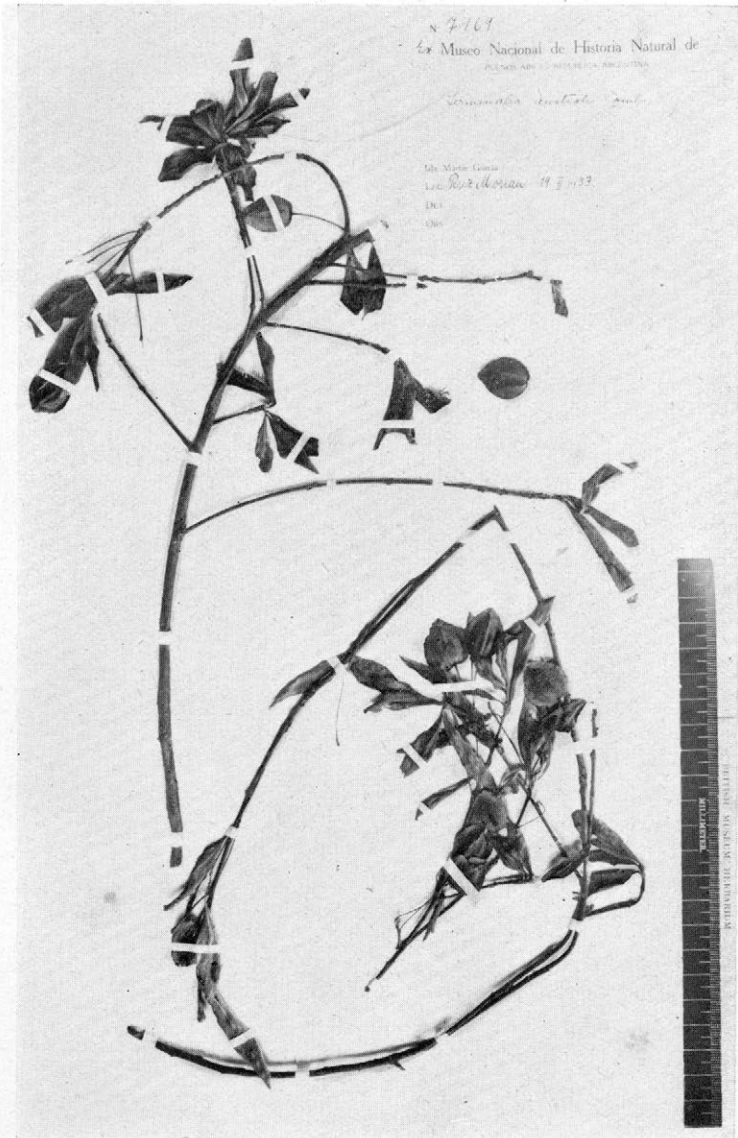
Misiones : Santa Ana, 18-XI-1912, Rodríguez 602 (BM).

Entre Ríos : Colón, 12-II-1931, Castellanos 31-1191 (BM);
Concepción, XI-1878, Lorentz s. n. (BM ; K).

Buenos Aires : Conchitas, 30-XI-1919, Castellanos s. n. (BM);
Isla Martín García, 19-II-1933, Pérez-Moreau s. n. (BM).

This species was originally described from Paraguay : I have never seen a specimen from Brazil.





Terminalia australis Cambess. (in fruit)