

Studies in South American *Amaranthaceae*

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The revision of the *Amaranthaceae* of the Argentine province of Entre Ríos for the purpose of a manual of the flora of that province revealed that a number of species reported from that area were badly understood, while in other cases the names in current use are not in accordance with the rules of nomenclature. The necessity of considering species from regions not covered by the flora, and the somewhat lengthy discussion, has made it desirable to publish these notes separately, at the same time putting a new species, apparently as yet unpublished, and some necessary new combinations on record.

The following herbaria have been visited in the course of the investigation:

- Museo Argentino de Ciencias Naturales "Bernardino Rivadavia", Buenos Aires (BA).
- Museo de la Facultad de Farmacología, Universidad de Buenos Aires (BAF).
- British Museum (Natural History), London (BM).
- Universitetets botaniske Museum, Copenhagen (C).
- Conservatoire et Jardin Botaniques, Genève, (G).
- The Herbarium and Library, Royal Botanic Gardens, Kew, Richmond (K).
- The Linnean Society of London (LINN).
- Museo de La Plata (LP).
- Botanische Staatssammlung, Munich (M).
- Université de Montpellier, Institut de Botanique (MPU).
- Museo de Historia Natural, Montevideo (MVM).
- Department of Botany of the University of Oxford (OXF).
- Muséum National d'Histoire Naturelle, Laboratoire de Phanérogamie, Paris (P).
- Instituto de Botánica "Darwinion", San Isidro (SI).
- Institut für systematische Botanik der Universität Zürich (Z).

Material has also been had on loan from several of these institutions, as well as from the following:

- Botanisches Museum, Berlin-Dahlem (B).
- Jardin Botanique de l'Etat, Brussels (BR).
- Herbarium Universitatis Florentinae, Florence (FI).
- Institut für Systematische Botanik und Pflanzengeographie der Martin-Luther-Universität, Halle (Saale) (HAL).
- The New York Botanical Garden (NY).
- Naturhistoriska Riksmuseet, Botaniska Avdelningen, Stockholm (S).

The Botanisches Museum, Berlin-Dahlem, the Herbarium and Library, Kew, and the Institut de Botanique, Montpellier, have most obligingly sent photographs of type specimens.

I wish to thank the Directors and staff of the above institutions for these facilities, and for much kind and generous help. I also have to thank Ing. Lorenzo R. Parodi (†), Buenos Aires, and Mr. A. G. Schulz, Colonia Benítez, Chaco, Argentina, for loans, fragments, and duplicates from their private herbaria.

1. *Alternanthera caracasana* H. B. K., *Nova Gen. Sp. Pl.* 2: 205. 1817.

- Illecebrum peploides* H. & B. ex Roemer et Schultes, *Syst. Veg.* 5: 517. 1819.
- Celosia humifusa* H. & B. ex R. & S., l. c.: 531.
- Telanthera caracasana* (H. B. K.) Moq., in DC., *Prodr.* 13 (2): 370. 1849.
- Alternanthera peploides* (H. & B.) Urb., in Fedde, *Repertorium* 15: 168. 1918.
- Achyranthes peploides* (H. & B.) Britton, in Britton & Brown, *Bot. Puerto Rico and Virgin Isls.* 2: 279. 1924.

The type of *Alternanthera caracasana* is preserved in the Willdenow Herbarium (n^o 5029), now in (B). Two prints of a photograph, and a fragment kindly lent by the Botanisches Museum were available for study.

I have not seen the type of *Illecebrum peploides*, also in the Willdenow Herbarium, but I have seen material identified by Urban and by Melville, and accept their conception of the species. This material is *Alternanthera caracasana*.

Celosia humifusa was based on the same specimen as *Alternanthera caracasana*.

A detailed account of the synonymy of this species is given by Melville (1958) under *Alternanthera peploides*.

2. *Alternanthera ficoidea* (L.) B. Br. ex R. & S., *Syst. Veg.* 5: 555. 1819.

- Gomphrena ficoidea* L., *Sp. Pl.*, 1: 225. 1753.
Illecebrum ficoideum (L.) L., *Sp. Pl.* ed. 2, 1: 300. 1762.
Achyranthes ficoideum (L.) Pers., *Syn. Pl.*, 1: 259. 1805.
Alternanthera tenella Colla, *Mem. R. Accad. Sc. Torino* 23: 131. 1829.
Bucholzia polygonoides β *diffusa* Mart., *Nova Gen. Sp. Pl. Bras.* 2: 51. 1826.
Bucholzia ficoidea (L.) Mart., l. c. 52.
Telanthera ficoidea (L.) Moq., DC., *Prod.*, 13 (2): 363. 1849.
Telanthera polygonoides α *diffusa* (Mart.) Moq., l. c. 364.
Telanthera polygonoides β *brachiata* Moq., l. c. 364.

There is a specimen (n° 290.23) in the Linnean Herbarium named *Gomphrena ficoidea* by Linnaeus. This, however, is probably not the actual holotype. The number, corresponding to the sequence of the species in the first edition of the *Species Plantarum*, is not found on the sheet, which seems to indicate that this specimen was not used in the drawing up of the original diagnose. The sheet is marked by Linnaeus "h u", showing that the specimen was cultivated at Uppsala, and has probably been incorporated in the herbarium at some later date¹. On the other hand, being an authentic specimen, and as it answers to the diagnose, it seems expedient to consider this specimen — very likely a seedling of the type — the lectotype of the species. Almost exact replicas of this specimen, all of garden origin, are found in many European herbaria from the 18th and early 19th century. It is a diffusely branched, decumbent annual: stem terete, slightly thickened at the nodes, when young with two lines of hair, soon glabrous, except at the nodes. Leaves 2.6 \times 0.3-2 cm, lanceolate or oblanceolate to at times almost spatulate, mostly acute, base gradually narrowing to a winged stalk of approximately half the total length, sometimes more, usually not mucronate, slightly hairy when young, usually soon glabrous. Spikes solitary or in clusters of 2-3, sessile, globose, some 0.5 cm in diameter. Bracts 1.8-2.3 mm long, ovate, acute, mucronulate, usually glabrous; bractlets 1.5-2.3 mm long, navicular, acuminate, mucronate, keel usually hairy. Tepals 5, two foremost 2.5-3.5 mm long, asymmetrically lance-ovate, acute or acuminate, 3-nerved, mucronate, hairy; adaxial tepal slightly shorter, oblong, acute, occasionally denticulate at apex, 3-nerved, mucronulate, hairy along the sides; two inner tepals navicular, acuminate, 3-nerved near the base, mucronate, hairy on the keel, or glabrous. Stamens 5, rather shorter than the tepals, connate for about 2/5 to 1/2 of their length, anthers about 0.5 (—0.8) mm long, pseudostami-

¹I am indebted to Dr. W. T. Stearn, of the British Museum, who very kindly gave me his opinion on the authenticity of the Linnean material examined and explained the bases for his opinion, which are given here.

nodes longer than stamens, 3-7-lacinate at apex. Ovary about 0.4 mm long, with style the same length. Utricle some 1.2 mm long. Being of easy cultivation, this plant was evidently widespread in botanical collections, though I find it hard to see any special attraction in it.

Alternanthera tenella was based on such a plant, cultivated at Torino. Two authentic specimens were seen in the Decandolle Herbarium in (G); they are exactly similar to the specimen of *Gomphrena ficoidea* in the Linnean Herbarium.

The plant called *Bucholzia polygonoides* β *diffusa* by Martius — who considered this to be identical with the *Amaranthoides humile curassavicum*, *foliis polygoni* of Hermannus — is more hairy, has mucronate leaves, and slightly larger anthers; otherwise it is very similar. This is a widespread weed in East Tropical South America, and is also found in the West Indies, while I have seen only garden specimens of the glabrescent form. As the characters which seem to separate the two are really variable and uncertain, and as it would be inconvenient to use a varietal name for the plant usually met with, very likely only to reduce it to synonymy on the examination of further material, it seems preferable to disregard the var. *diffusa* altogether, at least for the present.

2 a. *Alternanthera ficoidea* var. *ficoidea*

Synonyms as above.

From among the numerous specimens seen, the following may be cited as belonging here:

Brazil:

State of Bahia, Salzmann (MPU). Ilheos, Blanchet (G). Joazeiro, Zehnter 2009 (M).

State of Ceará, an Anhängen der Serra de Baturité, Ule 9029 (K). Parahyba, Cundado-Sul, v. Lützelburg 23682 (M).

State of Minas Gerais, Lagoa Santa, Warming 571/1, 571/2 (C). Vicosia, Corinto, Fazenda do Diamante, Corrigo do Angilo, swampy land alt. 600, Ynés Mexia 5694 (BM, G, K, M, Z).

State of Pará, Marajo, Huber 493 (G).

Pernambuco, Gardner 1118 (BM, K, OXF).

Rio de Janeiro, Glaziou 8486 (C, K). Road between Alto da Serra and Maio da Serra, alt. 400-800 m, L. B. Smith 2114 (BA, BM, K).

State of São Paulo, Cantureira, Usteri 5a (Z).

Loc. ?, Martius (M).

Surinam:

Paramaribo, Lanjouw 20 (BM).

West Indies:

St. Thomas, Berge Estate, Eggers 3419 (BR, C, P). Charlotte Amalia, N. L. Britton & al. 14 (C, K).

Tobago, Stone Bay, bare ground on coral cliffs, Sandwith 1826 (K).
Trinidad, Lockart, Hooker (K).

2 b. *Alternanthera ficoidea* var. **erecta** (Mart.), nov. comb.

Bucholzia polygonoides α *erecta* Mart., *Nova Gen. Sp. Pl. Bras.* 2: 51, tab. 143. 1826.

Telanthera polygonoides γ *erecta* (Mart.) Moq., in DC., *Prodr.* 13 (2): 364. 1849.

The specimen shown on the plate by Martius is preserved in (M); it was named "*Telanthera polygonoides* Moq." by Seubert; according to the label, it was found "sine schedula sub γ *radicans* Mart. in herb. Brasiliensi". It is identical with one of the specimens filed under *Bucholzia polygonoides* γ *radicans* in the same herbarium, and the two may even be fragments of the same plant.

There is nothing to show where Martius collected these specimens. They are of a fairly robust plant, probably perennial, main stem trailing and rooting, lateral shoots upright and branched, as shown on the plate; stem and leaves are in age practically glabrous, the latter to some $5,5 \times 2,0$ cm, ovate, mostly rounded at the apex, mucronate, generally drying black. The spikes are frequently clustered, oblong in age; flowers rather large, outer tepals about 4 mm long.

2 c. *Alternanthera ficoidea* var. **radicans** (Mart.), nov. comb.

Bucholzia polygonoides γ *radicans* Mart., *Nova Gen. Sp. Pl. Bras.*, 2: 51, tab. 150. 1826.

Telanthera polygonoides ϵ *radicans* (Mart.) Moq., in DC., *Prodr.* 13 (2): 364. 1849.

The specimen shown on the plate was not found, neither in (M), nor in the private herbarium of Martius, now in (BR). Filed under γ *radicans* in (M) are found three specimens; one of these clearly belongs with the specimen depicted as α *erecta*, as mentioned above. The two remaining are probably from the same plant; one is labelled by Martius himself "*Alternanthera radicans* m. - Cfr. e. *A. pulchella* Humb. K. Habitat in siccis graminosis prope Caiteté et alibi ad marginem sylv. catingas — Provinciae Bahiensis — Oct." This is an evidently trailing and rooting, rather hairy plant, with ovate or ovate-oblong, mostly obtuse, mucronate leaves, some $2,5-4 \times 1-1,3$ cm, and globose, often clustered spikes. It is fairly well matched by a specimen from Minas Gerais, Lagoa

Santa, leg. Warming 653 (C), determined by Seubert as *Telanthera polygonoides* ϵ *radicans*, and possibly also by a specimen collected in Brazil by Blanchet, n° 3515 (C). It is just possible that the var. *radicans* may be sufficiently distinct to merit varietal status, though more material will be needed to settle this question definitely.

The material filed under ϵ *radicans* in the Decandolle Herbarium mostly belongs to *Alternanthera paronichyoides*, with the exception of a duplicate from the Martius Herbarium.

3. *Alternanthera Kurtzii* Schinz, herb. Zürich in schedula, nov. spec.

Herba perennis vel suffrutex, repens vel sub-scandens, e nodiis inferioribus radicans. Caulis ad 0,3 cm crassus, teres vel sub-angulatus, in sicco striatus, sursum et ad nodos pilis simplicibus, articulatis et asperis, albis vestitus, mox glabrescens; internodia 2-7 cm longa. Folia subcoriacea, cum petiolo 2,5-5,0 cm longa (petiolus solus ad 0,5 cm), 1-2 cm lata, ovata vel late lanceolata, sub-acuta, sed in apice ipso plerumque paulum rotundata, basi cuneata et in petiolum subalatum, canaliculatum angustata, penninervia, mucronata; folia nova pilosa, aetate glabrescentia, in sicco nigrescentia. Spicae terminales vel axillares, solitariae, aut binae ternaeve, ovatae vel breviter cylindricae, ad 0,8 cm longae et 0,5 cm crassae, bracteis floribusque divergentibus. Bracteae cartilagineae, c. 1,8 mm longae, triangulares, acuminatae, 1-nerviae, mucronatae, glabrae; bracteolae membranaceae, c. 2 mm longae, triangulares, asymmetricae, acuminatae, carinatae, 1-nerviae, mucronatae, pilosae. Flores sessiles, albae vel in sicco stramineae: tepala omnia 6 cartilaginea marginibus membranaceis, aut 2 interiora submembranacea; abaxialia 2 c. 4 mm longa (exterius paulo majus), late asymmetrico lanceolata, concava, nervis 3 prominentibus, centrali eorum in mucronem pungentem producto, pilisque simplicibus asperis albis dense vestitis; tepalum postertius c. 3,5 mm longum, anguste triangulare, acutum, planum, 3-nervium, mucronatum, prope marginem membranaceam lineis duabus pilorum vestitum; tepala 2 interiora c. 3 mm longa, navicularia, acuminata, 3-nervia, mucronata, glabra vel \pm pilosa; stamina 5 omnia aequilonga, in anthesi 2,0-2,2 mm longa, antherae 0,8-0,9 mm, filamenta linearia, subter ad 1/3 concreta, alternantia cum pseudostaminodiis ejusdem longitudinis vel paulo longioribus, oblongis, apice irregulariter 3-5-laciniatis; ovarium ad 0,5 mm longum, turbinatum, cum stylo manifesto ejusdem longitudinis; stigma capitatum, papillosum. Fructus tenuiter membranaceus, ad 1,5 mm longus, sub-compressus, ovatus, superne truncatus et sub-alatus, stylo persistente ornatus. Semen subcompressum, ovatum, castaneum, nitidum.

Legit F. Kurtz in R. P. Argentina, provincia Formosa, in virgultis ad rivulam Riachuelo prope oppidum Formosa 25-26-IV-1885, n° 1941.

I am not aware whether Schinz ever published this species. The description¹ has been drawn up from the specimen he named.

This is a widespread species, found growing all through the Chaco as far west as the foothills of the Andes, Paraguay, N and NE Argentina, and in Uruguay. It grows typically in open woodland and thickets, mostly on clayey soil, and is very common in Argentine Mesopotamia. Trailing and rooting, or scrambling over the ground as a rule, Kurtz nevertheless calls it "enredadera", and on the label of a specimen from Santa Cruz de la Sierra in Bolivia, Steinbach states that it will climb to a height of 2 m.

Further material seen:

Argentina.

"Buenos Aires" (?), moist fields, Tweedie (BM, K).

Isla Martín García, Hauman (BA 32184).

Prov. Chaco: Resistencia, Castellanos (BA 24/1240); près Resistencia, forêts, Alboff (LP 022876); Dep. Resistencia, Colonia Benítez, Schulz 8730, 10458, 14578 (SCHULZ).

Prov. Corrientes: Dep. Curuzú Cuatiá, near Perugorria, Pedersen 4572 (BR, C); Dep. Empedrado, El Pollo, 2 leguas al este, Ibarrola 3179 (P); Dep. Mburucuyá, Estancia "Santa María", Pedersen 860 (BR, C, LP); Dep. San Martín, FCNEA Desvío Km. 395.8, Huidobro 4350 (P).

Prov. Entre Ríos: Colón, Castellanos (BA 31/1045); Dep. Concordia, Federal, Hauman (BA 32186); Dep. Concordia, Ruta 127 km 156, Pedersen 7341 (C, SI); Dep. La Paz, Bovril, Burkart 23335 (SI); Dep. La Paz, Burkart & N. M. Bacigalupo 21179 (SI); Concepción del Uruguay, costa del río, Báez 73, 136 (BA); Dep. Uruguay, Isla Cambá Cuá, Burkart & S. Crespo 22975 (SI); Pedersen 4739 (BR, C. P: flowers sterile, genitals petaloid).

Prov. Formosa: Capital, Jørgensen 3128 (M, MVM); Dep. Pilcomayo, Ruta 11 km 1010, Ismael Morel 4308 (M).

Prov. Jujuy: Juto, Lillo (M).

Prov. Salta: Dep. Anta, El Dorado, Luna 940 (M).

Prov. Tucumán: Dep. Capital, Río Salí, alt. 450 m, Venturi 2157 (BA); Dep. Río Chico, Graneros, alt. 430 m, Bailetti 197 (M); Dep. Río Chico, La Cocha, alt. 437 m, Bailetti 446 (M).

¹I have to thank Mr. Knud E. Jensen, Botanisk Centralbibliotek, Copenhagen, for revising and correcting the Latin texts.

Bolivia.

Dep. Santa Cruz: Quintas de la ciudad, enredadera hasta 2 m, flor blanca, flósculos amarillos, Steinbach 2558 (G, K, M); Peia. Buena Vista, alt. 450 m, Steinbach 1212 (M); Peia. del Sara, Steinbach 2919 (M); "Prov. Chiquitos", d'Orbigny 723 (P).

Brazil

Matto Grosso: Corumbá, Robert 775 (BM).

Paraguay.

Asunción, dans les prés humides, Balansa 1956 (K); Dep. Central, Villa Elisa, Pedersen 5107 (C); Prope Concepción in argillosis ad ripas fluminis Paraguay, Hassler 7197 (G); Dep. Hayes, in regione cursus inferioris fluminis Pilcomayo, Rojas 262 (BM); ad ripas rivi Yuquerí, Hassler 1538 (G); "Gran Chaco", Andrew Pride (K).

Uruguay.

Dep. Artigas, Cuareim, Berro 1636 (G, MVM); Dep. Colonia, Nueva Palmira, Ufer des Uruguay, Herter, hb. Osten 18971 (MVM); Dep. Paysandú, Isla del Vizcaino, Berro 4404 (K); Dep. Río Negro, Bords de l'Uruguay près de Fray Bentos, Gibert 293 (K).

Most of the specimens seen were labelled "Alternanthera ficoidea", "Alternanthera polygonoides", or "Alternanthera polygonoides var. radicans". *Alternanthera Kurtzii* seems closely related to the plant Martius called *Bucholzia polygonoides* α *erecta*, which has the same colour and texture of the leaves, the same type of indument, very similar flowers in the same shortly cylindrical, sessile spikes, and apparently is of similar habit. There is, however, an element of uncertainty about this variety: the only material referable to it are the two specimens collected by Martius (M), without original labels, with no clue to where they grew, and wrongly filed, possibly by Martius himself. It seems unsatisfactory to use this doubtful name for a familiar and common plant.

4. *Alternanthera paronichyoides*¹ St.-Hilaire, *Voyage Distr. Diamans litt. Brésil* 2: 439. 1833

Telanthera polygonoides s. *compacta* Moq., in DC., *Prodr.* 13 (2): 364. 1849.

Alternanthera paronichyoides was based on material collected by Saint-Hilaire near Rio de Janeiro. Three sheets of the type collection are in (P), all very similar, and if not actually parts of the same plant, at

¹The name is usually spelled "paronychioides", which would certainly be more in accordance with accepted orthography; but Saint-Hilaire wrote "paronichyoides" in the printed description, and the same spelling was used on the labels.

least from the same population. They are marked "Cat. A² n° 12B"¹. These specimens agree very well with the published description.

The two specimens (n°s 290.21 and 290.22) filed under *Illecebrum polygonoides* in the Linnean Herbarium both belong to this species; n° 290.21 is named *Gomphrena polygonoides* by Linnaeus. If the Linnean species can be considered typified by any of these specimens, the name *Alternanthera paronichyoides* must, of course, be relegated to synonymy. As in the case of *Gomphrena ficoidea*, and for the same reasons, it cannot be assumed that any of the two specimens was used by Linnaeus in drawing up the original diagnose of *Gomphrena polygonoides* (*Illecebrum polygonoides* in the 2nd edition of the *Species Plantarum*); moreover, the diagnose hardly fits the specimens, which would seem to render them unacceptable as lectotypes.

As a further means of identifying the species, Linnaeus cites as synonym *Amaranthoides humile curassavicum, foliis polygoni* and gives references to Hermann, *Paradisi batavi Prodromus*, to Sloane, *Catalogus Plantarum quae in Insula Jamaica sponte proveniunt*, to the same author's *Natural History of Jamaica*, and to Ray, *Historia Plantarum, Supplement*. The reference to plate 17 in Hermann's *Prodromus* is evidently a slip or a misprint (there are no plates in the *Prodromus!*), but must be read as referring to the *Paradisus batavus* by the same author, where *Amaranthoides humile curassavicum, foliis polygoni* is depicted on the plate mentioned. Specimens filed under this name in the Tournefort Herbarium in (P) and the Sherard Herbarium in (OXF), both of them almost certainly named by Sherard, who as the editor of the *Paradisus* must have been familiar with the species of Hermann, are *Lithophila muscoides* Sw. The plant Sloane had in mind has been shown by Fawcett and Rendle (1914) to be *Alternanthera paronichyoides*.

The diagnose of *Gomphrena polygonoides* by itself is insufficient to decide which plant is meant, and as the references given by Linnaeus are useless, the name *Gomphrena polygonoides*, with all later names based on it, in the absence of a holotype or an acceptable lectotype must remain doubtful and should be rejected, as suggested by Otto Kuntze (1891). The advantages of using the name *Alternanthera paronichyoides*, on the other hand, are considerable, as the species is perfectly identified

¹The entry under this n° in Saint-Hilaires' manuscript catalogue reads as follows: "Amaranthacé Bords des chemins dans le voisinage de la mer à R. de J. Caules numerosi prostrati rardicantes. Bractae 3 scarosae albae 2 laterales lanceolatae concavae glabrae: intermedia angustior glabra. Calix 5 parvitus basi villosus laciniis lineari lanceolatis 2 angustioribus. Stamina 5 minima glabra imo basi coalita cum dentibus totidem alterna ex androphoro eodem enata ovarium lenticulare glabrum 1 loc. 1-sperm. Stylus brevis glaber. Stig capitatum. Ovule attaché à un long cordon umbilical qui nait au fond du calyx."

by an excellent description and a type specimen of undoubted authenticity; furthermore, with a few exceptions, this name has been in general use for more than a century.

The material referred by Moquin-Tandon to *Telanthera polygonoides* s. *compacta* (G, P) are merely stunted specimens of *Alternanthera paronichyoides*.

This species is widespread throughout tropical and sub-tropical America; its natural habitat seems to be moist or wet ground on the banks of rivers and lakes, but it has established itself as a weed on disturbed ground in many places. It is found in the Old World tropics, but almost certainly introduced.

4 a. *Alternanthera paronichyoides* var. **paronichyoides**

Synonyms as above.

Specimens more or less similar to the type are found from Southern North America and the West Indies through Brazil to North Eastern Argentina, and in the Old World tropics. The West Indian and Old World material as a rule has more obtuse leaves and larger anthers, while South Asiatic specimens often are coarser and have larger flowers; a specimen from Siam has sub-glochidiaceous hairs on the floral parts.

Select material seen:

New World.

Argentina:

Prov. Corrientes, Dep. Mburucuyá, Estancia "Santa Teresa", Pedersen 1096 (C). Prov. Entre Ríos, Dep. Victoria, islas, Burkart 8719 (SI).

Brazil:

Bahia, cult. in the Botanic Garden, Copenhagen, from seed collected at, (C). Rio de Janeiro, São Vicente de Paulo, près Cabo Frio, Glaziou 1395 (C, P). Rio Grande do Sul, Pôrto Alegre, auf Culturland, an Strassen kriechend, Czermack & Reineck 346 (G).

México:

Yucatán. Pocoboch, Gaumer 2362 (C).

Panamá:

Prov. Panamá, Juan Díaz Región, near Tapia river, Maxon & Harvey 6741 (C).

U.S.A.:

Florida, Key Largo, hammock, Small & al. 10958 (G).

West Indies:

Cuba, Havana, Liebman (C). Jamaica, Constant Spring, in muddy

soil around pond, Harris 11942 (C). St. Croix, Benzoin 209 (C). Sto. Domingo, La Cumbre, Raunkiaer 1144 (C). St. Thomas, Ravn (C).

Old World.

Philippine Islands:

Manila, Frank (C).

Siam:

Bang Pu, south of Bangkok, Soerensen & al. 7871 (C). Lee, waste ground, Soerensen & al. 866 (C; in this specimen, the hairs on the tepals are sub-glochidiaceous).

4 b. *Alternanthera paronichyoides* var. **boliviana** (Rusby), nov. comb.

Alternanthera boliviana Rusby, *Mem. Torr. Bot. Club* 4: 249. 1895.

Alternanthera boliviana was based on a collection by Miguel Bang, n° 954, from the vicinity of Cochabamba, Bolivia. Of this collection there are duplicates in (G) and (K). These specimens are very much like *Alternanthera paronichyoides* var. *pilosa* from the Uruguay and Eastern Argentina, particularly as regards the flowers, having broadly ovate, obtuse, and completely glabrous tepals, and large anthers. The leaves are broader than usually in the var. *pilosa*, obovate or spatulate, and generally rounded at the apex, not mucronate. Intermediate forms between this variety and the vars. *chacoënsis* and *robusta* occur.

Further material seen:

Bolivia, Cochabamba, 2600 m, Steinbach 8794 (G, BA).

4 c. *Alternanthera paronichyoides* var. **chacoënsis** (Mor.), nov. comb.

Alternanthera chacoënsis Morong, ex Morong & Britton, *Ann. New York Acad. Sc.* 7: 208. 1892.

Alternanthera chacoënsis was based on Morong 1587 from the banks of the Pilcomayo river in the Chaco. The type (NY) consists of two fragments of a large specimen of very lush growth, with very large (2.5-6.5 × 0.8-2.0 cm) leaves, ovate to lanceolate or rarely obovate, mostly acute, mucronate, cuneate at base, the winged stalk 0.5-1.5 cm long. The outer tepals may be almost or possibly in some cases quite glabrous, but in most flowers they have a few hairs below; the tepals are definitely 3-nerved, not 1-nerved as stated in the description, where the number of stamens is given as 3; this cannot apply to all flowers, as on dissecting one I found 5 stamens of very unequal length; the author describes the pseudostaminodia as entire; they are, however, definitely toothed or even lobed.

Specimens more or less similar to the above are found all over the Chaco region, and along the Paraguay-Paraná rivers as far south as Buenos Aires, where they merge with the var. *pilosa* to such an extent that it can be almost hopeless to name specimens from the southern bank of the River Plate. Forms approaching the varieties *paronichyoides*, *robusta*, and, as mentioned above, *boliviana* also occur. However, these forms are only met with in the outskirts of the area, while specimens from well within the range of the variety as a rule are quite easy to recognize. It would therefore seem justified to regard the var. *chacoënsis* as a weak, but probably distinct, geographical variety.

Select material seen:

Argentina.

Buenos Aires, Capital Federal, Puerto Nuevo, Burkart 173 (SI).

Prov. Chaco: Dep. Resistencia, Colonia Benítez, Schulz 3708, 14710, 14818 (SCHULZ); île vis-à-vis de Corrientes, Alboff (LP 622879); Dep. Bermejo, Las Palmas, Jörgensen 2559 (BA).

Prov. Corrientes: Dep. Capital, costa anegadiza del Paraná, 6 km al N, Rodrigo 920 (LP); Dep. General Paz, Itá Ibaté, Schwarz 398 (BM).

Prov. Entre Ríos: Dep. Feliciano, Río Guayquiraró, ruta 12, orilla arcillosa, Burkart & al. 23325 (SI); Dep. La Paz, pajonales del río Guayquiraró, en el puente ruta 126, Burkart 23960 (SI).

Prov. Formosa: Capital (?), Jörgensen 2573 (BA). Dep. Laishi, Herradura, Pedersen 1249 (C.).

Prov. Santa Fe: Dep. Obligado, Mocoví, Venturi 41 (BA, SI).

Prov. Santiago del Estero: Capital, Parque Aguirre, Argañarás 208 (LP).

Paraguay.

Trinidad pr. Asunción, Osten 9103 (BA).

4 d. *Alternanthera paronichyoides* var. **ovata** Chod., *Bull. Herb. Boiss.*, 2me sér., 3: 354. 1903.

This variety was based on Hassler 7776, from Northern Paraguay (G), which is a fragment of a rather densely hairy plant with almost orbicular leaves, hairy on both surfaces; the tepals are pilose near the base, the anthers small (\pm 0.2 mm long), the pseudostaminodia rather long, triangular, acute, toothed in the margin. I have seen no other material exactly like Hassler 7776. It is at present impossible to estimate the value of this variety, in many ways intermediate between the vars. *paronichyoides* and *robusta*.

4 e. *Alternanthera paronichyoides* var. *pilosa* (Moq.) Süssenguth,
in Fedde, *Repertorium* 39: 4. 1935.

Alternanthera pilosa Moq., in DC., *Prodr.* 13 (2): 357. 1849.

Alternanthera Felipponei Beauverd, *Bull. Soc. Bot. Genève*, 2me sér. 13:
268. 1921.

Alternanthera boliviana ssp. *amentacea* Süssenguth in Fedde, *Repertorium* 42:
51. 1937.

Alternanthera paronychioides var. *amentacea* (Ssgth.) Ssgth., *Mitteil. bot.*
Staatssamml. München 2: 67. 1950.

Of the two collections on which Moquin-Tandon based *Alternanthera pilosa* — a Sellow collection from "Southern Brazil" (more likely Montevideo, Uruguay), and a Gaudichaud collection from Rio Grande do Sul — there are two specimens of the Sellow collection in the Decandolle Herbarium in (G). In the herbarium of Moquin-Tandon now in (P), are kept fragments of the Sellow material together with a specimen of the Gaudichaud collection, to the sheet of which is pinned a drawing of the flower, showing the supposedly entire pseudostaminodia, which Moquin-Tandon considered characteristic of the species. Two further duplicates of the Sellow collection, labelled "Montevideo", in (C), were available for detailed examination. Together with other specimens from Uruguay, North Eastern Argentina, and extreme South Eastern Paraguay, they represent a plant rather similar to *Alternanthera paronichyoides*, differing in the generally smaller and narrower, lanceolate leaves, the rather broad, obtuse, glabrous outer tepals, the large (approximately 0.5 mm or more long) anthers, and the very short style.

Alternanthera Felipponei was based on a specimen from the mount at Montevideo, collected by Felippone. The type (G) is an almost perfect replica of the Sellow material on which *Alternanthera pilosa* was based.

Alternanthera boliviana ssp. *amentacea* was based on Parodi 7219 from the South Dock at Avellaneda, Province of Buenos Aires. A fragment of the type (M), and a duplicate from the herbarium of Ing. Parodi were available for study. Apart from the leaves being apiculate, and the tepals rather narrow, the material is hardly distinguishable from the Uruguayan plant.

4 e*. *Alternanthera paronichyoides* var. *pilosa* f. *pilosa*

Synonyms as above.

Further selected material seen:

Argentina.

Prov. Buenos Aires: Pdo. Escobar, Garín, Lanfranchi 708 (SI). —

La Plata, Bosque, Cabrera 5229 (LP, SI). — Pdo. Las Flores, Rosas FCS, Daguerre 380 (BA). — Pdo. Las Heras, Estancia Sandubehere, Rodrigo 3430 (LP). — Pdo. Tres de Febrero, Martín Coronado, Martínez Crovetto 1209 (SCHULZ).

Prov. Entre Ríos: Concordia, Pennington (BR). — Dep. Federación, Río Mocorelá, Ruta 14, Burkart & Gamero 21721 (SI). — Rosario del Tala, Estancia Recabado, Stella Sorarú 130 (SI). — Concepción del Uruguay, Lorentz (BAF, BM).

Prov. Misiones: Posadas, Gallardo 3739 (BA).

Paraguay.

Dep. Itapúa: Encarnación, Rojas (BAF, MVM).

Uruguay.

Dep. Durazno: in fruticetis ripariis fl. Yi pr. Durazno, Osten 4242 (MVM). — Dep. Montevideo: Sayago, Herter 8911 (G). — Salto, Felippone 3620 (SI). — Dep. San José, Rosengurtt B4961 (C).

4 e**. *Alternanthera paronichyoides* var. *pilosa* f. *aberrans*, nov. forma

A forma *pilosa* recedit tepalis \pm pilosis.

R. P. Argentina, Prov. Buenos Aires, Pdo. Tandil, Sierras, Cerro Leones 2-II-1956, leg. Delia Abbiatti 4287 (LP).

This is a typical *Alternanthera paronichyoides* var. *pilosa* in every respect except for the tepals, which are hairy, often densely so. Where the range of the var. *pilosa* overlaps that of other varieties, a bewildering number of intermediate forms occur, as is the case around Buenos Aires, where all stages of transition to the var. *chacoënsis* are found. Such plants may have the tepals more or less hairy, but are then usually intermediate in other characters as well. There are, however, well within the geographical range of the var. *pilosa*, and scattered throughout that area, occasionally found specimens which only differ in having hairy tepals. Simply to include such specimens in the var. *pilosa* would be to disregard one of the best characters for keying out the varieties of *Alternanthera paronichyoides*. In spite of the obvious risk of creating further complications, it seems justified to segregate these specimens and consider them a form apart.

The following may also be referred here:

Argentina, Prov. Entre Ríos: Dep. Concordia: río Uruguay, arroyo Arrebatocapa, Castellanos (BA 31/1036 p.p.). — Prov. Misiones: Posadas, Holmberg (SI 10619).

4 f. *Alternanthera paronichyoides* var. **robusta** Chodat, *Bull. Herb. Boiss.*,
2me. sér., 3 : 355. 1903

Alternanthera Morongii Uline, *Field Col. Mus. Publ. 39, Bot. Ser. 1* (5):
418. 1899.

Alternanthera paronichyoides var. *robusta* was based on Hassler 8085, from extreme Northern Paraguay. The type (G; isotype BM) has rather broad, obovate-orbicular leaves, rounded and conspicuously mucronate at apex, hairy below, at least when young. The outer tepals are acute, hairy; stamens of very unequal length, the anthers some 0.3 mm or more long. Specimens with these characters seem to predominate in Central and Northern Paraguay, to which region they appear to be restricted.

Alternanthera Morongii was based on Morong 40, from Central Paraguay. Of this collection I have seen a duplicate in (BM). It is a weak specimen with rather small leaves, in some cases scarcely mucronate. The flowers are rather small, probably due to their not being fully developed, and possibly for the same reason the tepals are obtuse; they are not glabrous, as stated by the author, but with —generally a few— hairs in all the flowers I have examined. The stamens and pistil are exactly those of the var. *robusta* (in particular, the pseudostaminodia can be deeply 3-lacerate). As furthermore the author definitely states that the leaves are mucronate, it does not seem to be really different from *Alternanthera paronichyoides* var. *robusta*.

Further material seen:

Paraguay, Dep. La Cordillera: in regione lacus Ypacaray, Hassler 12631 (C, G). — Dep. La Guairá: Villa Rica, Jörgensen 4353 (SI; somewhat aberrant). — Dep. Paraguari: Ibytymi, Balansa 1954 (P.).

The following tentative key may help to distinguish the varieties of *Alternanthera paronichyoides* here discussed:

- A. Tepals obtuse, glabrous; anthers large, more than 0.5 mm long; leaves not of scarcely mucronate.
- B. Leaves lanceolate, acute, occasionally apiculate.....
var. *pilosa* f. *pilosa*
- B'. Leaves obovate or spatulate, rounded at apex.....
var. *boliviana*
- A'. Tepals generally more or less hairy, when glabrous leaves mucronate.
- B. Tepals broadly ovate, obtuse; anthers large, 0.5 mm, or more long; leaves not mucronate
var. *pilosa* f. *aberrans*
- B'. Tepals narrowly ovate or lanceolate, usually acute; anthers generally smaller, when large leaves conspicuously mucronate.

- C. Tepals scarious, more or less shiny, lanceolate, acute; anthers small, generally less than 0.2 mm long, or stamens rudimentary or nil; leaves not mucronate
var. *paronichyoides*
- C'. Tepals sub-chartaceous, opaque; leaves mucronate.
- D. Leaves mostly lanceolate or narrowly ovate, usually acute
var. *chacoënsis*
- D'. Leaves mostly obovate or orbicular, usually rounded at apex.
- E. Anthers 0.3 mm or more long.....
var. *robusta*
- E'. Anthers \pm 0.2 mm long; leaves hairy on both sides
var. *ovata*

To most people familiar with this group, the number of varieties recognized will probably appear excessive. The differences between them are admittedly slight, and they merge imperceptibly into one another, but with the exception of the var. *paronichyoides* each variety seems to be restricted to a definite geographical range, and with typically developed specimens it is usually fairly easy to tell at a glance where they come from. In view of this, I think there is some justification in keeping them separate.

5. *Alternanthera philoxeroides* (Mart.) Griseb., *Abh. Königl. Ges. Wiss. Göttingen* 24 : 36. 1879.

- Bucholzia philoxeroides* Mart., *Acta Acad. Cues. Leopold. Carol. Nat. Cur.* 13 (1) : 315. 1826.
- Bucholzia philoxeroides* var. *obtusifolia* Mart., l. c. : 316.
- Bucholzia philoxeroides* var. *acutifolia* Mart., l. c.
- Telanthera philoxeroides* (Mart.) Moq., in DC., *Prodr.* 13 (2) : 362. 1849.
- Telanthera philoxeroides* α *obtusifolia* (Mart.) Moq., l. c. : 363.
- Telanthera philoxeroides* β *acutifolia* (Mart.) Moq., l. c.
- Telanthera philoxeroides* var. *linearifolia* Chod., *Bull. Herb. Boiss.* 7, App. 1 : 64. 1899.
- Alternanthera philoxeroides* var. *acutifolia* (Mart.) Hicken, *Ap. Hist. Nat.* 2 : 94. 1910.
- Alternanthera philoxeroides* var. *obtusifolia* (Mart.) Hicken, l. c.
- Alternanthera philoxeroides* var. *lanceifolia* Chod., *Bull. Soc. Bot. Genève.* 2me. sér., 18 : 257. 1927.
- Alternanthera philoxeroides* f. *angustifolia* Süssenguth, in Fedde, *Repertorium* 35 : 303. 1934.
- Alternanthera philoxeroides* var. *luxurians* Ssgth., *Mitteil. bot. Staatssamml. München* 2 : 68. 1950.

This species, widespread in tropical and subtropical America, was described by Martius from notes made on his journeys in Brazil, and from material collected near Montevideo by Sellow. Of this material

there are duplicates in (BR), (C) and (K), unfortunately none of them named in Martius' handwriting. This is the case with a specimen he collected himself "in aguaticis, inundatis ad flm. Sapucahy, Provincia Minas Geraes" (M), and with later specimens by other collectors in (BR) and (M); none of these, however, are cited in the original description. There is consequently hardly any specimen at hand which can be considered the holotype. As an acceptable lectotype, I would suggest the Brussels specimen of the Sellow collection, which is known to have been in Martius' hands. This is a more or less upright plant, with narrowly obovate or elliptic, obtuse leaves. Of the two varieties into which Martius divides the species, this is probably what was meant by "var. obtusifolia", cfr. also the words "Varietas obtusifolia habitat in Monte Video! clar. Sellow. Var. acutifolia ad S. Pauli Civitatem locis udis. v. v.". With this typification the var. *obtusifolia*, as including the type, is reduced to synonymy. Experience with living plants, on the other hand, shows that acute and obtuse leaves may often be found on different parts of the same individual, shoots floating on the water usually having broad and rounded leaves, while the leaves on upright shoots are narrower and acute; the var. *acutifolia* accordingly becomes worthless. Very likely, what Martius intended was merely to draw attention to the variability of the species, and not so much to subdivide it; where he wishes to do this elsewhere, he does not write "var.", but uses letters from the Greek alphabet to distinguish his subdivisions.

More or less the same applies to the remainder of varieties based on differences in shape of leaf or habit; the specimens on which they are based show no other characters markedly different from those of the type. No material is cited by Chodat under *Alternanthera philoxeroides* var. *lanceifolia*; he merely draws attention to the fact that the Paraguayan plant has narrower leaves than plants from Eastern Brazil and the River Plate region. This might possibly be so, though more material will be needed to settle this question definitely, but the species being so extraordinarily plastic, it seems advisable to disregard these varieties altogether, at least for the present. In any case, the varietal name proposed by Chodat would hardly have priority.

6. *Alternanthera pungens* H. B. K. *Nova Gen. Sp. Pl.* 2: 206. 1817.

Achyranthes repens L., *Sp. Pl.* 1: 205. 1753.

Alternanthera repens (L.) Link, *Enum. Pl. Hort. Berol. altera* 1: 154. 1821.

Non *Alternanthera repens* Gmel., *Syst. Nat.*, ed. 13, 2 (1): 106. 1791.

Alternanthera pungens f. *pauciflora* Ssgth., *Mitteil. bot. Staatssamml. München* 2: 68. 1950.

A full account of the synonymy of this species is given by Melville (1958).

Alternanthera pungens f. *pauciflora* was based on two collections from the Argentine: Prov. Catamarca, El Banado, Brizuela 79 (M), and Prov. Catamarca, Dep. La Paz, Las Tejas, Brizuela 713 (M). Both these specimens are plants of lush growth with remarkably small and few-flowered spikes. So also is the specimen collected by Mylam near Buenos Aires (OXF), a presumed seedling of which is the lectotype of *Achyranthes repens*.

7. *Alternanthera Reineckii* Briq., *Ann. Cons. Jard. bot. Genève*, 3me année: 151. 1899

Alternanthera pilosa var. *microphylla* Chod., *Bull. Herb. Boiss.*, 2me. sér., 3: 355. 1903.

Alternanthera pilosa f. *petiolata* Chod., l. c.

Alternanthera pilosa var. *microphylla* and *Alternanthera pilosa* f. *petiolata* were based on two Paraguayan specimens, respectively Hassler 6261, from near Tobaty (G), and Hassler 3039, from near Lake Ypacaray (G). Both these specimens are *Alternanthera Reineckii*, as also stated by Suessenguth on an identification slip in (G), but apparently never published.

8. *Alternanthera Suessenguthii* Covas, *Rev. Arg. Agron.* 6: 297. 1939.

Alternanthera Lorentzii Ssgth., in Fedde, *Repertorium* 42: 53. 1937. Non *Alternanthera Lorentzii* Uline, *Field Mus. Publ.* 39, *Bot. Ser.* 1 (5): 421. 1899.

Alternanthera australis Covas, *Darwiniana* 6: 257. 1943.

Alternanthera negrensis Ssgth., *Mitteil. bot. Staatssamml. München* 1: 3. 1950.

Alternanthera Lorentzii Ssgth. was based on Lorentz 44c, from near Estancia Germania, Province of Córdoba, Argentina, and on Stuckert 12083, from Ochoa, also in the Province of Córdoba. Of the former collection I have seen a duplicate in (BM), while the latter specimen was seen in (G). A further specimen named by Suessenguth: Argentina, Río Negro II-1916, leg. A. C. Scala, was seen in (M).

Alternanthera Lorentzii Ssgth. being a later homonym of *Alternanthera Lorentzii* Uline, Covas changed the name to *Alternanthera Suessenguthii*. Apparently unaware of this, Suessenguth himself later renamed the species *Alternanthera negrensis*.

Alternanthera australis was based on Scala 43, from Río Negro, Argentina. This specimen (LP) is no different from the isotypes and authentic material of *A. Suessenguthii* seen.

9. *Froelichia procera* (Seub.), nova comb.

Froelichia lanata var. β *procera* Seub., in Mart., *Flor. Bras.* 5 (1): 167. 1875.

Froelichia lanata var. *paraguayensis* Chod., *Bull. Herb. Boiss.* 7, App. I: 63. 1899.

Froelichia lanata var. *paraguayensis* f. *albiflora* Chod., *Bull. Herb. Boiss.*, 2^{me} sér., 3: 354. 1903.

Froelichia lanata var. *paraguayensis* f. *roseiflora* Chod., l.c.

The description of *Froelichia lanata* var. β *procera* is only one line, and no material is cited as referable to this variety; nor have I seen any specimen labelled *Froelichia lanata* β *procera* in Seubert's handwriting. The material which Seubert (1875) refers to what he calls "*Froelichia lanata* Moq." is heterogenous, comprising a smallish annual from North Eastern Brazil and a coarse perennial from Central and Southern Brazil; it must be inferred that the latter is what is meant by the var. β *procera*. Of the material cited by Seubert which belongs here, I have seen Regnell III 219, collected at Uberava, Minas Gerais, of which there are three sheets in (S); in the absence of any type designated by the author, this material can be considered typical. It can be described as follows:

Herba perennis, robusta, 1 m alta, xylopodio ad 5 cm crasso. Caulis ramosus, teres, striatus, tomentosus, internodiis ad 20 cm longis. Folia 3.6 × 0.4 - 1.5 cm, sessilia, anguste lanceolata, acuta, basi cuneata vel sub-rotundata, haud mucronata, supra villosa, subtus tomentosa. Inflorescentia composito-spicata, ad 30 cm longe pedunculata, interdum sub-ramosa, 10-12-articulata, infra laxa (internodium imum c. 10 cm longum); spiculae sessiles, ad 1 cm longae. Bracteae c. 2 mm longae, late triangulares, acuminatae, concavae, 1-nerviae, glabrae, fuscescentes; bracteolae inaequales, exterior c. 3 mm, interior c. 4 mm longa, orbiculares vel ovato-orbiculares, rotundatae et plerumque apice fissae, 1-nerviae, glabrae, ferrugineae. Perigonium 5.5 - 6.5 mm longum, cujus inferiores partes circiter duae lana involutae superior circiter tertia pars 5-partita est, laciniis sub-imbricatis, oblongis, apice sub-rotundatis, obscure 3-nervis, margine membranaceis; stamina post anthesim ad 5.5 mm longa, antheris 1.3 - 1.5 mm longis, apices pseudostaminodiorum non attingentibus, quae c. 0.8 mm longa, rotundata vel truncata sunt; ovarium c. 1.5 mm longum, stylo vix manifesto et stigmatibus penicillato; perigonium in maturitate alis duabus c. 1 mm latis, dentatis munitum, dentibus basalibus destitutum. Utriculus ovatus vel conicus, c. 2.5 mm longus, membranaceus, albidus; semen 1.5 mm longum, castaneum.

Quite apart from the impossibility of using the name *Froelichia lanata* var. *procera*¹, this plant is really very different from the tropical Brazilian annual of which it has been considered a variety, and should be considered a distinct species.

Froelichia lanata var. *paraguayensis* was described from Hassler 1323, collected at Itacurubí, Paraguay. This specimen (G) is no different from Regnell III 219. In spite of being clearly typified, the epithet *paraguayensis* would unfortunately not be available as a specific name, there being already a *Froelichia paraguayensis* Chod. (1899).

Froelichia lanata var. *paraguayensis* f. *albiflora* and f. *roseiflora* are based on Hassler 7757a and 6120 respectively; these are chance variations in the colour of the perianth, to which hardly any taxonomic significance should be attributed.

Further material seen:

Argentina.

Prov. Corrientes: Dep. Concepción, Rincón de Luna, Pedersen 5304 (C, LP); Dep. Mburucuyá, Estancia "Santa María", Pedersen 842 (C).

Prov. Misiones: Loreto, Ekman 121 (S); ad Loreto, casa de Drewes, in campo arenoso, Ekman 122 (S).

Brazil.

State of S. Paulo: Campo Fortaleza, Löfgren 1047 (C); São Simão, serrado arenoso, Löfgren (?) 210 (C).

Paraguay.

Dep. Amambay, in altoplanitie et declivibus Sierra de Amambay, leg. Rojas, hb. Hassler 10070 (BM, S); in regione cursus superioris fluminis Apa, Hassler 7757 (type of f. *albiflora*: G); Sierra de Amambay, Cerro Torin, Rojas 3779 (S); ad ripam fl. Capibari, Hassler 4481 (S). — Dep. Central, Patiño pr. Asunción, Teague (BM). — Dep. La Cordillera, in regione collium Cerros de Tobaty, Hassler 6120 (type of f. *roseiflora*; G; isotypes: P, S); in arenosis Tacuaral, Hassler 3469 (P); in regione lacus Ypacaray, Hassler 11501 (C). — Dep. La Guayrá, Estancia Primera, Jörgensen 4717 (BR, C).

10. *Gomphrena celosioides* Mart., *Acta Acad. Caes. Leopold.*

Carol. Nat. Cur. 13 (1): 301. 1826.

Gomphrena celosioides f. *villosa* Ssgth., in Fedde, *Repertorium* 42: 57. 1937.

For further synonyms see Holzhammer (1955, 1956).

Gomphrena celosioides was based on a plant collected by Sellow in Uruguay. I have been unable to find the actual holotype, which seems

¹The name *Froelichia lanata* Moq. is clearly invalidated by the earlier homonym *Froelichia lanata* Moench (1794), besides being invalid on other grounds as well.

to be neither in (M), nor in (BR), but I have seen probable duplicates in (C), (HAL) and (MPU), the two former labelled "Montevideo", the last named "Brazil" (two sheets).

Gomphrena celosioides f. *villosa* was described from a specimen collected in South West Africa: Bastardland, Hefners Farm, Dinter 8002 (M). This specimen is certainly hairy, but not conspicuously more so than the probable isotypes, especially those in (C) and (MPU).

11. *Gomphrena pulchella* Mart., *Acta Acad. Caes. Leopold. Carol. Nat. Cur.* 13 (1): 302. 1826.

Gomphrena pulchella var. *ecristata* Chod., *Bull. Soc. Bot. Genève*, 2^{me} sér., 18: 293. 1926.

For further synonyms see Holzhammer (1955, 1956).

Gomphrena pulchella was described from a specimen collected by Sellow near Montevideo. Of this collection there are probable duplicates in the Martius Herbarium, now in (BR), and in (HAL). Unfortunately, both these specimens are without roots, but a portion of the caudex is left on the Halle specimen, showing that the plant in all probability was perennial. Martius describes the root as annual, but I am inclined to suspect that the specimen he saw with root, the whereabouts of which unfortunately are not known to me, was a very young plant, as there do not seem to be any annuals of that group known from Southern Brazil or Uruguay.

Gomphrena pulchella var. *ecristata* was based on the following Paraguayan specimens: Campo Grande, entre Luque et la Trinidad, Balansa 1944a; Boca del Pilcomayo, arenales salinos, Rojas 692 ("forma major"); Gran Chaco, Loma Clavel, Rojas 2569. These specimens, all in (G), match the material collected by Sellow very well. As characteristic of the var. *ecristata*, Chodat emphasized the thick root and the absence of a crest on the bracteoles; however, in many flowers on the Sellow material, there is not even the obsolete crest described by Martius to be seen; while on the other hand two specimens of Balansa 1944a in (P) both have a very thin root.

12. *Pfaffia glomerata* (Spreng.), nov. comb.

- Iresine glomerata* Spreng., *Neue Entdeckungen* 2: 110. 1821.
Gomphrena stenophylla Spreng., *Syst. Veg.*, ed. 16, 1: 823. 1825.
Sertürnera glauca Mart., *Nova Gen. Sp. Pl. Bras.* 2: 37. 1826.
Sertürnera luzulaeflora Mart., l. c.: 39.
Pfaffia glauca (Mart.) Spreng., *Curae post. in Syst. Veg.*: 107. 1827.
Pfaffia luzulaeflora (Mart.) D. Dietr., *Syn. Pl.* 1: 868. 1839.
Gomphrena luzulaeflora (Mart.) Moq., in DC., *Prodr.* 13 (2): 384. 1849.

- Gomphrena glauca* (Mart.) Moq., l. c.
Gomphrena Dunaliana Moq., l. c.
Mogiphanes glauca (Mart.) Griseb., *Abhandl. Königl. Ges. Wiss. Göttingen* 24: 35. 1879.
Mogiphanes Dunaliana (Moq.) Griseb., l. c.
Pfaffia stenophylla (Spreng.) Stuehl., in Fedde, *Repertorium* 12: 357. 1913.
Alternanthera glauca (Mart.) Hosseus, *Bol. Acad. Nac. Cienc. Córdoba* 26: 60. 1921.
Pfaffia Dunaliana (Moq.) Schinz, in Engler & Prantl., *Pflanzenfamilien*, 2. Aufl., 16 c.: 68. 1934.
Pfaffia luzulaeflora var. *microcephala* Stützer, ex Ssgth., in Fedde, *Repertorium* 35: 332. 1934.
Pfaffia iresinoides var. *angustifolia* Stützer, in Fedde, *Repertorium, Beiheft* 88: 34. 1935.
Pfaffia luzulaeflora f. *gracilis* Stützer, l. c., var. *paniculata* Stützer, l. c.: 35 et f. *virgata* Stützer, l. c.: 36.

The description of *Iresine glomerata* is very short, and in the absence of authentic material it would be nearly impossible to interpret this species with any degree of certainty. Beyond the words "in Brasilia" there is no indication of origin. A clue to its identity is a statement by Martius (1826) that he has seen an authentic specimen, and that it is identical with his own *Sertürnera glauca*. This statement is repeated by Moquin-Tandon (1849) and by Seubert (1875).

There is in (M) a sheet labelled "*Iresine glomerata* N. Entd. 2. 110" in Sprengel's handwriting; below has been added later, apparently also by Sprengel, "*Gomphrena stenophylla* Spreng. Syst. veget.". This label has at some time been pasted on to a printed label with the heading "Herbarium Regium Monacense"; across it Seubert has written "*Gomphrena glauca* Moq.". There is also an identification slip on which Martius has written "*Sertürnera glauca* Mart.". — Whether this is the actual specimen on which *Iresine glomerata* was based is impossible to say, but as an authentic specimen agreeing with the original description it should at least be an acceptable lectotype of the species. — There should be no reason for rejecting the name *Iresine glomerata* as a nomen nudum; the description, though admittedly short and insufficient, is no worse than many other descriptions from that period.

Gomphrena stenophylla is described in the 16th edition of Linnaeus' *Systema Vegetabilium*, based on material collected by Sellow at Montevideo. No mention is made there of *Iresine glomerata*, but this omission has been corrected in the *Curae posteriores*, where the new combination *Pfaffia glauca* is made, and both *Gomphrena stenophylla* and *Iresine glomerata* are cited as synonyms. There is in (B) a specimen with immature flowers from Sprengel's own herbarium labelled by him "*Pfaffia glauca** cur. post. 107; *Gomphrena stenophylla**"; this specimen is the same species as *Iresine glomerata*. It would seem that Sprengel

gel, on transferring his species first to *Gomphrena*, and then to *Pfaffia*, considered the specific name unsuitable, and changed it accordingly.

Sertürnera luzulaeflora was described from a specimen collected by Sellow in Uruguay ("Provincia cisplatina"). I have been unable to find any specimen so named by Martius in (M), nor does there seem to be any in his private herbarium, now in (BR). There is, however, in (HAL) a very poor specimen collected by Sellow in "Brasil. meridionalis" and labelled "*Sertürnera luzulaeflora*, Mart." by Schlechtendal. As Martius was in communication with Schlechtendal, and received much, if not all his Sellow material that way, there is very good reason to suppose that this specimen, which agrees with the brief description of *Sertürnera luzulaeflora*, is indeed a duplicate of the type, if not actually a portion of the same plant. This specimen is *Pfaffia glomerata*, as met with in the swamps of the River Plate region. The stem is hairy when young, but soon glabrous; the leaves are broadly lanceolate; bracts acuminate. The specimen could be a duplicate of Sprengel's specimen of *Gomphrena stenophylla* in (B).

Gomphrena Dunaliana was based on d'Orbigny 1273, from Bolivia. There is a specimen in Moquin-Tandon's herbarium, now in (P), which presumably must be considered the holotype. This is the top of a vigorous plant with hairy leaves and rather large flower-heads and flowers, a form commonly met with in North Western Argentina and adjacent Bolivia. Stützer (1935) found it scarcely different from her own *Pfaffia luzulaeflora* var. *paniculata*. Should it be considered sufficiently distinct to merit varietal status, Stützer's name is to be used, but apparently it merges imperceptibly with the *Pfaffia glomerata* of the River Plate region.

The probable type of *Pfaffia luzulaeflora* var. *microcephala* was seen in (M); it is merely a young, vigorous, leafy shoot with not yet fully developed flower-heads.

Of the material which Stützer refers to *Pfaffia iresinoides* var. *angustifolia*, I have seen the following specimen: Argentina, Buenos Aires, Tweedie (K). This specimen is typical *Pfaffia glomerata*, as it grows in the swamps of the River Plate region, but was for some reason by Suessenguth referred to *Pfaffia iresinoides* (H.B.K.) Spreng.; being rather unlike the usual material of that species, Stützer thought she had better make it a new variety, evidently not wishing to revise Suessenguth's determination.

Of the material cited by Stützer under *Pfaffia luzulaeflora* f. *gracilis*, I have seen the following specimens: Argentina, Prov. Buenos Aires: Los Talas, Cabrera 2923 (M); R. O. Uruguay: Bords du Santa Lucía, Gibert 14 (K). In both cases, the material consists of the top part of shoots with well-developed flower-heads, otherwise in no way different from the usual material met with in this species; the stem is glabrescent.

The only authentic specimen of *Pfaffia luzulaeflora* var. *paniculata* seen is Herzog 1004 from Ledesma, Prov. Jujuy, Argentina (M). This is the top of an exceptionally well-developed shoot, very hairy, and with rather large flower-heads, but otherwise scarcely distinct.

Pfaffia luzulaeflora f. *virgata* was based on two specimens in (B): Fiebrig 623, from Cordillera de Altos, Paraguay, and Hieronymus & Lorentz 1120, from Tucumán, Argentina. A duplicate of the former was seen in (G); this is merely a little-branched shoot of *Pfaffia glomerata*, with nothing distinctive about it.

12 a. *Pfaffia glomerata* var. *glomerata*

Synonyms as above.

Note: This plant is usually described as polygamous. This cannot be the universal rule. On attempting to disentangle the numerous forms and varieties described, I had occasion to dissect a considerable number of flowers, and with possibly one or two exceptions found them all to be perfect.

12 b. *Pfaffia glomerata* var. *squarrosa* (Stützer), nov. comb.

Pfaffia luzulaeflora ssp. *squarrosa* Stützer, in Fedde, *Repertorium, Beiheft* 88: 37. 1935.

Pfaffia luzulaeflora ssp. *squarrosa* (on the labels Stützer wrote "var.") was based on Fiebrig 1282, collected in the Paraguayan Chaco at 21° lat. S. Duplicates of this collection were seen in (G) and (K). This is a rather hairy, few-leaved plant; the inflorescence is densely and divaricately branched, the flower-heads on short (0.5 - 2.5 cm long), often fasciculate stalks; tepals 2.8 - 3 mm long, with very prominent, brownish-red or purplish veins. This plant, apparently endemic to the upper course of the Paraguay river, certainly appears to have some claims to recognition as a separate variety.

Further material seen:

Brazil, State of Matto Grosso: Castillo, R. Paraguay above Corumbá, in scrub, Lenkester (K).

13. *Pfaffia gnaphaloides* (L. f.) Mart., *Nova Gen. Sp. Pl. Bras.* 2: 24. 1826.

Lám. I

Celosia gnaphaloides L. fil., *Suppl. Plant.*: 161. 1781.

Gomphrena lanata Poir., *Encycl. Suppl.* 1: 315. 1810. Non *Gomphrena lanata*

R. Br., *Prodr. Fl. N. Holl.* 1: 416. 1810. Nec *Gomphrena lanata* H.B.K.

Nova Gen. Sp. Plant. 2: 202. 1817.

Gomphrena lanata β Poir., l. c.

- Gomphrena?* *Poiretiana* Schult., in R. & S., *Syst. Veg.* 5: 541. 1819.
Gomphrena gnaphaloides (L. f.) Vahl, l. c. 542
Pfaffia tomentosa Mart., *Nova Gen. Sp. Pl. Bras.* 2: 24. 1826. *Acta Acad. Caes. Leopold. Carol. Nat. Cur.* 13 (1): 311. 1826.
Oplotheca? *Poiretiana* (Schult.) Mart., *Acta Acad. Caes. Leopold. Carol. Nat. Cur.* 13 (1): 297. 1826.
Gomphrena lanata β *parvifolia* Moq., in DC., *Prodr.* 13 (2): 390. 1849.
Gomphrena lanata γ *oblongifolia* Moq., l. c.
Pfaffia lanata (Poir.) Gibert, *Enum. Pl. Montev.*: 73. 1873.
Gomphrena phagnaloides Griseb., *Abhandl. Königl. Ges. Wiss. Göttingen* 19: 34. 1874.
Gomphrena lanata var. α *latifolia* Seub., in Mart., *Fl. Br.* 5 (1): 197. 1875.
Pfaffia lanata var. *Peteriana* O. K., *Revisio* 2: 544. 1891.
Pfaffia Poiretiana (Schult.) Stuehl., in Fedde, *Repertorium* 12: 358. 1913.
Pfaffia lanata var. *discolor* Ssgth., in Fedde, *Repertorium* 35: 332. 1934.
Pfaffia lanata var. *latifolia* (Seub.) Stützer, in Fedde, *Repertorium, Beiheft* 88: 27. 1935.
Pfaffia lanata var. *oblongifolia* (Moq.) Stützer, l. c.
Pfaffia lanata f. *parvifolia* (Moq.) Stützer, l. c.: 28.

The type of *Celosia gnaphaloides* (Plate I) was seen in the Thouin Herbarium, later incorporated with the Cambessèdes Herbarium, and now in (MPU). According to the label, it was collected by Commerson on the mount at Montevideo, and was evidently seen by the younger Linnaeus during his stay in Paris in 1780.

Gomphrena lanata was based on another Commerson specimen, found in the herbarium of Desfontaines, incorporated with the Webb Herbarium, now in (FI). This specimen is labelled "Buenosaires", but is so like the type of *Celosia gnaphaloides* that one is almost tempted to believe the two to be duplicates.

Poiret only knew *Celosia gnaphaloides* from the extremely brief and inadequate diagnose in the *Supplement*, of the younger Linnaeus, but never saw the specimen on which it was based. In the 5th volume of the *Encyclopedia* of Lamarek, p. 39, he lists it among the little known or doubtful species of *Celosia*, suggesting that from the description it might be an *Illecebrum*.

The identity of *Celosia gnaphaloides* appears to have been known to Vahl; the species is represented in his herbarium, now in (C), by a specimen obtained from Lamarek, labelled in Vahl's hand "Gomphrena gnaphaloides". There is no indication where and by whom this specimen was collected, but it is almost certainly a duplicate from Commerson's collections. It is true that in his card-index, under *Celosia gnaphaloides*, Vahl notes "not seen", but it is to be assumed that he saw the species later and omitted to correct the entry, as he evidently had access to the Thouin Herbarium, from which numerous duplicates are found in his own. On the index-card of *Gomphrena gnaphaloides*, he notes that he

saw it in the Jussieu Herbarium; he does not mention that he bases it on *Celosia gnaphaloides* L. fil., and his description, published long after his death, differs slightly from that of the younger Linnaeus, but the only likely explanation seems to be that Vahl's intention was to transfer *Celosia gnaphaloides* to *Gomphrena*, and not to describe a new species.

Gomphrena? *Poiretiana* is a new name for *Gomphrena lanata* Poir., motivated by the slightly older homonym *Gomphrena lanata* R. Br. Schultes only knew the species from Poiret's description.

That *Gomphrena gnaphaloides* (L. f.) Vahl and *Gomphrena lanata* Poir. are synonyms was established by Sprengel (1825) and (1827), but for some reasons this synonymy has been disregarded ever since.

Martius (1826b) admits that the very poor description of *Celosia gnaphaloides* would fit his own *Pfaffia tomentosa*, but not having seen a specimen, he cannot feel sure and is unwilling to commit himself; he does not mention Poiret's *Gomphrena lanata*. Curiously enough, he lists Vahl's *Gomphrena gnaphaloides* as a good species distinct from *Pfaffia tomentosa*, to which genus he transfers it, and claims to have seen a specimen. This must be a mistake, for Vahl's own specimen certainly leaves no doubt as to its identity. The listing as separate species of *Pfaffia tomentosa* Mart. and *Pfaffia gnaphaloides* "(Vahl) Mart." very likely was the cause of the persistent misidentification of the latter by most later botanists and the consequent confusion.

Pfaffia tomentosa was described from a Sellow specimen collected near Montevideo; what is probably a duplicate is found in (C). The synonymy with *Gomphrena lanata* Poir. was established by Moquin-Tandon (1849), who saw both types, and has not been queried since.

Gomphrena lanata β *parvifolia* is an elaboration by Moquin-Tandon on Poiret's *Gomphrena lanata* β , based on a small scrap, of which a portion is now found in Moquin-Tandon's herbarium in (P). The small, orbicular leaves merely seem to suggest a stunted or immature specimen.

Of *Gomphrena lanata* γ *oblongifolia*, there is a fragment of the Tweedie specimen cited by Moquin-Tandon in his herbarium in (P). This is a branching plant with narrower, often oblong leaves, less hairy on the upper surface. This form, and the form represented by the Commerson collections intergrade to a degree that makes it impossible to distinguish between them, and probably merely represent various stages of development or fortuitous variations.

Gomphrena lanata var. α *latifolia* is a superfluous name for the variety comprising the type.

The identity of *Gomphrena phagnaloides* was established by Suessenguth (1934).

I have not seen *Pfaffia lanata* var. *Peteriana*, but Stützer (1935) synonymizes it with the var. *latifolia*, and this is confirmed by the description.

Of *Pfaffia lanata* var. *discolor* I have seen an authentic specimen: R. O. Uruguay, Dep. Soriano: Mercedes, escasa en pradera y entre casas, Rosengurt B206 (M). This is a rather thin, straggling specimen, otherwise practically the same as the var. *oblongifolia*, and like that variety not really different from the type.

Further selected material seen:

Argentina.

Prov. Buenos Aires: Balcarce, Pedersen 1066 (C). Sierra de la Ventana, Estancia Leones, Alboff 208 (M).

Prov. Córdoba: Estancia Germania, Lorentz (M).

Prov. La Pampa: General Pico, Burkart 9818 (SI).

Prov. Tucumán: El Potrero Grande, Schickendantz 39 (M).

Uruguay.

Montevideo, Arechavaleta 4295 (SI). Dep. Lavalleja: Pororó, Pedersen 3619 (BR, C).

14. *Pfaffia helichrysoides* (Moq.) O. K., *Revisio* 2: 544. 1891.

Gomphrena helichrysoides Moq., in DC., *Prodr.* 13 (2): 391. 1849.

Gomphrena gnaphalioides var. *α planifolia* Seub., in Mart., *Fl. Bras.* 5 (1): 193. 1875.

Gomphrena gnaphalioides var. *β floccosa* Seub., l. c.

Pfaffia gnaphalioides var. *planifolia* (Seub.) Stützer, in Fedde, *Repertorium, Beiheft* 88: 26. 1935.

Pfaffia gnaphalioides var. *floccosa* (Seub.) Stützer, l. c.

Pfaffia gnaphalioides f. *subferruginea* Stützer, l. c.

Gomphrena helichrysoides was based on two collections by Claussen from Minas Gerais, nos. 25 and 45. The latter number is represented both in the Decandolle and in the Moquin-Tandon Herbarium; while in the Delessert Herbarium (G) there is a Claussen specimen with the numbers 25 and 56. Further duplicates of the Claussen material are found in various herbaria, though the numbers are sometimes missing. All are little, shrivelled specimens, with the brownish-yellow staining of the floral parts very conspicuous, and Moquin-Tandon considered this the principal character separating his new species from "*Gomphrena gnaphalioides* Vahl". To the latter species Moquin-Tandon referred larger specimens, evidently grown under more favourable conditions, but not otherwise distinct, as was shown by Seubert (1875), who, however, accepted Moquin-Tandon's misconception of *Gomphrena gnaphalioides* and used this name, as the oldest, for the species. This treatment was followed by most later authors.

I have seen no authentic material of *Gomphrena gnaphalioides* var. *α planifolia*, but the description merely suggests a *Pfaffia helichrysoides* growing in the shade, or perhaps collected on a rainy day.

Gomphrena gnaphalioides var. *β floccosa* is a superfluous name for the variety comprising the type, as understood by Seubert.

Pfaffia gnaphalioides f. *subferruginea* was based on material from Central Brazil: Riedel 2338 and Widgren s. no. This material was seen in (M); both are poor little specimens, exactly similar to Claussen 25 and 45, the co-types of *Gomphrena helichrysoides*.

Further selected material seen:

Argentina.

Prov. Jujuy: El Volcán, 2800 m, prados, Castillon 6587 (M).

Prov. Misiones: Santa Ana, de Llamas 223 (BAF); Rodríguez (M, SI).

Bolivia.

Dep. Santa Cruz, Prov. Bucavista: Lomas del Infiernillo, 450 m, Steinbach 1573 (M).

Brazil.

State of Bahia: N.-Ost Serra do Chuque, v. Lützelburg 15211 (M).

State of Minas Gerais: Caldas, Regnell I268 (C, K). Lagoa Santa, in campis rarissima, Warming 637 (C). Serra d. S. João d'El Rey, 3500'-5500' Di Stephan (K).

State of Piauhay: Sandy banks of the Rio Preto, Gardner 2948 (K).

State of São Paulo: Araraquara, Lund 625 (C). Löfgren 912 (C). Campinas, Santoro 727 (M).

Paraguay.

Dep.?, Estancia Primera, Jörgensen 4716 (BR, SI).

15. *Pfaffia tuberosa* (Spreng.) Hicken, *Ap. Hist. Nat.* 2: 93. 1910.

Gomphrena sericea Spreng., *Syst. Veg.*, ed. 16, 1: 823. 1825. Non *Gomphrena sericea* Hoffmanns, ex Schult., in R. & S., *Syst. Veg.* 5: 541. 1819.

Gomphrena tuberosa Spreng., l. c.

Pfaffia sericea (Spreng.) Mart., *Nova Gen. Sp. Pl. Bras.* 2: 22. 1826.

Pfaffia sericea var. *α vestita* Mart., l. c. et var. *β glabrescens* Mart., l. c.

Gomphrena tuberosa *α vestita* (Mart.) Moq., in DC. *Prodr.* 13 (2): 388. 1849.

Gomphrena tuberosa *γ glabrescens* (Mart.) Moq., l. c.

Gomphrena tuberosa var. *α sericea* (Spreng.) Seub., in Mart., *Fl. Bras.* 5 (1): 195. 1875.

That *Gomphrena sericea* Spreng. and *G. tuberosa* Spreng. are conspecific was established with some reservations by Martius (1826a), who transferred the species to *Pfaffia*. He considered the two varieties of the same species and distinguished them by supposed differences in the indument. This treatment was followed by Moquin-Tandon (1849), Seubert (1875), and Stützer (1935). Experience in the field, however, shows that this character is of little or no taxonomic importance, the

indument varying greatly with differences in habitat, the age of the specimen, etc., and the proposed varieties have been disregarded altogether by Covas (1941) and Smith and Downs (1960).

The name *Gomphrena sericea* Spreng. being invalidated by the earlier homonym *Gomphrena sericea* Hoffmanns, the combination *Pfaffia sericea* (Spreng.) Mart., as based on it, cannot be used, while there seems to be no objection to using the contemporary specific epithet *tuberosa*. Apparently, the first to use the binomial *Pfaffia tuberosa* was Hicken, l. c., though he does not state that he is making a transfer, and attributes the name to Moquin-Tandon. This, however, does not affect its validity.

16. *Philoxerus portulacoides* var. β *Commersonii* St. Hil., Voyage dans le district des Diamans et sur le littoral du Brésil 2: 437. 1833.

Telanthera philoxeroides γ *carcosa* Moq., in DC. *Prodr.* 13 (2): 363. 1849.

Telanthera philoxeroides γ *carcosa* was based on a specimen from the Hooker Herbarium, collected by Tweedie in the River Plate region. A photograph of that specimen, kindly made available by the Royal Botanic Gardens, Kew, shows it to be *Philoxerus portulacoides* var. *Commersonii* St.-Hil., found on the Atlantic coasts of the Province of Buenos Aires and the Uruguay.

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ALPHABETICAL LIST OF SYNONYMS

- Achyranthes ficoideum* (L.) Pers. = 2
A. peploides (H. & B.) Britton = 1
A. repens L. = 6.
Alternanthera australis Covas = 8
A. boliviana Rusby = 4b
A. boliviana ssp. *amentacea* Ssgth. = 4c
A. chacoënsis Morong = 4e
A. felipponei Bvd. = 4e
A. glauca (Mart.) Hosseus = 12
A. Lorentzii Ssgth. = 8
A. Morongii Uline = 4f
A. negrensis Ssgth. = 8
A. paronychioides var. *amentacea* (Ssgth.) Ssgth. = 4e
A. peploides (H. & B.) Urb. = 1
A. philoxeroides var. *acutifolia* (Mart.) Hicken = 5
A. philoxeroides f. *angustifolia* Ssgth. = 5
A. philoxeroides var. *lanceifolia* Chod. = 5
A. philoxeroides var. *luxurians* Ssgth = 5
A. philoxeroides var. *obtusifolia* (Mart.) Hick. = 5
A. pilosa Moq. = 4e
A. pilosa var. *microphylla* Chod. = 7
A. pilosa f. *petiolata* Chod. = 7
A. pungens f. *pauciflora* Ssgth. = 6
A. repens (L.) Link = 6
A. tenella Colla = 2
Bucholzia ficoidea (L.) Mart. = 2
B. philoxeroides Mart. = 5
B. philoxeroides var. *acutifolia* Mart. = 5
B. philoxeroides var. *obtusifolia* Mart. = 5
B. polygonoides β *diffusa* Mart. = 2
B. polygonoides α *erecta* Mart. = 2b
B. polygonoides γ *radicans* Mart. = 2c
Celosia gnaphaloides L. fil = 13
C. humifusa H. & B. ex R. & S. = 1.
Froelichia lanata var. *paraguayensis* Chod. = 9
F. lanata var. *paraguayensis* f. *albiflora* Chod = 9
F. lanata var. *paraguayensis* f. *roseiflora* Chod = 9
F. lanata var. β *procera* Seub. = 9
Gomphrena celosioides f. *villosa* Ssgth. = 10
G. dunaliana Moq. = 12
G. ficoidea L. = 2
G. glauca (Mart.) Moq. = 12
G. gnaphaloides (L. f.) Vahl ex R. & S. = 13
G. gnaphalioides var. β *floccosa* Seub. = 14
Gomphrena gnaphalioides var. α *planifolia* Seub. = 14
G. helichrysoides Moq. = 14
G. lanata Poir. = 13
G. lanata β Poir. = 13
G. lanata var. α *latifolia* Seub. = 13
G. lanata γ *oblongifolia* Moq. = 13
G. lanata β *parvifolia* Moq. = 13
G. luzulaeflora (Mart.) Moq. = 12
G. phagnaloides Griseb. = 13
G. ? Poiretiana Schult. = 13
G. pulchella var. *ecristata* Chod. = 11
G. sericea Spreng. = 15
G. stenophylla Spreng. = 12
G. tuberosa Spreng. = 15
G. tuberosa var. γ *glabrescens* (Mart.) Moq. = 15
G. tuberosa var. α *sericea* (Spreng) Seub. = 15
G. tuberosa var. α *vestita* (Mart.) Moq. = 15
Ilcebrum ficoideum (L.) L. = 2
I. peploides H. & B. ex R. & S. = 1
Iresine glomerata Spreng. = 12
Mogiphanes Dunaliana (Moq.) Griseb. = 12
M. glauca (Mart.) Griseb. = 12
Oplotecha ? Poiretiana (Schult.) Mart. = 13

- Pfaffia Dunaliana* (Moq.) Schinz = 12
P. glauca (Mart.) Spreng. = 12
P. gnaphalioides var. *floccosa* (Seub.) Stützer = 14
P. gnaphalioides var. *planifolia* (Seub.) Stützer = 14
P. gnaphalioides f. *subferruginea* Stützer = 14
P. iresinoides v. *angustifolia* Stützer = 12
P. lanata (Poir.) Gibert = 13
P. lanata var. *discolor* Ssgth. = 13
P. lanata var. *latifolia* (Seub.) Stützer = 13.
P. lanata var. *oblongifolia* (Moq.) Stützer = 13
P. lanata f. *parvifolia* (Moq.) Stützer = 13
P. lanata var. *Peteriana* O.K. = 13
P. luzulaeflora (Mart.) D. Dietr. = 12
P. luzulaeflora f. *gracilis* Stützer = 12
P. luzulaeflora var. *microcephala* Stützer = 12
Pfaffia luzulaeflora var. *paniculata* Stützer = 12
P. luzulaeflora ssp. *squarrosa* Stützer = 12b.
P. luzulaeflora f. *virgata* Stützer = 12
- P. Poiretiana* (Schult.) Stuhl. = 13
P. sericea (Spreng.) Mart. = 15
P. sericea var. β *glabrescens* Mart. = 15
P. sericea var. α *vestita* Mart. = 15
P. stenophylla (Spreng.) Stuhl. = 12
P. tomentosa Mart. = 13
Sertürnera glauca Mart. = 12
S. luzulaeflora Mart. = 12
Telanthera caracasana (H. B. K.) Moq. = 1
T. ficoidea (L.) Moq. = 2
T. philoxeroides (Mart.) Moq. = 5
T. philoxeroides β *acutifolia* (Mart.) Moq. = 5
T. philoxeroides γ *carnosa* Moq. = 16
T. philoxeroides v. *linearifolia* Chod. = 5
T. philoxeroides α *obtusifolia* (Mart.) Moq. = 5
T. polygonoides β *brachiata* Moq. = 2
T. polygonoides δ *compacta* Moq. = 4
T. polygonoides α *diffusa* (Mart.) Moq. = 2
T. polygonoides γ *erecta* (Mart.) Moq. = 2b
T. polygonoides ϵ *radicans* (Mart.) Moq. = 2c

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¹ Sinónimos en *bastardilla*.

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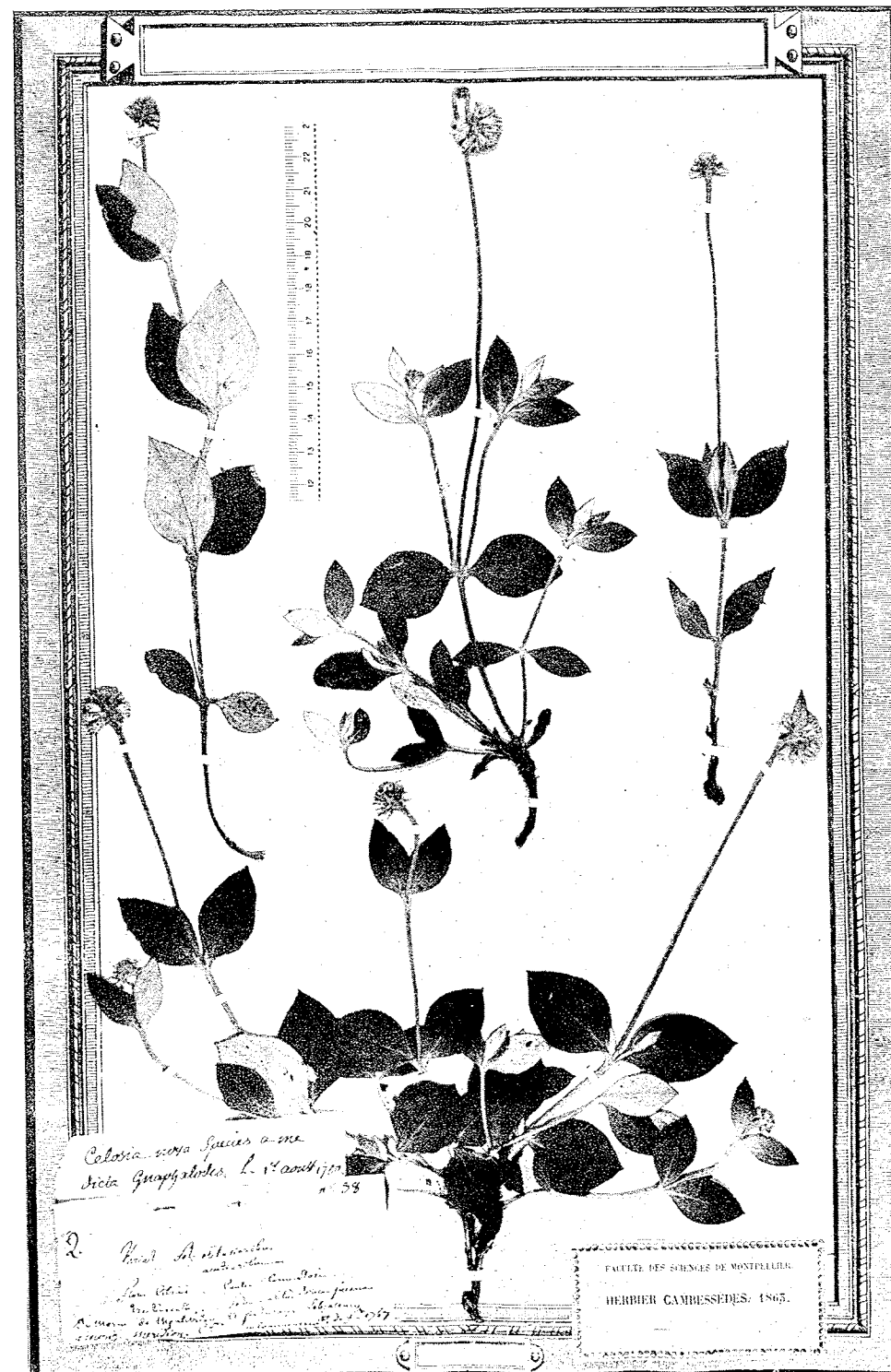
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Pfaffia gnaphaloides (L. f.) Mart. Type specimen of *Celosia gnaphaloides* L. f. — Photogr. courtesy of Institut de Botanique, Montpellier, France