
SYNOPSIS OF *ACALYPHA*
(EUPHORBIACEAE) OF
ARGENTINA, PARAGUAY, AND
URUGUAY¹

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ABSTRACT

A critical review of the Argentinian, Uruguayan, and Paraguayan species of *Acalypha* L. (Euphorbiaceae) is presented. As a result, 18 species (22 taxa) are accepted, 16 from Argentina, 12 from Paraguay, and five from Uruguay, and 49 names are considered as synonyms. Typifications are provided for *A. brasiliensis* Müll. Arg., *A. cordobensis* Müll. Arg., *A. friesii* Pax & K. Hoffm., *A. gracilis* Spreng., *A. nitschkeana* Pax & K. Hoffm., *A. multicaulis* Müll. Arg. var. *glabrescens* Pax & K. Hoffm., *A. lagoensis* Müll. Arg. var. *grandifolia* Chodat & Hassl., and *A. striolata* Lingelsh. Identification keys are also provided as are original illustrations of three species and distribution maps of all the accepted taxa.

Key words: *Acalypha*, Argentina, Euphorbiaceae, Paraguay, South America, Uruguay.

Acalypha L. is one of the largest genera in the Euphorbiaceae, with ca. 500 species. The genus is mainly pantropical, but some species are found in temperate regions. The New World is home to around two thirds of the species, which are found from southeastern Canada and the United States to Uruguay and northern Argentina. The species are found in a wide variety of habitats, from tropical rainforests to subdesertic areas, and range from sea level to 4000 m in altitude (Cardiel & Muñoz-Rodríguez, 2012). Updated information on the presence of *Acalypha* in the Americas can be found in Cardiel et al. (2013b). The present work continues the ongoing revision of *Acalypha* for South American countries preceded by Cardiel (1995a, 1995b, 1999, 2007, 2010), Cardiel and Muñoz-Rodríguez (2012), and Cardiel et al. (2013b).

Argentinian species of *Acalypha* were studied by Lourteig and O'Donnell (1942, 1943) and updated by Lourteig (1954). They recognized 14 species of *Acalypha* (17 taxa; Table 1) and included excellent illustrations. No relevant changes were introduced in the national catalogue by Bacigalupo and Mulgúra

(1999) or in the catalogue of Euphorbiaceae for the Southern Cone region by Berry et al. (2007). Finally, several regional or thematic floras and checklists also included *Acalypha* species: those from Bianco and Cantero (1992), Bacigalupo (2005), Pensiero et al. (2005), and Tressens et al. (2008). However, Paraguayan and Uruguayan plants are less well known; there are no national floras or checklists that include *Acalypha* species for these countries. In their world treatment of *Acalypha*, Pax and Hoffmann (1924) recognized nine and three species from Paraguay and Uruguay, respectively. In the Southern Cone catalogue, Berry et al. (2007) reported eight and four species from Paraguay and Uruguay, respectively (Table 2). De Egea et al. (2012) reported two species of *Acalypha* from Ñeembucú Department (Paraguay). Also relevant is the recent revision of the species included in *Acalypha* sect. *Communes* Pax & K. Hoffm. ex Cardiel, P. Muñoz & Muñoz Garm. (Cardiel et al., 2013a), which are widespread in the studied countries.

The *Acalypha* species treated in this synopsis are herbs, subshrubs or shrubs, and rarely small trees.

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Table 1. Taxonomic comparison of *Acalypha* L. cited for Argentina by Lourteig and O'Donnell (1942) and Lourteig (1954), Berry et al. (2007), and this work. Currently accepted names appear in boldface.

Lourteig & O'Donnell (1942) and Lourteig (1954)	Berry et al. (2007)	Cardiel & Muñoz-Rodríguez (2015)
<i>A. amblyodonta</i> (Müll. Arg.) Müll. Arg. var. <i>villosa</i> (Müll. Arg.)	<i>A. amblyodonta</i>	<i>A. amblyodonta</i>
<i>A. boliviensis</i> Müll. Arg.	<i>A. boliviensis</i>	<i>A. boliviensis</i>
<i>A. brasiliensis</i> Müll. Arg.	<i>A. brasiliensis</i>	<i>A. brasiliensis</i>
<i>A. communis</i> Müll. Arg. var. <i>communis</i>	= <i>A. communis</i>	= <i>A. communis</i> subsp. <i>communis</i>
<i>A. communis</i> var. <i>guaranitica</i> Chodat & Hassl.	= <i>A. communis</i>	= <i>A. communis</i> subsp. <i>apicalis</i>
<i>A. communis</i> var. <i>salicifolia</i> Pax & K. Hoffm.	= <i>A. communis</i>	= <i>A. communis</i> subsp. <i>paraguariensis</i>
<i>A. communis</i> var. <i>saltensis</i> Pax & K. Hoffm.	= <i>A. communis</i>	= <i>A. communis</i> subsp. <i>saltensis</i>
<i>A. flabellifera</i> Rusby	= <i>A. plicata</i>	= <i>A. plicata</i>
<i>A. friesii</i> Pax & K. Hoffm.	<i>A. friesii</i>	= <i>A. communis</i> subsp. <i>saltensis</i>
<i>A. gracilis</i> Spreng.	<i>A. gracilis</i>	<i>A. gracilis</i>
<i>A. hassleriana</i> Chodat	<i>A. hassleriana</i>	not found in Argentina
<i>A. lycioides</i> Pax & K. Hoffm.	<i>A. lycioides</i>	<i>A. lycioides</i>
<i>A. multicaulis</i> Müll. Arg.	<i>A. multicaulis</i>	<i>A. multicaulis</i>
<i>A. nitschkeana</i> Pax & K. Hoffm.	<i>A. nitschkeana</i>	= <i>A. herzogiana</i>
<i>A. poiretii</i> Spreng.	<i>A. poiretii</i>	<i>A. plicata</i>
<i>A. schreiteri</i> Lillo	<i>A. schreiteri</i>	<i>A. poiretii</i>
		<i>A. senilis</i>
		<i>A. striolata</i>
		<i>A. variabilis</i>
		<i>A. vellamea</i>
<i>A. villosa</i> Jacq.	<i>A. villosa</i>	<i>A. villosa</i>

They are morphologically well characterized by their undivided, alternate, petiolate, stipulate leaves; the inflorescences can be terminal or axillary, frequently both, unisexual or androgynous, and usually spicate (herein, they are only racemose in *A. villosa* Jacq.). The flowers are unisexual and apetalous. The staminate flowers are inconspicuous and similar; the pistillate flowers are small, usually sessile, and subtended by bracts that become foliaceous and accrescent in the fruit. The shape, size, and indumentum of these bracts are taxonomically valuable characters to distinguish species. Only one of the treated species herein, *A. villosa*, has pedicellate flowers with small, non-acrescent bracts. The fruits in *Acalypha* are capsular, 3-lobed, with diverse trichome types that are also useful to distinguish species.

The aim of this work is to present a critical synopsis of the species of *Acalypha* for Argentina, Paraguay, and Uruguay, and to provide taxonomic keys to facilitate their identification. Three original illustrations are included as are synoptic distribution maps for all the accepted species.

MATERIALS AND METHODS

This work is based on the study of 600 collections of *Acalypha* from Argentina, 450 from Paraguay, and

60 from Uruguay. The following herbaria are acknowledged: A, AAU, B, BM, BR, C, CAS, CORD, CTES, DAV, F, G, G-DC, GB, GH, GOET, HAL, HBG, JE, K, L, LIL, M, MA, MO, MPU, NY, P, PR, S, SEL, SI, U, UC, UPS, US, W, WU, Z, and ZT (acronyms according to Thiers, 2011).

The structure of the synopsis generally follows that used in previous works (Cardiel & Muñoz-Rodríguez, 2012; Cardiel et al., 2013b). Only the synonyms based on Argentinean, Uruguayan, and Paraguayan specimens are included along with the names previously cited as accepted for these countries. Any novel designation of type was made after a careful review of the original literature of the taxa and examination of original material. When no holotype was indicated or when it had been lost or destroyed, a lectotype or neotype has been designated, according to the rules of the International Code of Nomenclature (McNeill et al., 2012). Illustrations are cited when available. General geographic distributions for species and infraspecies are provided following Taxonomic Database Working Group standards (Brummitt, 2001) as are detailed Argentinian, Paraguayan, and Uruguayan distributions, which indicate the provinces (for Argentina) or departments (for Paraguay and Uruguay) in which the species have been found in each country. This information is generally based on the studied specimens and, in some cases,

Table 2. Taxonomic comparison of *Acalypha* L. cited for Paraguay and Uruguay by Pax and Hoffmann (1924), Berry et al. (2007), and this work. Currently accepted names appear in boldface.

Paraguay		
Pax & Hoffmann (1924)	Berry et al. (2007)	Cardiel & Muñoz-Rodríguez (2015)
<i>A. amblyodonta</i> (Müll. Arg.) Müll. Arg.	<i>A. amblyodonta</i>	<i>A. amblyodonta</i>
<i>A. brevipes</i> (Müll. Arg.) Müll. Arg.	not cited	= <i>A. vellamea</i>
<i>A. communis</i> Müll. Arg. var. <i>hirta</i> (Spreng.) Müll. Arg.	<i>A. communis</i>	= <i>A. variabilis</i>
<i>A. communis</i> var. <i>intermedia</i> Müll. Arg.	<i>A. communis</i>	= <i>A. communis</i> subsp. <i>communis</i>
<i>A. communis</i> var. <i>tomentella</i> Müll. Arg.	<i>A. communis</i>	= <i>A. communis</i> subsp. <i>communis</i>
<i>A. communis</i> var. <i>tomentosa</i> Müll. Arg.	<i>A. communis</i>	= <i>A. communis</i> subsp. <i>communis</i>
<i>A. flabellifera</i> Rusby	not cited	The voucher cited by Pax and Hoffmann corresponds to <i>A. amblyodonta</i> . <i>Acalypha flabellifera</i> is a synonym of <i>A. plicata</i> Müll. Arg. not found in Paraguay.
<i>A. gracilis</i> Spreng.	<i>A. gracilis</i>	<i>A. gracilis</i>
<i>A. hassleriana</i> Chodat	<i>A. hassleriana</i>	<i>A. hassleriana</i>
<i>A. multicaulis</i> Müll. Arg.	<i>A. multicaulis</i>	<i>A. multicaulis</i>
<i>A. nitschkeana</i> Pax & K. Hoffm.	<i>A. nitschkeana</i>	= <i>A. herzogiana</i>
		<i>A. senilis</i>
		<i>A. striolata</i>
		<i>A. variabilis</i>
	<i>A. vellamea</i>	<i>A. vellamea</i>
<i>A. villosa</i> Jacq.	<i>A. villosa</i>	<i>A. villosa</i>
		<i>A. wilkesiana</i>
Uruguay		
Pax & Hoffmann (1924)	Berry et al. (2007)	Cardiel & Muñoz-Rodríguez (2015)
<i>A. communis</i> var. <i>salicifolia</i> Pax & K. Hoffm.	<i>A. communis</i>	<i>A. communis</i> subsp. <i>tracheliifolia</i>
<i>A. gracilis</i> Spreng.	<i>A. gracilis</i>	<i>A. gracilis</i>
	<i>A. multicaulis</i>	<i>A. multicaulis</i>
<i>A. senilis</i> Baill.	<i>A. senilis</i>	<i>A. senilis</i>
		<i>A. variabilis</i>

on a bibliographic source. This information is also reflected in the distribution maps provided. Biogeographic regions, altitudinal range, and habitat are described. We follow the natural regions proposed by Zuloaga et al. (2008) for the South American Southern Cone. Finally, we list recent literature that provides updated information about the species.

All information gathered as part of this work is available online on the regularly updated *Acalypha* Taxonomic Information System web site, <www.acalypha.es> (Cardiel et al., 2015). In addition, specimen detail has been uploaded to the Global Biodiversity Information Facility (GBIF) (2015) at <<http://www.gbif.org/dataset/search?q=12046>>.

RESULTS

We recorded 67 scientific names related to *Acalypha* from Argentina, Paraguay, and Uruguay, 18 of which are accepted species names, 16 of which are present in Argentina, 12 in Paraguay, and five in Uruguay (Tables 1, 2). Forty-nine names are considered synonyms. We indicate the type speci-

men(s) for each of the valid names, and we designate seven lectotypes and one neotype. Two species are endemics, *A. schreiteri* Lillo ex Lourteig & O'Donnell from Argentina and *A. hassleriana* Chodat from Paraguay, and one species is introduced, *A. wilkesiana* Müll. Arg. We treat two of the 14 species recognized by Lourteig and O'Donnell (1942, 1943, 1954) for Argentina as synonyms: *A. friesii* Pax & K. Hoffm. and *A. nitschkeana* Pax & K. Hoffm. (also treated for Paraguay by Berry et al., 2007). Another species, *A. hassleriana*, is based on a misidentification, and we have excluded it. We also report four species new for Argentina: *A. senilis* Baill., *A. striolata* Lingelsh., *A. variabilis* Klotzsch ex Baill., and *A. vellamea* Baill. (Table 1). For Paraguay, we add four species never before cited for this country, *A. senilis*, *A. striolata*, *A. variabilis*, and *A. wilkesiana*, in addition to all of the species recognized by Berry et al. (2007); one of them, *A. nitschkeana*, is treated as a synonym of *A. herzogiana* Pax & K. Hoffm. Finally, for Uruguay, we add one species, *A. variabilis*, to the four recognized by Berry et al. (2007) (Table 2). The southern boundary of the distribution of *Acalypha* in

South America is located in northern Argentina and Uruguay. It was outlined by Lourteig and O'Donnell (1942), and now, after studying the distribution of the genus in these countries and together with the previous revision from Peru and Bolivia (Cardiel et al., 2013b), we are able to more precisely define the southern extent of the genus in South America.

I. *Acalypha* L., Sp. Pl. 2: 1003. 1753. TYPE: *Acalypha virginica* L. (lectotype, designated by Small, 1913: 457).

Ia. *Acalypha* subg. *Acalypha*

Geographically included species (17). *Acalypha amblyodonta* (Müll. Arg.) Müll. Arg., *A. boliviensis* Müll. Arg., *A. brasiliensis* Müll. Arg., *A. communis*

Müll. Arg., *A. gracilis* Spreng., *A. hassleriana*, *A. herzogiana*, *A. lycioides* Pax & K. Hoffm., *A. multicaulis* Müll. Arg., *A. plicata* Müll. Arg., *A. poiretii* Spreng., *A. schreiteri*, *A. senilis*, *A. striolata*, *A. variabilis*, *A. vellamea*, and *A. wilkesiana*.

Ib. *Acalypha* subg. *Linostachys* (Klotzsch ex Schldtl.) Pax & K. Hoffm. Pflanzenz. (Engler) 147, 16(Heft 85): 13. 1924. Basionym: *Linostachys* Klotzsch ex Schldtl., Linnaea 19: 235. 1846. TYPE: *Linostachys padifolia* Schldtl., Linnaea 19: 235. 1846. [= *Acalypha schlechten-daliana* Müll. Arg.].

Geographically included species (1). *Acalypha villosa*.

KEY TO THE SPECIES OF *ACALYPHA* OF ARGENTINA, PARAGUAY, AND URUGUAY

- 1a. Pistillate flowers pedicellate; calyx with 4 or 5 sepals, the subtending bracts inconspicuous, not becoming foliaceous in fruit (*Acalypha* subg. *Linostachys*) 17. *A. villosa* Jacq.
- 1b. Pistillate flowers sessile; calyx with 3 sepals, the subtending bracts becoming foliaceous and accrescent in fruit (*Acalypha* subg. *Acalypha*).
 - 2a. Inflorescences staminate and androgynous, then mostly staminate with one to several pistillate flowers at the base.
 - 3a. Staminate inflorescences terminal; glandular trichomes absent 9. *A. multicaulis* Müll. Arg.
 - 3b. Staminate inflorescences axillary; glandular trichomes present or absent.
 - 4a. Leaf blades broadly ovate, palmately nerved; glandular trichomes present.
 - 5a. Young branches, leaves, and inflorescences covered with conspicuous glandular trichomes 10. *A. plicata* Müll. Arg.
 - 5b. Glandular trichomes usually present only on inflorescences, sometimes also a few on young branches 1. *A. amblyodonta* (Müll. Arg.) Müll. Arg.
 - 4b. Leaf blades narrowly ovate-lanceolate or elliptic-lanceolate, pinnately or pinnipalmately nerved; glandular trichomes absent.
 - 6a. Leaf blades with stellate trichomes 3. *A. brasiliensis* Müll. Arg.
 - 6b. Leaf blades without stellate trichomes.
 - 7a. Leaf blades narrowly elliptic-lanceolate, up to 4.5(–5) cm long; accrescent pistillate bracts suborbicular-reniform, teeth minute, equal 8. *A. lycioides* Pax & K. Hoffm.
 - 7b. Leaf blades ovate or ovate-lanceolate, up to 12 cm long; accrescent pistillate bracts ovate-lanceolate, teeth conspicuous, central one largest 12. *A. schreiteri* Lillo ex Lourteig & O'Donnell
 - 2b. Inflorescences unisexual or rarely some inflorescences androgynous, then mostly pistillate with a distal segment of staminate flowers.
 - 8a. Staminate inflorescences terminal, at least in part.
 - 9a. Rhizomatous herbs, sometimes with slightly woody base; pistillate flowers in spikes and some pistillate flowers solitary, axillary, without developed bract 7. *A. herzogiana* Pax & K. Hoffm.
 - 9b. Shrubs or herbs not rhizomatous (slightly rhizomatous in *A. gracilis*); pistillate flowers always in spikes; solitary pistillate flowers absent.
 - 10a. Leaf blades membranous, sparsely pubescent on upper and lower surface, margin dentate 5. *A. gracilis* Spreng.
 - 10b. Leaf blades chartaceous, glabrous or with some appressed hairs on midrib, margin entire to obscurely dentate 14. *A. striolata* Lingelsh.
 - 8b. Staminate inflorescences all axillary.
 - 11a. Pistillate inflorescences all axillary 18. *A. wilkesiana* Müll. Arg.
 - 11b. Pistillate inflorescences terminal, at least in part.
 - 12a. Herbs, annual but sometimes the base becoming somewhat woody; pistillate inflorescences densely flowered, the axis not conspicuously visible.
 - 13a. Inflorescences pistillate or androgynous (mostly pistillate with a distal segment of staminate flowers), ellipsoid; pistillate bracts with the terminal tooth usually longer than the others 11. *A. poiretii* Spreng.
 - 13b. Inflorescences all unisexual, pistillate, cylindrical; pistillate bracts with equal tooth 2. *A. boliviensis* Müll. Arg.

- 12b. Shrubs or subshrubs, perennial; pistillate inflorescences not densely flowered, with the axis conspicuously visible.
- 14a. Young branches and leaf blades with numerous glandular trichomes; leaf blades usually deeply cordate at base 6. *A. hassleriana* Chodat
- 14b. Young branches and leaf blades usually without glandular trichomes (a few in *A. communis* subsp. *trachelifolia* (Pax & K. Hoffm.) Cardiel & P. Muñoz); leaf blades rounded or rarely slightly cordate at base.
- 15a. Accrescent pistillate bracts with glandular trichomes; leaf blades usually with conspicuous bright, resinous droplets 4. *A. communis* Müll. Arg.
- 15b. Accrescent pistillate bracts without glandular trichomes; leaf blades with or without bright, resinous droplets.
- 16a. Young branches usually hispid; leaf blades usually conduplicate, glabrous or subglabrous (with appressed trichomes on veins); lower leaf surface covered by a bright exudate, sometimes reduced to spots 15. *A. variabilis* Klotzsch ex Baill.
- 16b. Young branches tomentose to velutinous; leaf blades not conduplicate (sometimes slightly conduplicate in *A. senilis*), \pm densely velutinous; lower leaf surface without exudate.
- 17a. Leaf subsessile or with petioles to 3(–5) mm long, blades elliptic to oblong-lanceolate, chartaceous 16. *A. vellamea* Baill.
- 17b. Leaf with petioles to (5–)10–50 mm long, blades ovate-triangular to subrounded, membranous 13. *A. senilis* Baill.

TAXONOMIC SYNOPSIS

1. *Acalypha amblyodonta* (Müll. Arg.) Müll. Arg., Fl. Bras. 11(2): 365. 1874. Basionym: *Acalypha cuspidata* Jacq. var. *amblyodonta* Müll. Arg., Linnaea 34: 37. 1865. *Ricinocarpus amblyodontus* (Müll. Arg.) Kuntze, Revis. Gen. Pl. 2: 618. 1891. TYPE: [Brazil. Rio de Janeiro]: in Brasilia prope Rio de Janeiro, 1833, *C. Gaudichaud 1134* (lectotype, designated by Cardiel et al., 2013b: 155, P [barcode P00635211!]; isolectotypes, B† [B neg. F 5277!], G-DC!).

Acalypha lagoensis Müll. Arg. var. *grandifolia* Chodat & Hassl., Bull. Herb. Boissier, sér. 2, 5: 604. 1895. TYPE: [Paraguay. Paraguari]: in silvis pr. Caraguaty, Oct., *E. Hassler 3322* (lectotype, designated here, P [barcode P00635281!]; isolectotypes, BM!, F!, GH!, K!, Pl, W!).

Iconography. Lourteig and O'Donnell (1942: 299, fig. 6; 1943: tab. 93b), sub. *Acalypha amblyodonta* var. *villosa* Müll. Arg.

Distribution. *Acalypha amblyodonta* is known from Brazil (Cardiel, 2010), Bolivia (Cardiel et al., 2013b), northern Argentina, and Paraguay. In Argentina, five collections were examined from the provinces of Jujuy and Salta. The species has been collected in Paraguay from the departments of Alto Paraguay, Central, Paraguari, and Presidente Hayes (seven collections examined). *Acalypha amblyodonta* extends into the Chaco and north-central Wet Andes regions and has been collected from elevations of 100–500 m, frequently along riversides (Fig. 1A).

References. Berry et al. (2007), Cardiel (2010), Cardiel et al. (2013b).

Notes. Bacigalupo and Mulgúra (1999) cited *Acalypha amblyodonta* from Misiones Province (Argentina), but this was based on the collection *A. P. Rodrigo 1040* (NY), which taxonomically corresponds to *A. multicaulis*. We did not find *A. amblyodonta* in Misiones Province. *Acalypha amblyodonta* is morphologically close to *A. plicata*, but the latter is easily distinguishable by the presence of conspicuous glandular trichomes that cover leaves and inflorescences. In *A. amblyodonta* the glandular trichomes are only present on the inflorescences; sometimes also a few trichomes are observed on young branches.

The synonym *Acalypha lagoensis* var. *grandifolia* was described as based on a single collection, *E. Hassler 3322*, of which we have found seven duplicates. Due to the lack of a holotype indication, we selected the best preserved specimen, from the P herbarium, as lectotype.

Selected specimens examined. ARGENTINA. **Jujuy:** Dpto. Ledesma, confluencia río Piedras y Arroyo Pantanoso, 500 m, 17 Apr. 1968, *C. Fabris* 7313 (P). **Salta:** Orán, quebrada del Anta Muerta, 7 Dec. 1972, *V. Maruñak et al. 481* (MO). PARAGUAY. **Alto Paraguay:** ad ripam occidentalem flum. Paraguay, Oct. 1903, *E. Hassler 2383* (BM, GH, K, NY, W). **Central:** L'Asunción, pres du Cerro Tacumbu, May 1874, *B. Balansa 1696* (BM, K). **Paraguari:** in silva Caraguaty, *E. Hassler 3322* (BM, F, GH, K, W). **Presidente Hayes:** Puerto Militar, Estancia Casuariaga, 9 Dec. 1989, *R. Vanni et al. 1241* (MO).

2. *Acalypha boliviensis* Müll. Arg., Linnaea 34: 162. 1865. *Ricinocarpus boliviensis* (Müll. Arg.) Kuntze, Revis. Gen. Pl. 2: 617. 1891. TYPE: [Bolivia. La Paz]: Prov. Larecaja, Sorata, 1858–1859, *G. Mandon 1070* (holotype, G-DC [barcode G00324655!]; isotypes, B† [B neg. F

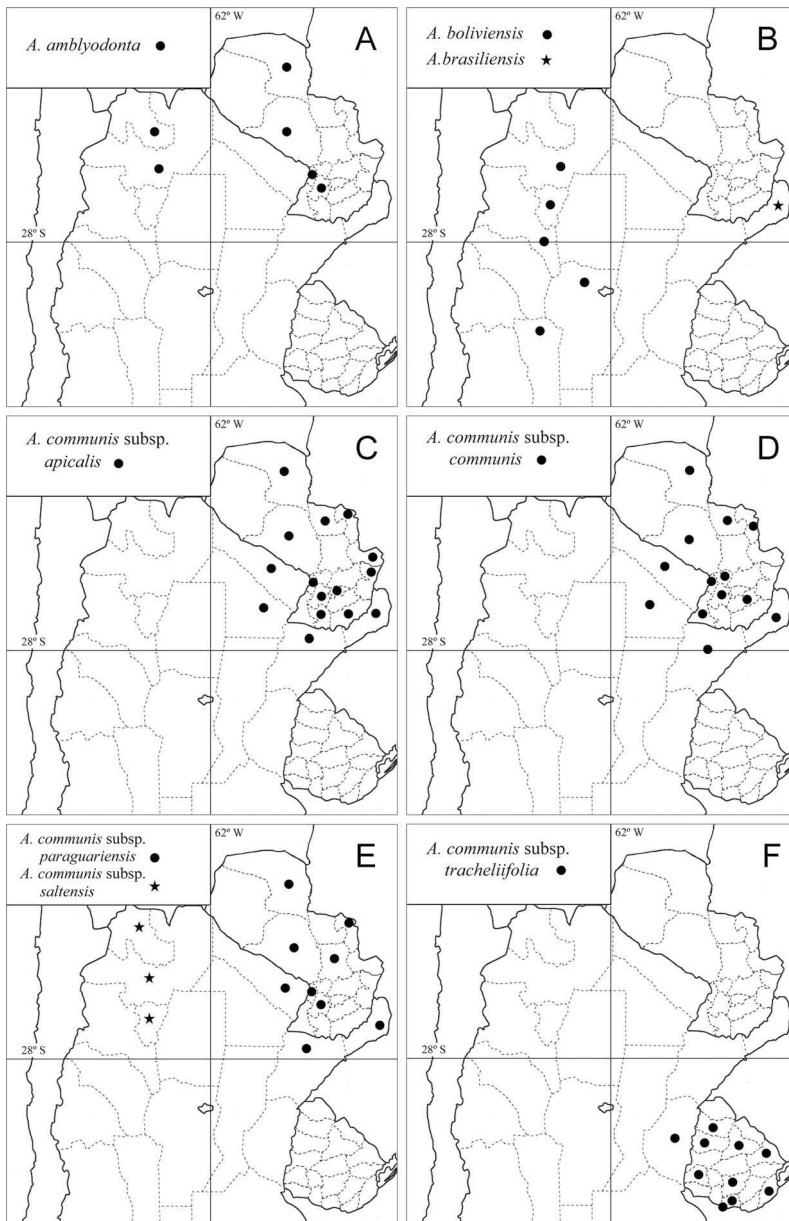


Figure 1. Maps showing distributions in Argentina, Paraguay, and Uruguay of selected *Acalypha* species. —A. *Acalypha amblyodonta* (Müll. Arg.) Müll. Arg. —B. *Acalypha boliviensis* Müll. Arg. and *A. brasiliensis* Müll. Arg. —C. *Acalypha communis* Müll. Arg. subsp. *apicalis* (N. E. Br.) Cardiel & P. Muñoz. —D. *Acalypha communis* subsp. *communis*. —E. *Acalypha communis* subsp. *paraguariensis* (Chodat & Hassl.) Cardiel & P. Muñoz and *A. communis* subsp. *saltensis* (Pax & K. Hoffm.) Cardiel & P. Muñoz. —F. *Acalypha communis* subsp. *trachelifolia* (Pax & K. Hoffm.) Cardiel & P. Muñoz.

5285!], G!, F [2]!, K!, M!, NY [2]!, P [3]!, S [2]!, W!).

Iconography. Lourteig and O'Donell (1942: 301, fig. 7; 1943: tab. 86).

Distribution. *Acalypha boliviensis* is known from Bolivia (Cardiel et al., 2013b) and Argentina. In Argentina, the species has been found in the provinces of Catamarca, Córdoba, Salta, San Luis, and Tucumán (six collections examined). This species extends into the north-central Wet Andes

region and has been collected from elevations of 1300–2000 m (Fig. 1B).

References. Berry et al. (2007), Cardiel et al. (2013b).

Notes. *Acalypha boliviensis* is sometimes confused with the widely distributed *A. poiretii* because of their herbaceous habits. However, *A. boliviensis* is easily distinguishable by its cylindrical unisexual inflorescences and pistillate bracts with broadly triangular teeth, with the central tooth usually much longer than the others, versus the inflorescences ellipsoid, pistillate or androgynous, and pistillate bracts with narrowly triangular and equal-sized teeth in *A. poiretii*.

Selected specimens examined. ARGENTINA. **Catamarca:** Bacigalupo & Mulgúra (1999). **Córdoba:** Bacigalupo & Mulgúra (1999). **Salta:** Dpto. La Merced. Finca El Rodeo, 17 May 1983, *J. L. Novara 3415* (MO). **San Luis:** Dpto. Junín, Sierra de Comechingones, subiendo desde El Rincón, 8 Feb. 1956, *A. T. Hunziker 11737* (CORD, MA, MBM). **Tucumán:** Siambon (Dpto. Tafí), 1300 m, 5 Feb. 1933, *L. R. Parodi 11053* (GH).

3. *Acalypha brasiliensis* Müll. Arg., *Linnaea* 34: 37. 1865. *Acalypha brasiliensis* var. *mollis* Müll. Arg., *Linnaea* 34: 37. 1865. *Acalypha dupraeana* var. *arciana* Baill., *Adansonia* 5: 230. 1865, nom. illeg. superfl. *Ricinocarpus brasiliensis* (Müll. Arg.) Kuntze, *Revis. Gen. Pl.* 2: 617. 1891. TYPE: Brazil. Bahia: Pongo d'Arcia, June 1844, *J. S. Blanchet 3865* (lectotype, designated here, G-DC [barcode G00324483!]; isolectotypes, BM!, G [3!], P!).

Iconography. Lourteig and O'Donnell (1942: 303, fig. 8; 1943: tab 87).

Distribution. *Acalypha brasiliensis* is known from Brazil (Cardiel, 2010) and northeastern Argentina. In Argentina, 12 collections from the province of Misiones were examined. This species extends into the Atlantic Forest region and is collected from elevations of 150 to 400 m, frequently along riversides (Fig. 1B).

Reference. Berry et al. (2007).

Notes. *Acalypha brasiliensis* was first described by Müller Argoviensis in March 1865 in the journal *Linnaea*. He divided the species into three varieties: *Acalypha* [var.] α *mollis*, *Acalypha* [var.] β *asterotricha* (additionally divided into two forms: *Acalypha* [f.] *a cordata*, *Acalypha* [f.] *b obtusa*), and *Acalypha* [var.] δ *psilophylla*. Müller Argoviensis added an additional four varieties in 1874 (*Acalypha brasiliensis*

var. *brevipes* Müll. Arg., *A. brasiliensis* var. *glabrata* Müll. Arg., *A. brasiliensis* var. *longipes* Müll. Arg., and *A. brasiliensis* var. *maxima* Müll. Arg.). In order to fix the application of the name *A. brasiliensis*, it is lectotypified using original material of *A. brasiliensis* var. *mollis* because we consider it to be representative of the species and the type specimens are well preserved. The other varieties, all based on Brazilian plants, are still under review.

The conspecific name *Acalypha dupraeana* var. *arciana* was published by Baillon in April–May 1865, in the journal *Adansonia*, referencing the same collection used before by Müller Argoviensis (in March 1865) to describe *A. brasiliensis* var. *mollis* (*M. Blanchet 3865*); therefore Baillon's name must be considered a nomenclaturally superfluous illegitimate name (Art. 52.1 of ICN, McNeill et al., 2012). *Acalypha brasiliensis* is widely distributed in southeastern Brazil, and only a few collections are found outside of this country, but the species does occur in the province of Misiones (Argentina). This is the only species in the studied area with stellate trichomes that are found mainly on leaf blades.

Selected specimens examined. ARGENTINA. **Misiones:** Dpto. San Pedro, El Alcázar, 30 Mar. 1949, *E. Schwindt 1428* (K, W); Dpto. San Javier, Santa Ana, 28 Feb. 1947, *G. J. Schwarz 4218* (C, LIL, W).

4. *Acalypha communis* Müll. Arg., *Linnaea* 34: 23. 1865. *Acalypha communis* Müll. Arg. var. *tomentosa* Müll. Arg., *Linnaea* 34: 24. 1865. *Ricinocarpus communis* (Müll. Arg.) Kuntze, *Revis. Gen. Pl.* 2: 617. 1891. TYPE: [Brazil.] In Brasiliae prov. Minarum Generalium, s.d., *J. F. Widgren s.n.* (lectotype, designated by Cardiel et al., 2013a: 1299, S S07-12617!; isolectotype, BR-699782!).

Iconography. See subspecies.

Distribution. *Acalypha communis* is known from Bolivia (Cardiel et al., 2013b), Brazil (Cardiel, 2010), northern Argentina, Paraguay, and Uruguay. It is found in the Atlantic Forest, Pampas, and north-central Wet Andes regions, collected from elevations of sea level to 1200(–1400) m (Fig. 1C–F).

References. Bacigalupo (2005), Cardiel et al. (2013a, 2013b).

Notes. According to the recent revision of *Acalypha* sect. *Communes* (Cardiel et al., 2013a), *A. communis* is divided into five subspecies widespread in the north of the Southern Cone. All

are present in the studied area. As indicated for Bolivian specimens of *A. communis* (Cardiel et al., 2013b), some specimens have mixed characters that make it difficult to assign them to subspecies. We think that subspecies can hybridize in areas where

they coexist, but further study is required. Lourteig and O'Donell (1942) cited *A. communis* from Santa Fe Province (Argentina) based on specimen S. Venturi 276 (BA, LIL), which is here identified as *A. variabilis*.

KEY TO THE SUBSPECIES OF *ACALYPHA COMMUNIS*

- 1a. Leaf blades broadly ovate or ovate-lanceolate, (3–)4–9 cm wide.
 - 2a. Young branches and leaf blades velutinous; leaf blades 6–8 × (3–)4–5 cm; petioles 3–5 cm long; resinous droplets usually present on leaves or inflorescences 4a. *A. communis* Müll. Arg. subsp. *communis*.
 - 2b. Young branches and leaf blades puberulous; leaf blades (9–)13–17 × (4–)6–9 cm; petioles (4–)8–19 cm long; resinous droplets present or absent on leaves or inflorescences.
 - 3a. Leaf blades subchartaceous; petioles 4–5(–10) cm long; young branches hispid; resinous droplets present 4b. *A. communis* subsp. *apicalis* (N. E. Br.) Cardiel & P. Muñoz
 - 3b. Leaf blades thinly membranous; petioles 6–14(–19) cm long; young branches puberulous, soon glabrescent; resinous droplets usually absent 4c. *A. communis* subsp. *saltensis* (Pax & K. Hoffm.) Cardiel & P. Muñoz
- 1b. Leaf blades narrowly oblong-lanceolate, 1.5–3 cm wide.
 - 4a. Young branches and leaf blades with minute sparse glandular trichomes; petioles (2–)3–6 cm long; leaf bases truncate to subcordate 4e. *A. communis* subsp. *tracheliifolia* (Pax & K. Hoffm.) Cardiel & P. Muñoz
 - 4b. Young branches and leaf blades without glandular trichomes; petioles 0.5–1.5(–2) cm long; leaf bases obtuse to rounded 4c. *A. communis* subsp. *paraguariensis* (Chodat & Hassl.) Cardiel & P. Muñoz

4a. *Acalypha communis* subsp. *communis*.

Acalypha agrestis Morong ex Britton, Ann. New York Acad. Sci., 7: 225. 1893. *Acalypha communis* Müll. Arg. var. *agrestis* (Morong ex Britton) Chodat & Hassl., Bull. Herb. Boissier, sér. 2, 1: 397. 1901. TYPE: Paraguay. Central Paraguay, June 1894, *T. Morong 1578* (lectotype, designated by Cardiel et al., 2013a: 1299, NY [barcode 246087]); isolectotypes, K!, NY!, US!).

Iconography. Lourteig and O'Donell (1942: 305, fig. 9; 1943: tab 88b); Bacigalupo (2005: 174, fig. 84).

Distribution. *Acalypha communis* subsp. *communis* is known from Bolivia (Cardiel et al., 2013b), Brazil (Cardiel, 2010), northeastern Argentina, and Paraguay. In Argentina, 73 collections were examined from the provinces of Chaco, Corrientes, Formosa, and Misiones. In Paraguay, 58 collections were examined from the departments of Alto Paraguay, Amambay, Boquerón [Nueva Asunción], Caazapá, Central, Concepción, Cordillera, Ñeembucú, Paraguari, and Presidente Hayes. *Acalypha communis* subsp. *communis* extends into the Chaco and Atlantic Forest regions and has been collected from elevations of 100 to 500 m (Fig. 1D).

References. Bacigalupo (2005), Cardiel et al. (2013a, 2013b).

Selected specimens examined. ARGENTINA. **Chaco:** Fontana (Resistencia), 19 Apr. 1967, A. G. Schulz 15928 (C, F, MO). **Corrientes:** Dpto. General Paz Pueblo (cercanías), 16 Oct. 1945, *T. Ibarrola 3535* (C, K, W). **Formosa:** Dpto. Pilcomayo, al Norte de El Porteño, 14 Apr. 1947, *J. Morel*

2503 (LIL, W). **Misiones:** Corrientes, bank on the Río Paraná, 20 Apr. 1956, *T. M. Pedersen 3884* (C, GH, K, MO, NY). PARAGUAY. **Alto Paraguay:** Siete Puntas, May 1917, *T. Rojas 2677* (GH). **Amambay:** Sierra de Amambay, June 1912–1913, *E. Hassler 11242a* (BM, G, GH, K, NY, W). **Boquerón [Nueva Asunción]:** Nueva Asunción, Apr. 1875, *B. Balansa 1698* (K). **Caazapá:** Tavai, Bosque del Dpto. Militar, 17 Mar. 1989, *I. Basualdo 2337* (MO). **Central:** Laguna Ypacarai, 4 Mar. 1903, *K. Fiebrig 959* (BM, F, GH). **Concepción:** Concepción, 21 Mar. 1980, *E. Purvey 96* (MO). **Cordillera:** Cerro Zanja Jhú, 25 June 1988, *E. Zardini 5131* (F, MO [2]). **Ñeembucú:** Ñeembucú, Estancia Redondo, 25 Jan. 2005, *J. De Egea Juwiel 686* (BM). **Paraguari:** Macizo Acahay, 500 m, 14 July 1988, *E. Zardini 5783* (F, MO). **Presidente Hayes:** Cerrito, cercanías del Río Verde, 25 May 1987, *E. Zardini 2643* (MO).

4b. *Acalypha communis* subsp. *apicalis* (N. E. Br.)

Cardiel & P. Muñoz, Taxon 62(6): 1299. 2013. Basionym: *Acalypha apicalis* N. E. Br., Trans. & Proc. Bot. Soc. Edinburgh 20: 70. 1894. TYPE: Argentina. Río Pilcomayo, Nov. 1894, *J. G. Kerr s.n.* (holotype, K [barcode K000600553]!). Figure 3.

Acalypha communis f. *longipetiolata* Chodat & Hassl., Bull. Herb. Boissier, sér. 2, 5: 604. 1905. TYPE: [Paraguay.] In campo pr. flumen Jejui guazu, Dec., *E. Hassler 5705a* (holotype, W!).

Acalypha communis var. *guaranitica* Chodat & Hassl., Bull. Herb. Boissier, sér. 2, 5: 605. 1905. TYPE: [Paraguay.] In campis pr. flumen Jejuy guazú, Dec., *E. Hassler 5705* (lectotype, designated by Cardiel et al., 2013a: 1299, S-07-12619!; isolectotypes, MA!, P!, UC!, W!).

Acalypha communis f. *grandifolia* Chodat & Hassl., Bull. Herb. Boissier, sér. 2, 5: 605. 1905. TYPE: Paraguay. In silvis in regione cursus superioris fluminis Apa, Jan., *E. Hassler 8377* (lectotype, designated by Cardiel et al.,

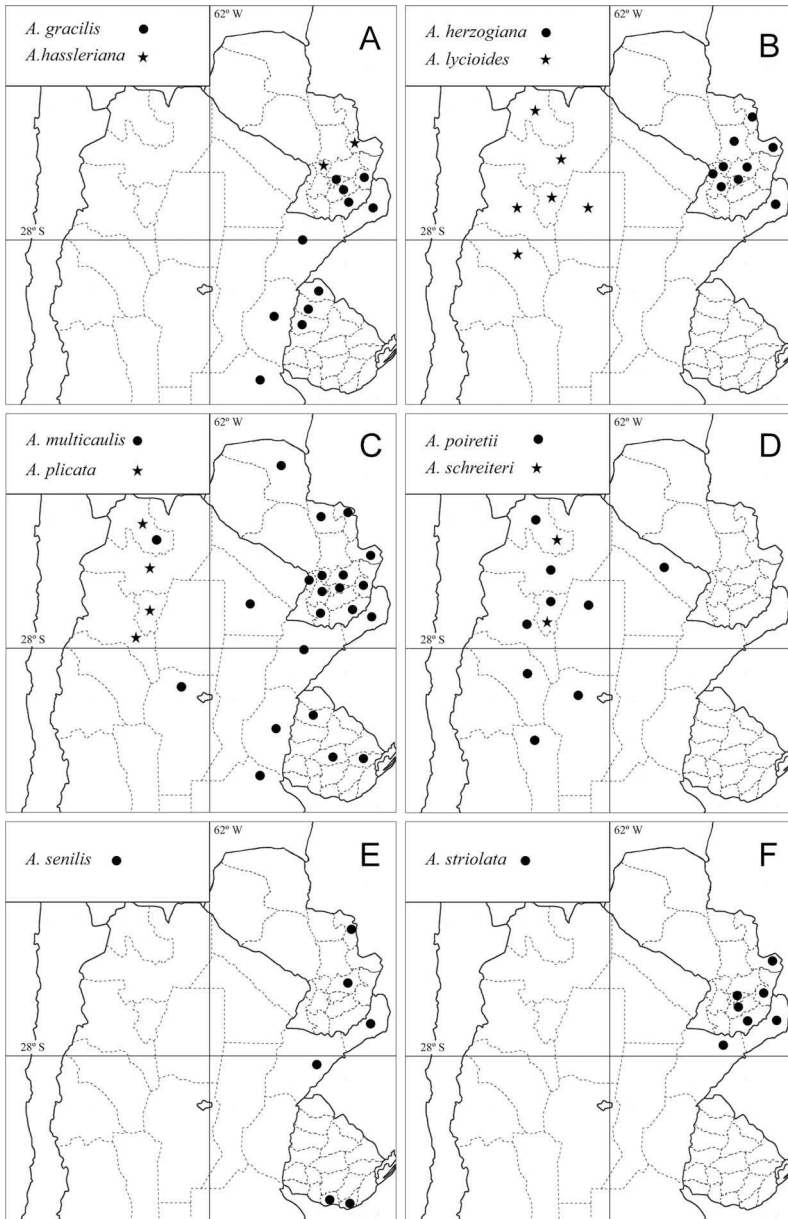


Figure 2. Maps showing distributions in Argentina, Paraguay, and Uruguay of selected *Acalypha* species. —A. *Acalypha gracilis* Spreng. and *A. hassleriana* Chodat. —B. *Acalypha herzogiana* Pax & K. Hoffm. and *A. lycioides* Pax & K. Hoffm. —C. *Acalypha multicaulis* Müll. Arg. and *A. plicata* Müll. Arg. —D. *Acalypha poiretii* Spreng. and *A. schreiteri* Lillo ex Lourteig & O'Donell. —E. *Acalypha senilis* Baill. —F. *Acalypha striolata* Lingelsh.

2013a: 1300, BM [barcode BM000504483]; isolecto-type, NY!).

Iconography. Figure 3 herein.

Distribution. *Acalypha communis* subsp. *apicalis* is known from Brazil, northeastern Argentina, and Paraguay. In Argentina, 17 collections were examined from the provinces of Corrientes, Formosa, and

Misiones. In Paraguay, 23 collections were examined from the departments of Alto Paraguay, Alto Paraná, Amambay, Boquerón [Nueva Asunción], Canindeyú, Central, Concepción, Guairá, Itapúa, Misiones, Paraguari, and Presidente Hayes. *Acalypha communis* subsp. *apicalis* extends into the Chaco and Atlantic Forest regions and has been collected from elevations of 50–300 m (Fig. 1C).

References. Bacigalupo (2005) as *Acalypha communis* var. *guaranítica*, Cardiel et al. (2013a, 2013b).

Notes. *Acalypha communis* subsp. *apicalis* can be distinguished from the autonymic subspecies mainly by its broadly ovate or ovate to lanceolate leaf blades up to 17 × 9 cm. The known distributional area of this subspecies is similar to that of *A. communis* subsp. *communis*, which presents leaf blades up to 8 × 5 cm. Specimens with intermediate characters can also be found.

Selected specimens examined. BRAZIL. **Mato Grosso:** Brasíliæ civit, Corumbá, 4 Apr. 1903, *A. Malmé* 3039 (S). ARGENTINA. **Corrientes:** Dpto. Empedrado, Estancia Las Tres Marías, 31 Mar. 1957, *P. M. Pedersen* 4530 (C, K, MO, NY). **Formosa:** Río Pilcomayo, 1890–1901, *G. Kerr s.n.* (K 600553). **Misiones:** Río Paraná, Puerto La Libertad, 28 Nov. 1978, *L. Bernardi* 18873 (BM, F, MO, NY). PARAGUAY. **Alto Paraguay:** Dpto. San Pedro, Primavera, 19 June 1954, *A. L. Woolston* 235 (K, NY). **Alto Paraná:** cerca del pueblo de Hernandarias, 300 m, 31 Jan. 1982, *J. Fernández-Casas & J. Molero* 5692 (NY). **Amambay:** Parque Nac. Cerro Corá, 13 Feb. 1982, *J. C. Solomon et al.* 6911 (MO). **Boquerón [Nueva Asunción]:** Asunción, Mar. 1943, *Rojas-Pravetti* 10404 (GH). **Canindeyú:** Iter ad Yerbales montium, Sierra de Maracayú, Dec., *E. Hassler* 5705 (BM, GH, MA, NY, W). **Central:** ad ripam, lacus Ypacarai, 1898–1900, *E. Hassler* 3660 (BM, GH, K, MA, NY, W). **Concepción:** Zwischen rio Apa und rio Aquidaban, 29 July 1910, *K. Fiebrig* 4404 (BM, K). **Guairá:** Itangu, près de Villa-Rica, 17 Feb. 1876, *B. Balansa* 2543 (K). **Itapúa:** opposite Puerto Piray, 200 m, 23 Oct. 1978, *S. A. Renvoize* 3227 (C, K, MO, NY). **Misiones:** Santiago, Estancia La Soledad, 23 Dec. 1969, *T. M. Pedersen* 9552 (C, NY). **Paraguarí:** Cesta, Cerro Palacios, 12 Jan. 1988, *M. Ortíz* 429 (MA, MO). **Presidente Hayes:** Dpto. Pilar, Localidad Espinillo, cerca de Puesto Naranjito, 13 Dec. 1950, *T. Meyer* 16021 (W).

4c. *Acalypha communis* subsp. *paraguariensis* (Chodat & Hassl.) Cardiel & P. Muñoz, Taxon 62: 1300. 2013. Basionym: *Acalypha paraguariensis* Chodat & Hassl., Bull. Herb. Boissier, sér 2, 5: 606. 1905. TYPE: [Paraguay.] In dumetis in regione cursus superioris fluminis Apa, Nov., *E. Hassler* 7973 (lectotype, designated by Cardiel et al., 2013a: 1300, NY 246132!; isolectotypes, BM!, NY!).

Acalypha communis var. *salicifolia* Pax & K. Hoffm. Pflanzenz. (Engler) 147, 16(Heft 85): 39. 1924. TYPE: Argentina. Misiones: Posada S. Ignacio, 14 Jan. 1908, *E. L. Ekman* 475 (lectotype, designated by Cardiel et al., 2013a: 1300, S S-R-7769!; isolectotype, S S07-12622!).

Iconography. Lourteig and O'Donnell (1943: tab 89b), sub. *Acalypha communis* var. *salicifolia*.

Distribution. *Acalypha communis* subsp. *paraguariensis* is known from northeastern Argentina and

Paraguay. In Argentina, 10 collections were examined from the provinces of Corrientes, Formosa, and Misiones. In Paraguay, nine collections were examined from the departments of Alto Paraguay, Amambay, Central, Paraguarí, Presidente Hayes, and San Pedro. *Acalypha communis* subsp. *paraguariensis* extends in the Chaco region, collected from elevations of 100–200 m (Fig. 1E).

Reference. Cardiel et al. (2013a).

Notes. *Acalypha communis* subsp. *paraguariensis* can be mainly distinguished by its narrowly oblong to lanceolate leaf blades, 1.5–3 cm wide. It can be misidentified as *A. communis* subsp. *trachelifolia*, but the distributional areas of the two species do not overlap (see Fig. 1E, F). Detailed differences between the two subspecies can be found in the Key to Species.

Selected specimens examined. ARGENTINA. **Corrientes:** Apóstoles, San José, 19 Feb. 1946, *M. S. Bertoni* 2721 (F, K). **Formosa:** Mojón de Hierro, 7 Jan. 1945, *A. Krapovickas* 1055 (NY). **Misiones:** Dpto. Ituzaingo, Isla Apipé Grande, Puerto San Antonio, 8 Dec. 1973, *A. Krapovickas* 23803 (G, P). PARAGUAY. **Alto Paraguay:** Gran Chaco: Loma Clavel, Nov. 1903, *E. Hassler* 2576 (BM, K, W). **Amambay:** in regione cursus superioris fluminis Apa, Nov. 1901–1902, *E. Hassler* 7973 (BM, NY [2]). **Central:** Central Paraguay, 1888–1890, *T. Morong* 189 (MO, NY). **Paraguarí:** Macizo Acahay, 500 m, 11 June 1988, *E. Zardini* 4728 (F, MO). **Presidente Hayes:** Estancia Santa Asunción, 20 Oct. 2004, *J. De Egea Juvinel* 617 (BM). **San Pedro:** Estancia Carumbé, Distr. Lima, 22 Nov. 1969, *T. M. Pedersen* 9394 (C).

4d. *Acalypha communis* subsp. *saltensis* (Pax & K. Hoffm.) Cardiel & P. Muñoz, Taxon 62: 1300. 2013. Basionym: *Acalypha communis* var. *saltensis* Pax & K. Hoffm. Pflanzenz. (Engler) 147, 16(Heft 85): 39. 1924. TYPE: [Argentina. Salta]; San José, Ufergebüsch, 1872, *P. G. Lorentz & Hieronymus* 259 (lectotype, designated by Cardiel et al., 2013a: 1300, K!; isolectotype, CORD!).

Acalypha friesii Pax & K. Hoffm. Pflanzenz. (Engler) 147, 16(Heft 85): 50. 1924, syn. nov. TYPE: Argentina. Jujuy: Laguna de la Brea, 15 June 1901, *R. E. Fries* 178 (lectotype, designated here, S S07-12613!; isolectotypes, K!, S!).

Iconography. Lourteig and O'Donnell (1943: tab 88a).

Distribution. *Acalypha communis* subsp. *saltensis* is known from Bolivia (Cardiel et al., 2013b) and northwestern Argentina. In Argentina, 39 collections were examined from the provinces of Jujuy, Salta, and Tucumán. This subspecies has a well-defined

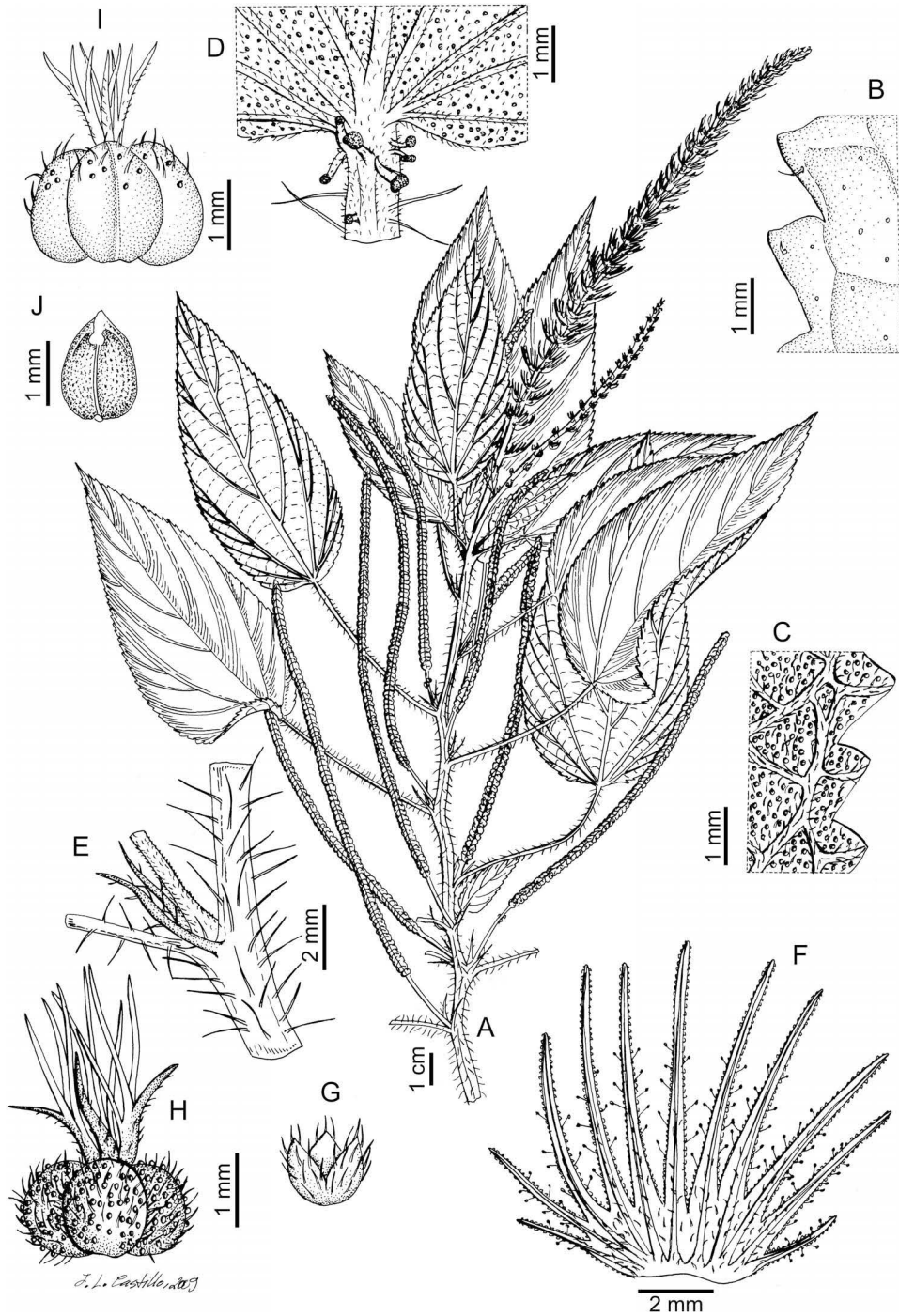


Figure 3. *Acalypha communis* subsp. *apicalis* (N. E. Br.) Cardiel & P. Muñoz. —A. Flowering branch. —B. Detail of upper leaf surface. —C. Detail of lower leaf surface. —D. Detail of leaf blade base, showing resinous droplets, stipules, and trichomes. —E. Detail of node and stipules. —F. Mature bract associated with pistillate flower. —G. Calyx of pistillate flower. —H. Ovary and styles. —I. Capsule and styles. —J. Seed. A–J illustrated from *J. C. Solomon et al. 6911* (MO).

distribution along the north-central Wet Andes region, associated with the Tucumano-Boliviano forest, and has been collected from elevations of (500–)800–1400(–2000) m (Fig. 1E).

References. Cardiel et al. (2013a, 2013b).

Notes. *Acalypha friesii* was described based on a single collection, *R. E. Fries 178*, of which we have found three duplicates in the S and K herbaria. Since no holotype was designated, we chose the best preserved specimen as lectotype. *Acalypha friesii* was accepted by Lourteig (1954) who located it very close to *A. communis*. After a careful study of the deficient and immature type specimens, we consider that *A. friesii* is conspecific with *A. communis* subsp. *saltensis*. This is the single subspecies of *A. communis* found in Jujuy Province. The differences in the pistillate bracts and ovary pointed out by Lourteig (1954) referred to immature organs.

Acalypha communis subsp. *saltensis* has leaf blades similar in size and shape to those of *A. communis* subsp. *apicalis*, but they are thinly membranaceous, with petioles 6–8(–14) cm long in the former and subchartaceous, with petioles 5(–10) cm long in the latter. The known distributional area of the two subspecies is also clearly differentiated (see Fig. 1C, E).

Selected specimens examined. ARGENTINA. **Jujuy:** Dpto. Santa Bárbara, NE of Libertador, 850 m, 24 Mar. 1994, *C. M. Taylor 11491* (MO). **Salta:** Dpto. Caldera, Mojotoro, 1060 m, 11 Jan. 1941, *T. Meyer 3650* (LIL, NY). **Tucumán:** Dpto. Tafí, orilla de la vía de Tafí a Cadillal, 18 Mar. 1945, *F. Herrera 303* (BM, NY, SI, W).

4c. *Acalypha communis* subsp. *tracheliifolia* (Pax & K. Hoffm.) Cardiel & P. Muñoz, *Taxon* 62: 1300. 2013. Basionym: *Acalypha tracheliifolia* Pax & K. Hoffm. *Pflanzenr.* (Engler) 147, 16(Heft 85): 41. 1924. TYPE: Argentina. Entre Ríos, s.d., *J. Tweedie 62* (neotype, designated by Cardiel et al., 2013a: 1300, BM 999630!).

Iconography. Unknown.

Distribution. *Acalypha communis* subsp. *tracheliifolia* is known from northeastern Argentina and Uruguay. In Argentina, four collections were examined from the province of Entre Ríos. In Uruguay, 18 collections were examined from the departments of Canelones, Cerro Largo, Florida, Montevideo, Paysandú, Rocha, Salto, Soriano, and Tacuarembó. This subspecies extends into the Pampas region and has been collected from elevations of 0–200 m (Fig. 1F).

Reference. Cardiel et al. (2013a).

Note. See the notes to *Acalypha communis* subsp. *paraguaruensis*.

Selected specimens examined. ARGENTINA. **Entre Ríos:** Dpto. Uruguay, Banco Pelay, 19 Dec. 1991, *N. M. Bacigalupo & E. R. Guaglianone 1579* (MO). URUGUAY. **Canelones:** Paso Cuello, Río Santa Lucía, 17 Dec. 1935, *B. Rossengurt B 1422* (F). **Cerro Largo:** Río Negro, Palleros, Dec. 1935, *Gallinal et al. B-1421* (GH). **Florida:** Estancia Rincón Santa Elena, Picada Castro, Arroyo Mansavillagra, Dec. 1946, *B. Rossengurt 5845* (MA, MO). **Montevideo:** Monte Video, 1826–1830, *J. Anderson 216* (BM, W). **Paysandú:** Arroyo Negro, 12 Nov. 1937, *B. Rossengurt 2280* (GH). **Rocha:** Arroyo La Pantanosa, 5 Feb. 1938, *B. Rossengurt 2451* (GH). **Salto:** Río Arapey y Arroyo Valentín, 28 Jan. 1937, *B. Rossengurt 980* (F, GH). **Soriano:** Juan Jackson, Dec. 1935, *B. Rossengurt 1420* (F). **Tacuarembó:** Valle Edén, 3 Feb. 1947, *B. Rossengurt 5002* (MA, MO).

5. *Acalypha gracilis* Spreng., *Syst. Veg.* 4(2): 315. 1827. *Ricinocarpus gracilis* (Spreng.) Kuntze, *Revis. Gen. Pl.* 2: 618. 1891. TYPE: Brazil. s. loc., s.d., *F. Sellow [Sello] s.n.* (neotype, designated here, W-167581!; isoneotype, B†, W!).

Iconography. Lourteig and O'Donell (1942: 316, fig. 12; 1943: tab. 94b); Bacigalupo (2005: 174, fig. 84).

Distribution. *Acalypha gracilis* is known from Brazil (Cardiel, 2010), Argentina, Paraguay, and Uruguay. In Argentina, 36 collections were examined from the provinces of Buenos Aires, Corrientes, Entre Ríos, and Misiones. In Paraguay, eight collections were examined from the departments of Alto Paraná, Caazapá, Guairá, and Itapúa. In Uruguay, four collections were examined from the departments of Artigas, Paysandú, and Salto. *Acalypha gracilis* extends into the Atlantic Forest and Pampas regions, usually in riverside locales, and has been collected from elevations of 100–500 m (Fig. 2A).

References. Bacigalupo (2005), Berry et al. (2007).

Notes. *Acalypha gracilis* was first described by Sprengel, based on a Brazilian specimen collected by Friedrich Sello (or Sellow, as he changed his name in 1814 when he went to Brazil) from “Rio grande,” but we could not find this specimen and presumed it was destroyed. Sello’s herbarium and types were mostly destroyed in the Berlin herbarium fire of 1944. We found several of Sello’s collections of this species, without a precise locality, in the K,

P, and W herbaria (some of them were used later to describe other taxa). We selected the most representative specimen for *A. gracilis*, from the W herbarium, as the neotype. The terminal staminate inflorescences of *A. gracilis* are infrequent among the South American species of the genus. In the countries studied herein, this character is also present in *A. herzogiana*, *A. multicaulis*, and *A. striolata* (see differences in the Key to Species).

Selected specimens examined. ARGENTINA. **Buenos Aires:** Punta Lara, Partido de La Plata, 26 Feb. 1946, *A. Krapovickas 2887* (F, K, MO, NY). **Corrientes:** Dpto. Alvear, 4 km NE de Alvear, Estancia Santa Ana, 9 Feb. 1979, *A. Schinini et al. 16895* (K, NY). **Entre Ríos:** Buenos Aires, 1846, *J. Tweedie s.n.* (BM). **Misiones:** Loreto, 21 Jan. 1946, *J. E. Montes 1783* (GH, K). PARAGUAY. **Alto Paraná:** Monte Grande, 175 m, 13 May 1945, *M. S. Bertoni 1344* (NY). **Caazapá:** Parque Nacional Caaguazú, 19 July 1986, *L. Molas 729* (F). **Guairá:** Tororo San Pedro, Cerro San Pedro, 15 Dec. 1988, *N. Soria 2920* (MA, NY). **Itapúa:** Pirapó, Centro de Desarrollo Forestal, 21 Apr. 1983, *R. Duré & L. Pérez 202* (MO). URUGUAY. **Artigas:** Arroyo Itacumbú, 23 Jan. 1942, *B. Rosengurt B-3764* (GH). **Paysandú:** Isla del Queguay Grande, Rio Uruguay, May 1938, *A. Lombardo* (GH). **Salto:** Isla Gaspar, 14 Dec. 1905, *M. B. Berro* (K).

6. *Acalypha hassleriana* Chodat, Bull. Herb. Boissier, sér. 2, 5: 606. 1905. TYPE: [Paraguay. Canindeyú]: Yerbales, Sierra de Maracayú, ad ripam fluminis Jejui guazu, Dec., *E. Hassler 5678* (lectotype, designated by Cardiel et al., 2013a: 1302, P [barcode P00635268]); isolectotypes, B not seen, BM!, GH!, K!, NY!, P!, UC!, W!).

Acalypha glandulosa Chodat & Hassl., Bull. Herb. Boissier, sér. 2, 5: 605–606. 1905, nom. illeg., non *Acalypha glandulosa* Cav., Anales Hist. Nat. 2: 141. 1800. *Acalypha hassleriana* var. *glandulosa* (Chodat & Hassl.) Pax & K. Hoffm. Pflanzenz. (Engler) 147, 16(Heft. 85): 41. 1924. TYPE: [Paraguay.] Inter rupes pr. Chololo in valle fluminis Y-aca, Dec., *E. Hassler 6689* (lectotype, designated by Cardiel et al., 2013a: 1302, P [barcode P00635865]); isolectotypes, BM!, K!, NY!, P [2!], UC!, W!).

Acalypha glandulosa var. *brevistachya* Chodat & Hassl., Bull. Herb. Boissier, sér. 2, 5: 606. 1905. TYPE: [Paraguay.] Inter rupes pr. Chololo in valle fluminis Y-aca, Dec., *E. Hassler 6689a* (lectotype, designated by Cardiel et al., 2013a: 1302, P [barcode P00635269]); isolectotypes, NY!, P!, S!, W!).

Iconography. Unknown (see Notes).

Distribution. *Acalypha hassleriana* is endemic to Paraguay; it has been found in the departments of Canindeyú and Cordillera (six collections examined). This species seems to be associated with the Atlantic Forest and Chaco regions and has been collected from elevations of 100–500 m (Fig. 2A).

References. Berry et al. (2007), Cardiel et al. (2013a).

Notes. Lourteig and O'Donnell (1942) cited this species as doubtful from Argentina (Misiones), based on a single immature specimen (*Zotta, Steullet & Deautier BA 27/63*, BA). In our opinion, this specimen, as well as the illustrations published by Lourteig and O'Donnell (1942: 318, fig. 13; 1943: tab. 92), represent a young plant of *Acalypha communis* s.l. The name *A. hassleriana* var. *genuina* Pax & K. Hoffm. (Pax & Hoffmann, 1924: 41) must be considered invalidly published (Art. 26.2 of ICN, McNeill et al., 2012), based on the non-reiterative epithet of the variety. The few specimens found of this distinctive species were collected between 1845 and 1902, and it has not been found again. Those habitats where plants of *A. hassleriana* were collected have been profoundly transformed by human activity, so we cannot rule out the possibility that the species is now extinct. *Acalypha hassleriana* belongs to *Acalypha* sect. *Communes* (Cardiel et al., 2013a) and can be mainly distinguished by its deeply cordate leaf blades with numerous glandular trichomes.

Selected specimens examined. PARAGUAY. **Canindeyú:** Yerbales, Sierra de Maracayú, Dec., *E. Hassler 5678* (B, BM, GH, K, MO, NY, W). **Cordillera:** Tobatí, Nov. 1902, *K. Fiebrig 837* (GH, K).

7. *Acalypha herzogiana* Pax & K. Hoffm., Meded. Rijks-Herb. 40: 24. 1921. TYPE: [Bolivia. Santa Cruz]: in Walde zwischen Rio Pirai und Rio Cuchi, 450 m, Jan. 1911, *T. Herzog 1453* (lectotype, designated by Cardiel et al., 2013b: 159, S S-R-7754!; isolectotype, B† [B neg. F-5294!], Z!). Figure 4.

Acalypha nitschkeana Pax & K. Hoffm. Pflanzenz. (Engler) 147, 16(Heft 85): 88. 1924, syn. nov. TYPE: [Paraguay. Canindeyú]: Sierra de Maracayú, 1898–1899, *E. Hassler 5125* (lectotype, designated here, P [barcode P00645401!]; isolectotypes, B† [B neg. F-5302!], BM!, F!, K!, MO!, NY!, P!).

Iconography. Figure 4 herein.

Distribution. *Acalypha herzogiana* is known from Bolivia (Cardiel et al., 2013b), Brazil (Cardiel, 2010), Argentina, and Paraguay. In Argentina, the species has been found in the province of Misiones. In Paraguay, 62 collections were examined from the departments of Amambay, Boquerón [Nueva Asunción], Caaguazú, Canindeyú, Central, Cordillera, Guairá, Paraguari, and San Pedro. *Acalypha herzogiana* extends into the Atlantic Forest and Chaco regions and has been collected from elevations of 50–400 m (Fig. 2B).

References. Berry et al. (2007), Steinmann and Levin (2011), Cardiel et al. (2013b).

Notes. *Acalypha nitschkeana* was described as based on eight Paraguayan syntypes, including *K. Fiebrig 141* (F!, G!, K!), *E. Hassler 613* (BM!, G!, K!, NY!), *Hassler 613a* (G!, K!), *Hassler 2274* (G!), *Hassler 3206* (BM!, G!, GH!, MA!, NY!, W!), *Hassler 5125* (B†, BM!, F!, K!, MO!, NY!, P!), *Hassler 6059* (G!), and *Hassler 12673* (BM!, F!, GH!, K!, MO!, NY!, US!). We selected the most representative and best preserved of those specimens, *E. Hassler 5125* from the P herbarium, as the lectotype. *Acalypha nitschkeana* was described by Pax and Hoffmann (1924), who placed it very close to *A. herzogiana*, with the latter species published by the same authors three years before. The differences indicated were mainly related to the position of the inflorescences, which can be quite variable. After the study of type specimens of both names and additional collections, we think that *A. nitschkeana* must be treated as a synonym of *A. herzogiana*.

Selected specimens examined. ARGENTINA. **Misiones:** *J. F. Molfino s.n.* (BAF not seen; cf. Lourteig & O'Donell, 1942). PARAGUAY. Alto Paraná, 1885–1895, *E. Hassler 2274* (G, syntype, *Acalypha nitschkeana*). **Amambay:** Parque Nacional Cerro Corá, 400 m, 10 Feb. 1982, *J. Fernández-Casas 6151* (NY). **Boquerón [Nueva Asunción]:** L'Asumption, sur les collines herbenses, 25 Oct. 1875, *B. Balansa 1691* (K). **Caaguazú:** Arroyo Yuquyry, 10 Nov. 1990, *E. Zardini & C. Velázquez 23755* (F). **Canindeyú:** Sierra de Maracayu, 1898–1899, *E. Hassler 5125* (B†, BM, F, K, MO, NY, P, syntype, *A. nitschkeana*). **Central:** ad ripam lacus Ypacarai, 1893–1900, *E. Hassler 3206* (BM, G, GH, K, MA, NY, W, syntype, *A. nitschkeana*); *12673* (BM, F, GH, K, L, MO, NY, US, syntype, *A. nitschkeana*). **Cordillera:** Cerro Zanja Jhú, 30 July 1988, *E. Zardini 6206* (F, MO). **Guairá:** Colonia Independencia, Cerro Propiedad, Dibben, 8 Oct. 1967, *A. Lourteig* (C, NY). **Paraguari:** in regione lacus Ypacaray, 1913, *E. Hassler 12673* (BM, C, F, GH, K, MO, NY); Cordillera de Altos, 1885–1895, *E. Hassler 613* (BM, G, K, NY); Cerro Santo Tomás, s.d., *E. Hassler 613a* (G, K, syntype, *A. nitschkeana*), 20 Sep. 1902, *K. Fiebrig 141* (G, F, K, syntype, *A. nitschkeana*). **San Pedro:** Distr. Lima, Estancia Carumbé, 24 Nov. 1969, *T. M. Pedersen 9387* (GH, K, NY).

8. *Acalypha lycioides* Pax & K. Hoffm., Meded. Rijks Herb. 40: 24. 1921. TYPE: [Bolivia. Santa Cruz]: Bergwald bei Charagua, 1000 m, Dec. 1910, *T. Herzog 1213* (lectotype, designated by Cardiel et al., 2013b: 161, Z-15838!; isolectotypes, F!, S!, Z-15839!).

Iconography. Lourteig and O'Donell (1942: 320, fig. 14; 1943: tab. 91).

Distribution. *Acalypha lycioides* is known from Peru, Bolivia (Cardiel et al., 2013b), and northwest-

ern Argentina. In Argentina, 38 collections were examined from the provinces of Catamarca, Jujuy, La Rioja, Salta, Santiago del Estero, and Tucumán. The distribution of *A. lycioides* extends into the north-central Wet Andes region, is usually associated with dry forest or shrublands, and has been collected from elevations of (500–)1000–2000 m (Fig. 2B).

References. Berry et al. (2007), Cardiel et al. (2013b).

Note. *Acalypha lycioides* is easily recognizable by its narrowly elliptic to lanceolate, small leaves 4.5(–5) cm long.

Selected specimens examined. ARGENTINA. **Catamarca:** Dpto. Pomán, nearly to Colana, 1550 m, 3 Mar. 1973, *P. Cantino 715* (GH). **Jujuy:** Ledesma, Sierra de Calilagua, 800 m, 11 Oct. 1927, *S. Venturi 5406* (BM, F, GH, K, MO). **La Rioja:** Dpto. General Belgrano, Sierra de Los Llanos, 25 Nov. 1959, *A. T. Hunziker 1428* (CORD, MA). **Salta:** Rosario de Lerma, Campo Quijano, 1600 m, 20 Jan. 1929, *S. Venturi 8116* (K, MO). **Santiago del Estero:** Dpto. Choya, 29 km al W de Villa La Punta, 480 m, 1 Dec. 1995, *R. H. Fortunato & R. Micheli 5189* (K, NY). **Tucumán:** Dpto. Río Chico, Escaba, 600 m, 5 Dec. 1913, *L. Monetti 1629* (NY).

9. *Acalypha multicaulis* Müll. Arg., Linnaea 34: 53. 1865. *Ricinocarpus multicaulis* (Müll. Arg.) Kuntze, Revis. Gen. Pl. 2: 618. 1891. TYPE: [Brasil.] In Brasilia, s.d., *F. Sellow s.n.* (neotype, designated by Cardiel et al., 2013b: 163, K!).

Acalypha multicaulis var. *glabrescens* Pax & K. Hoffm. Pflanzenz. (Engler) 147, 16 (Heft 85): 88. 1924. TYPE: Paraguay. Cordillera de los Altos, Feb. 1900, *E. Hassler 3856* (lectotype, designated here, W-2626!; isolectotypes, F!, G!, K!, MA!).

Acalypha multicaulis Chodat & Hassler, Bull. Herb. Boiss. 2, sér. 2, 5: 605. 1905, nom. nud. inval., pro syn., *Acalypha nitschkeana* Pax & K. Hoffm., 1924.

Iconography. Lourteig and O'Donell (1942: 322, fig. 13; 1943: tab. 92a); Bacigalupo (2005: 172, fig. 83).

Distribution. *Acalypha multicaulis* is known from Bolivia (Cardiel et al., 2013b), Brazil (Cardiel, 2010), Argentina, Paraguay, and Uruguay. In Argentina, this species has been found in the provinces of Buenos Aires, Chaco, Córdoba, Corrientes, Entre Ríos, Jujuy, Misiones, and Salta (29 collections examined). In Paraguay, 77 collections were examined from the departments of Alto Paraguay, Alto Paraná, Amambay, Caaguazú, Canindeyú, Central, Concepción, Cordillera, Guairá, Itapúa, Misiones, and Paraguari. In Uruguay, four collections were examined from the departments of Durazno, Salto, and Treinta y Tres. *Acalypha multicaulis* extends in the Chaco, Pampas, and Atlantic Forest regions and has been collected

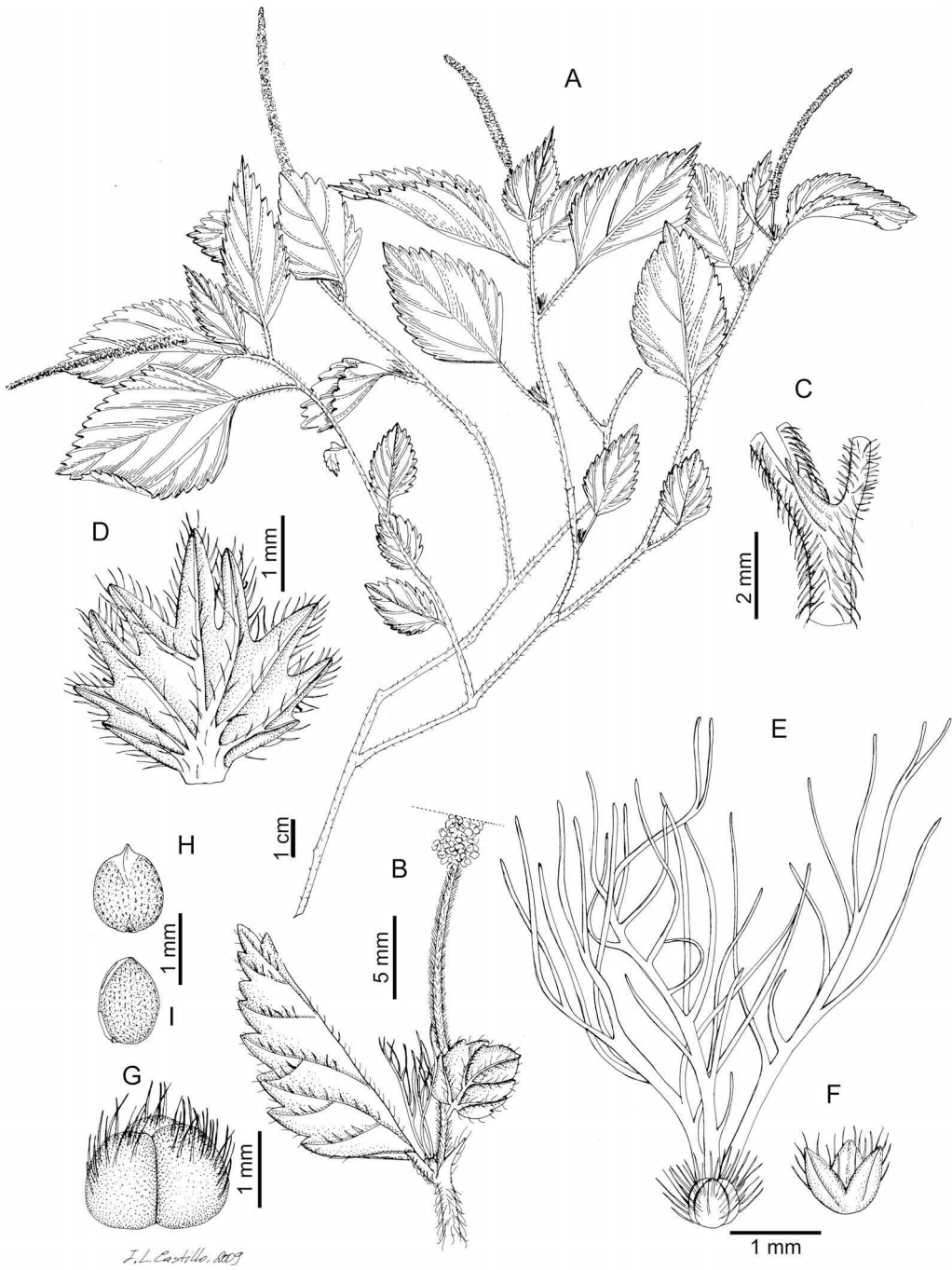


Figure 4. *Acalypha herzogiana* Pax & K. Hoffm. —A. Flowering branch. —B. Detail of branch apex with solitary pistillate flower and base of staminate inflorescence. —C. Detail of node and stipule. —D. Mature bract associated with pistillate flower. —E. Ovary and styles. —F. Calyx of pistillate flower. —G. Capsule. —H, I. Seeds. A–F illustrated from *I. Linneo 900* (MO); G–I from *I. Basualdo 1554* (MA).

from elevations of 0–500 m, notably along riversides (Fig. 2C).

References. Bacigalupo (2005), Berry et al. (2007), Cardiel et al. (2013b).

Notes. *Acalypha multicaulis* var. *glabrescens* was described based on three syntypes, one from Argentina (Misiones, Posadas, s.d., *Muniez 44*, not located) and two from Paraguay (Cordillera de los Altos, *E. Hassler 614*, K!, and *Hassler 3856*, F!, G!, K!, MA!, W!). We selected the better preserved of the known collections, *E. Hassler 3856* from the W herbarium, as the lectotype. *Acalypha multicaulis* is sometimes confused with *A. herzogiana* because of their similar suffruticose habits, terminal staminate inflorescences, and similar leaf shapes. However, *A. multicaulis* has androgynous, mostly staminate inflorescences, with one to several pistillate bracts at the base. In *A. herzogiana*, the inflorescences are usually unisexual.

Selected specimens examined. ARGENTINA. **Buenos Aires:** Lourteig & O'Donell (1942). **Chaco:** Isla Brasilerá, 4 Oct. 1965, *A. G. Schulz 15138* (C, F). **Córdoba:** Bacigalupo (2005). **Corrientes:** Isla Apipé Grande, Puerto Arazá, 26 Nov. 1988, *S. G. Tressens et al. 3464* (GH, K). **Entre Ríos:** Concordia, Salto Grande, Río Uruguay, Casa de Piedra, 3 Oct. 1978, *S. A. Renvoize et al. 2875* (K, MO, NY). **Jujuy:** Bacigalupo (2005). **Misiones:** Salto Iguazú, 160 m, 4 Apr. 1913, *Rodríguez 787* (GH, NY, SI). **Salta:** Bacigalupo (2005). PARAGUAY. **Alto Paraná:** Puerto Palma, 1 July 1980, *Itaipú Binacional 800* (MO). **Alto Paraguay:** Puerto Casado, Dec. 1916, *T. Rojas 2178* (GH). **Amambay:** 7 km SW of administration of Parque Nacional Cerro Cora, Paso Nande-Jara, 250–300 m, 19 Mar. 1983, *J. E. Simonis et al. 126* (MO, NY). **Caaguazú:** Arroyo Yakare'í, 8 Feb. 1989, *E. Zardini & M. Velásquez 10774* (F). **Canindeyú:** cerca del Salto del Guairá, Hacienda Siete Quedas, 10 Oct. 1980, *J. Fernández-Casas & J. Molero 4193* (MA, NY). **Central:** Aregua, 15 Apr. 1945, *T. Rojas 12575* (NY, W). **Concepción:** Río Aquidabán, Paso Horqueta, 19 Feb. 1990, *R. Palacios 1874* (AS, MO). **Cordillera:** Altos, 19 July 1989, *I. Basualdo 2611* (F, MO). **Guairá:** Villa Rica, Oct. 1932, *P. Jørgensen 4326* (C, F, GH, NY). **Itapúa:** Hotel Tirul, 6 Apr. 1985, *A. Krapovickas & C. L. Cristóbal 40062* (C, F, MO). **Misiones:** Yacutí, Ruta 1, 20 km SE de Santa Rosa, 16 Nov. 1978, *M. M. Arbo et al. 1938* (C, F, K). **Paraguari:** Cordillera de Altos, 1885–1895, *E. Hassler 614* (K, syntype, *Acalypha multicaulis* var. *glabrescens*); Feb. 1900, *E. Hassler 3856* (F, G, K, MA, W, syntype, *A. multicaulis* var. *glabrescens*). URUGUAY. **Durazno:** Rincón de Cabrera, Feb. 1934, *C. D. Legrand 329* (F). **Salto:** Isla Redonda, 27 Jan. 1913, *M. B. Berro 6453* (K). **Treinta y Tres:** Vergara, 20 m, Dec. 1933, *W. G. Herter 91266* (MO).

10. *Acalypha plicata* Müll. Arg. Prodr. [A. P. de Candolle] 15(2): 855. 1866. *Ricinocarpus plicatus* (Müll. Arg.) Kuntze, Revis. Gen. Pl. 2: 618. 1891. TYPE: [Bolivia.] In Bolivia, s.d., *T.*

Bridges s.n. (holotype, G-DC [barcode G00324504]); isotypes, BM!, G!, GH!, K!, NY!).

Acalypha cordifolia Hook. f. var. *polyadenia* Griseb., Abh. Königl. Ges. Wiss. Göttingen 24: 60. 1879. TYPE: [Argentina. Salta]: *P. G. Lorentz & G. Hieronymus 543* (type, CORD not seen).
Acalypha flabellifera Rusby, Mem. Torrey Bot. Club 6: 119. 1896. TYPE: [Bolivia. Cochabamba]: near snow line, Mt. Tunari, 1891, *M. Bang 1109* (lectotype, designated by Cardiel et al., 2013b: 164, NY [barcode NY00246108]); isolectotypes, BM!, F!, G!, GH!, K!, MA!, MO!, NY!, US!).

Iconography. Lourteig and O'Donell (1942: 313, fig. 11; 1943: tab. 90), sub. *Acalypha flabellifera* Rusby.

Distribution. *Acalypha plicata* is known from northern and western South America (Cardiel et al., 2013b) and northern Argentina. In Argentina, 59 collections were examined from the provinces of Catamarca, Jujuy, Salta, and Tucumán. The species distribution extends into the north-central Wet Andes region and has been collected from elevations of (700–)1200–1600 m (Fig. 2C).

References. Berry et al. (2007), Cardiel and Muñoz-Rodríguez (2012), Cardiel et al. (2013b).

Note. *Acalypha plicata* is easily recognizable by its conspicuous glandular trichomes covering young branches, leaves, and inflorescences (see Notes under *A. amblyodonta*).

Selected specimens examined. ARGENTINA. **Catamarca:** Dpto. Ambato, Loc. La Rinconada, 29 Mar. 1995, *C. Saravia-Toledo et al. 13159* (GH). **Jujuy:** Dpto. Capital, 6 km N of Jujuy, 1200 m, 2 Oct. 1938, *W. J. Eyerdam & A. A. Beetle 22349* (GH, K, MO). **Salta:** Rosario de Lerma, Campo Quijano, 1200 m, 18 Jan. 1941, *T. Meyer 3784* (F, LIL, NY). **Tucumán:** Tucumán-Burrucayú, La Ramada F.C.C.A., 450 m, 2 Apr. 1933, *A. Peirano* s.n. (GH, NY).

11. *Acalypha poiretii* Spreng., Syst. Veg. 3: 879. 1826. *Ricinocarpus poiretii* (Spreng.) Kuntze, Revis. Gen. Pl. 2: 618. 1891. TYPE: “Amer. trop.” s. loc., s.d., *Anonymous* s.n. (holotype, P-LAM [barcode P00382110]).

Iconography. Lourteig and O'Donell (1942: 325, fig. 17; 1943: tab. 86).

Distribution. *Acalypha poiretii* is known from the United States, Mexico (Steinmann, 2002), Central America, and the West Indies (Acevedo-Rodríguez & Strong, 2012) as well as Brazil (Cardiel, 2010), Bolivia (Cardiel et al., 2013b), and Argentina. In Argentina, 21 collections were examined from the provinces of

Catamarca, Chaco, Córdoba, Jujuy, La Rioja, Salta, San Luis, Santiago del Estero, and Tucumán. The species is found in the Chaco and north-central Wet Andes regions in foothills and has been collected from elevations of 400–1300 m (Fig. 2D).

References. Berry et al. (2007), Guantay et al. (2008), Cardiel et al. (2013b).

Note. See Notes under *Acalypha boliviensis*.

Selected specimens examined. ARGENTINA. **Catamarca:** Dpto. El Alto, Baleozna, 1250 m, 11 Jan. 1928, *S. Venturi 7180* (GH). **Chaco:** Las Breñas, 250 m, 16 Feb. 1930, *S. Venturi 10203* (BM, MO, NY). **Córdoba:** Colón, Ascochinga, 14 Mar. 1944, *C. A. O'Donnell & J. M. Rodríguez 890* (F, GH). **Jujuy:** Dpto. Santa Bárbara, Vinalito, Yuto, 7 July 1937, *A. L. Cabrera 4056* (F, NY). **La Rioja:** Dpto. Rosario Vera Peñaloza, Río Totoral, a 5 km de Chelcos, 5 Mar. 1959, *T. A. Hunziker et al. 14135* (MO). **Salta:** Chicoana, 1200 m, 26 Apr. 1941, *Zabala 117* (F, NY). **San Luis:** Sierra de San Luis: Bajo de Velis, 26 Jan. 1895, *F. Kurtz 8496* (NY). **Santiago del Estero:** Guazayán, El Cevilar, 13 Mar. 1944, *S. A. Pierotti s.n.* (BM). **Tucumán:** Dpto. Capital, Villa Luján, 460 m, Jan. 1919, *S. Venturi 116* (GH, NY).

12. *Acalypha schreiteri* Lillo ex Lourteig & O'Donnell, Lilloa 8: 327. 1942. TYPE: Argentina. Tucumán: Dpto. Tafí, Quebrada de los Saucos, 1800 m, 27 Nov. 1920, *R. Schreiter 1388* (holotype, LIL-3579!).

Iconography. Lourteig and O'Donnell (1942: 328, fig. 18; 1943: tab. 94a).

Distribution. *Acalypha schreiteri* is endemic to Argentina, known only from the provinces of Jujuy and Tucumán. This species is found in the north-central Wet Andes region and has been collected from elevations of 1500–1800 m (Fig. 2D).

References. Berry et al. (2007).

Note. *Acalypha schreiteri* is a poorly known species. It is mainly characterized by the axillary androgynous inflorescences and the ovate to lanceolate, deeply dentate pistillate bracts, with prominent, lanceolate central teeth.

Selected specimens examined. ARGENTINA. Jujuy: Valle Grande, 28 Feb. 1940, *A. Burkart & Troncoso s.n.* (SI 11557). **Tucumán:** El Clavillo, 10 Dec. 1916, *P. Jørgensen 1807* (MO).

13. *Acalypha senilis* Baill., *Adansonia* 5: 228. 1865. *Ricinocarpus senilis* (Baill.) Kuntze, *Revis. Gen. Pl.* 2: 618. 1891. TYPE: Uruguay. Banda oriental del Uruguay, cerro das las Animas,

1816–1821, *A. Saint-Hilaire cat. C² n. 2162* (holotype, P [barcode P00645421]!).

Acalypha rotundifolia Herter, *Anales Mus. Nac. Montevideo*, ser. 2, 1(3): 80. 1911. TYPE: Uruguay. s. loc., s.d., *J. Arechavaleta 41* (holotype, MVM not seen).

Iconography. None known.

Distribution. *Acalypha senilis* is known from Brazil (Cardiel, 2010), Argentina, Uruguay, and Paraguay. In Argentina, 15 collections were examined from the provinces of Corrientes and Misiones. In Paraguay, three collections were examined from the departments of Amambay and Caaguazú. In Uruguay, four collections were examined from the departments of Maldonado, Montevideo, and Río Negro. In the studied area, the species is found in the Chaco and Pampas regions on sandy soils and has been collected from elevations of 50–200 m (Fig. 2E).

References. Berry et al. (2007), Cardiel et al. (2013b).

Notes. *Acalypha senilis* belongs to *Acalypha* sect. *Communes* (Cardiel et al., 2013a). It is frequently confused with *A. communis* subsp. *communis*. *Acalypha senilis* can be distinguished by its pistillate bracts without glandular trichomes and its ovate to triangular or subrounded leaf blades. *Acalypha communis* subsp. *communis* has pistillate bracts with glandular hairs and ovate to lanceolate leaf blades. In addition, we found some specimens with intermediate characters, so we think that these species could hybridize in the areas where they coexist.

Selected specimens examined. ARGENTINA. **Corrientes:** Dpto. Capital, Localidad Riachuelo, 15 Feb. 1996, *A. Schimini 30428* (CTES, MA). **Misiones:** Dpto. San Ignacio, Localidad San Ignacio, 19 Nov. 1946, *B. R. Medina 142* (W). PARAGUAY. **Amambay:** Parque Nacional Cerro Corá, en cerrado próximo al Cerro Muralla, 14 Sep. 1988, *S. Ferruci et al. 651* (K). **Caaguazú:** entre Yhú y San Blas, 23 Sep. 1980, *J. Fernández-Casas 3883* (MA, NY). URUGUAY. **Maldonado:** Banda Oriental del Uruguay, Cerro de las Ánimas, 1816–1821, *A. Saint-Hilaire 2162* (P). **Montevideo:** Montevideo, Fray Peritos, 14 Feb. 1877, *M. Fruchard s.n.* (P [barcode P00645421]). **Río Negro:** Río Uruguay, July 1867, *E. Gibert 208* (K).

14. *Acalypha striolata* Lingelsh., *Mitth. Thüring. Bot. Vereins*, n.s., 29: 48. 1912. TYPE: [Brazil.] “Südbrasilien,” Rio Grande do Sul: Neuwürttemberg, lichter Wald, 450 m., 25 Aug. 1905, *A. Bornmüller 543* (lectotype, designated here, JE [barcode JE0000819]!; isolectotypes, G!, HBG!, M!, U!, W!).

Iconography. None known.

Distribution. *Acalypha striolata* is known from Brazil, Argentina, and Paraguay. In Argentina, 21 collections were examined from the provinces of Misiones and Corrientes. In Paraguay, 34 collections were examined from the departments of Alto Paraná, Caazapá, Canindeyú, Guairá, and Itapúa. The distribution of *A. striolata* extends into the Atlantic Forest region, and the species has been collected from elevations of 100–250 m. (Fig. 2F).

Reference. Berry et al. (2007).

Notes. *Acalypha striolata* was described as based on a single Brazilian collection, *A. Bornmüller 543*, of which we have found six duplicates. Since there is no indication of a holotype in the original protologue, nor is there an annotation in this sense by the describing author in the herbarium specimens, we designate the best preserved specimen, from the JE herbarium, as lectotype. *Acalypha striolata* was considered a synonym of *A. gracilis* by Pax and Hoffmann (1924), and this decision was followed by Berry et al. (2007). In our opinion, *A. striolata* is a distinct species, common in southern Brazil, and it is cited here for the first time for Argentina and Paraguay. *Acalypha striolata* differs from *A. gracilis* by its chartaceous leaf blades that are glabrous or nearly glabrous, with the margins usually entire, sometimes obscurely dentate, versus the leaf blades membranous, sparsely pubescent, with dentate margins in *A. gracilis*.

Selected specimens examined. ARGENTINA. **Misiones:** Dpto. San Ignacio, Arroyo Apefru, 15 Aug. 1946, *G. J. Schward 3167* (LIL, W). **Corrientes:** Dpto. Cainguas, ruta 7.2 km W del acceso a Aristóbulo del Valle, 28 July 1987, *R. Vanni et al. 774* (K). PARAGUAY. **Alto Paraná:** Km. 200, ruta a Puerto Stroessner, 28 Sep. 1967, *A. G. Schulz 16204* (C, F). **Caazapá:** camino a la toltería de los Mby'a, 9 Dec. 1989, *N. Soria 4078* (MA, MO). **Canindeyú:** entre La Paloma y Saltos de Guairá, camino a Puerto Adela, Guazurí, 350 m, 16 Dec. 1982, *J. Fernández-Casas et al. 7612* (MO, NY). **Guairá:** Colonia Independencia, Cerro Picada, propiedad Dibben, 7 Oct. 1967, *A. Lourteig 1950* (C, NY, P). **Itapúa:** entre Capitán Meza y Puerto Triunfo, 17 Sep. 1980, *J. Fernández-Casas & J. Molero 3701* (MA, MO, NY).

15. *Acalypha variabilis* Klotzsch ex Baill., Adansonia 5: 226. 1865. TYPE: Brazil. s. loc., s.d., *F. Sellow s.n.* (lectotype, designated by Cardiel et al., 2013a: 1300, P [barcode P000635221!]; isolectotypes, B†, P [barcode P000635222!]). Figure 5.

Acalypha hirta Spreng., Syst. Veg. 4 (2, Cur. Post.): 315. 1827, nom. illeg., non *Acalypha hirta* Cav., Anal. Hist. Nat. ii: 141. 1800. *Acalypha communis* var. *hirta* (Spreng.) Müll. Arg., Linnaea 34: 24. 1865. TYPE: [Brazil.] Rio Grande, s.d., *F. Sellow s.n.* (lectotype,

designated by Cardiel et al., 2013a: 1301, W-22068!; isolectotypes, B, W [2!]).

Acalypha variabilis var. *angustifolia* Baill., Adansonia 5: 227. 1865. TYPE: [Argentina.] Corrientes: s.d., *Dupré s.n.* (holotype, P [barcode P000635226!]).

Acalypha variabilis var. *albescens* Baill., Adansonia 5: 227. 1865. TYPE: Uruguay. s. loc., s.d., *A. Saint-Hilaire cat. C n 615* (lectotype, designated by Cardiel et al., 2013a: 1300, NY!).

Acalypha cordobensis Müll. Arg., J. Bot. 12: 228. 1874, as “*cordovensis*.” *Ricinocarpus cordobensis* (Müll. Arg.) Kuntze, Revis. Gen. Pl. 3(3): 291. 1898. TYPE: Argentina. Córdoba: in campo et in Barrancis, s.d., *P. G. Lorentz 317* (lectotype, designated here, G [barcode G00383634!]; isolectotypes, CORD!, GOET!).

Acalypha cordobensis var. *rotundata* Griseb., Abh. Königl. Ges. Wiss. Göttingen 24: 59. 1879. *Acalypha communis* var. *rotundata* (Griseb.) Pax & K. Hoffm. Pflanzenr. (Engler) 147, 16(Heft. 85): 40. 1924. TYPE: Argentina. Entre Ríos: Concepción del Uruguay, Oct. 1875, *P. G. Lorentz 223* (holotype, GOET [barcode GOET006440!]).

Acalypha communis f. *hirtutissima* Chodat & Hassl., Bull. Herb. Boissier, sér. 2, 5: 605. 1905. TYPE: Paraguay. In campo Apepu (flumen Tapiraguay), Aug., *E. Hassler 4337* (lectotype, designated by Cardiel et al., 2013a: 1301, BM; isolectotype, P!).

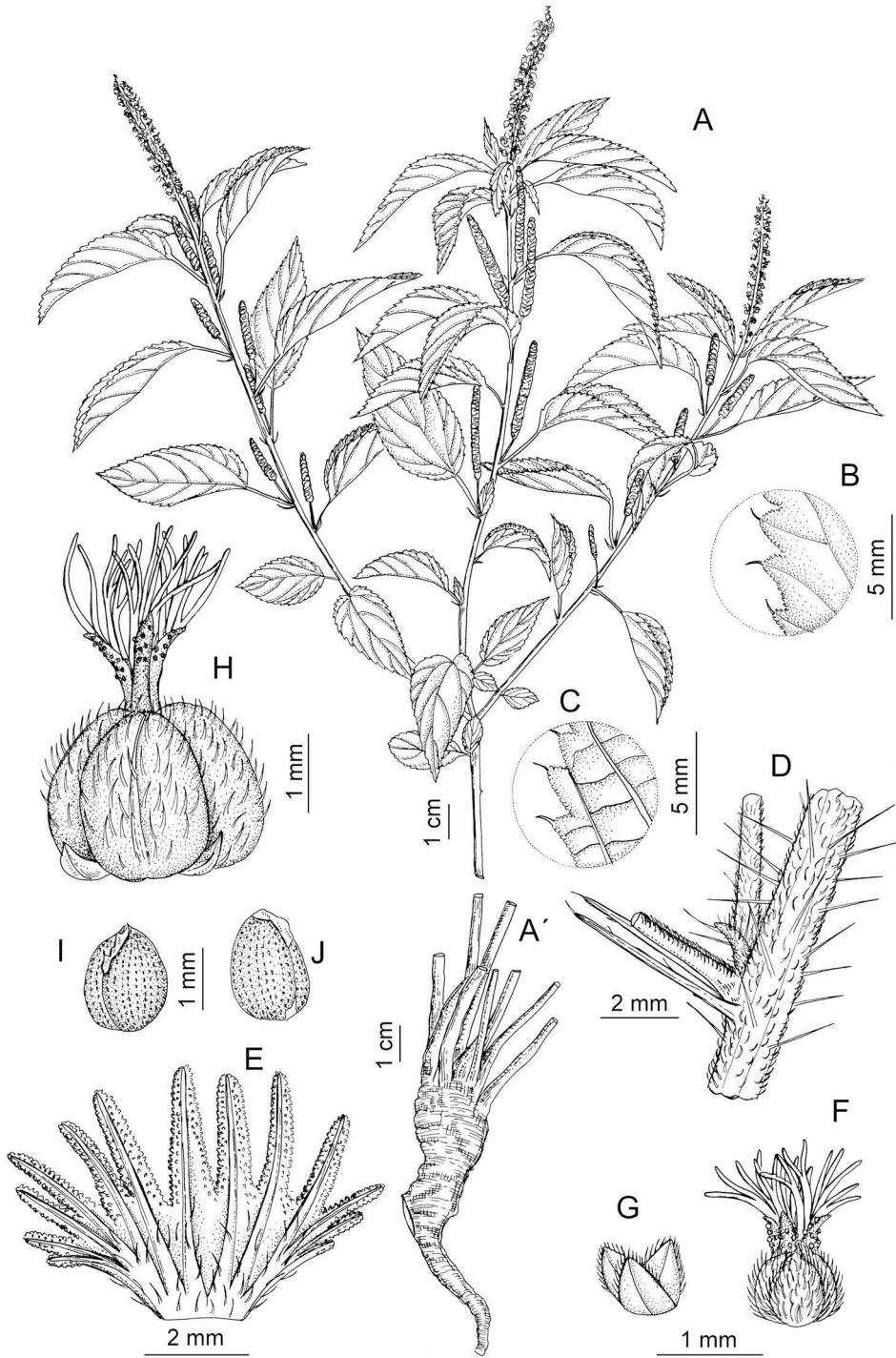
Acalypha montevidensis Klotzsch ex Pax & K. Hoffm. Pflanzenr. (Engler) 147, 16(Heft 85): 39. 1924, nom. nud. inval., pro syn., *Acalypha communis* var. *hirta* Müll. Arg., 1865.

Iconography. Figure 5 herein.

Distribution. *Acalypha variabilis* is known from Bolivia (Cardiel et al., 2013b), Brazil, Argentina, and Paraguay. In Argentina, 98 collections were examined from the provinces of Buenos Aires, Chaco, Córdoba, Corrientes, Entre Ríos, Formosa, Misiones, San Luis, Santa Fe, and Santiago del Estero. In Paraguay, 34 collections were examined from the departments of Amambay, Caaguazú, Cordillera, Misiones, Paraguari, Presidente Hayes, and San Pedro. In Uruguay, 34 collections were examined from the departments of Artigas, Canelones, Colonia, Flores, Lavalleja, Montevideo, Paysandú, Río Negro, Rivera, San José, and Soriano. *Acalypha variabilis* extends into the Chaco and Pampas regions and has been collected from elevations of sea level to 700 m (Fig. 6A).

References. Cardiel et al. (2013a, 2013b).

Notes. *Acalypha variabilis* belongs to *Acalypha* sect. *Communes* Pax & K. Hoffm. (Cardiel et al., 2013a). This species is widely distributed in the studied countries. The species name has been frequently treated as a synonym of *A. communis*, but *A. variabilis* can be mainly distinguished by its pistillate bracts without glandular trichomes and its usually conduplicate leaf blades, with the lower



J. L. Campbell, 2011

Figure 5. *Acalypha variabilis* Klotzsch ex Baill. —A and A'. Habit. —B. Detail of upper leaf surface. —C. Detail of lower leaf surface. —D. Detail of node and stipules. —E. Mature bract. —F. Ovary and styles. —G. Calyx of pistillate flower. —H. Capsule and styles. —I, J. Seeds. A–D illustrated from *E. Hassler 2986* (MA); E–J from *T. M. Pedersen 8561* (NY).

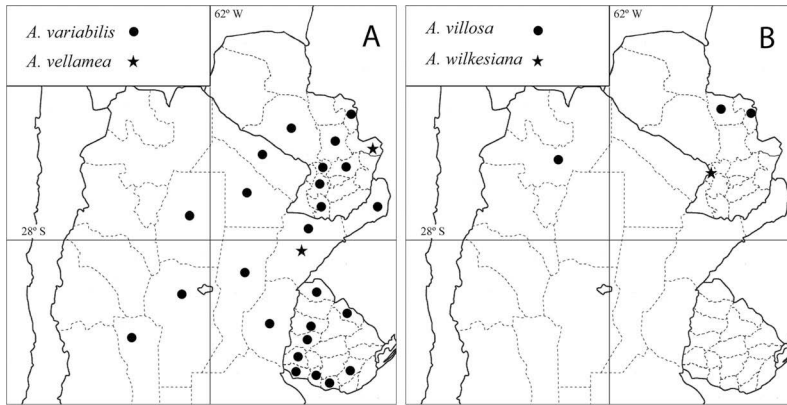


Figure 6. Maps showing distributions in Argentina, Paraguay, and Uruguay of selected *Acalypha* species. —A. *Acalypha variabilis* Klotzsch ex Baill. and *A. vellamea* Baill. —B. *Acalypha villosa* Jacq. and *A. wilkesiana* Müll. Arg.

surface frequently covered by a bright exudate. *Acalypha communis* has pistillate bracts with glandular trichomes and leaf blades that are not conduplicate, without bright exudate.

Selected specimens examined. ARGENTINA. **Buenos Aires:** Flora de la Isla Martín García, Río de La Plata, Oct. 1934, *A. L. Cabrera 2880* (NY). **Chaco:** Margarita Belen, 29 Nov. 1945, *R. M. Aguilar 511* (F, K, NY). **Córdoba:** La Falda, Cerro El Chorrillo, 950 m, Jan. 1936, *M. M. Job 442* (F, GH). **Corrientes:** Dpto. Ituzaingó, Frente a Saltos del Apipé, 21 Nov. 1973, *A. Lourteig et al. 2937* (K, NY). **Entre Ríos:** Dpto. La Paz, Piedras Blancas, June–July 1967, *T. M. Pedersen 8272* (C, GH, K). **Formosa:** Estancia El Ombú, 19 Dec. 2004, *H. Maturro & D. Prado 271* (BM). **Misiones:** Ituzaingo, 8 Oct. 1949, *G. J. Schwarz 8170* (NY). **San Luis:** Dpto. Junín, Merlo, Piedra Blanca, 1000 m, 5 Feb. 1947, *Diglio-Grassi 2064* (W). **Santa Fe:** Dpto. Las Colonias, Esperanza, 15 Nov. 1946, *A. M. R. Huidobro 3257* (C, K, W). **Santiago del Estero:** Sierra de Sumampa, Dpto. Ojo de Agua, Villa Ojo de Agua, 520 m, 10 Feb. 2008, *C. Aedo 15282* (MA). PARAGUAY. **Amambay:** Cerro Guazú versus Capitán Bado, Km. 13–15, 16 Dec. 1978, *M. Bernardi 19245* (NY). **Caaguazú:** Arroyo Cambay, cerrado scrub, 10 Nov. 1990, *E. Zardini & U. Velázquez 23811* (F). **Cordillera:** Emboscada, 4 Apr. 1990, *N. Soria 4199* (FCQ, MA). **Misiones:** 12 km W de San Ignacio, camino a Pilar, 15 Nov. 1978, *M. M. Arbo 1898* (C, MO). **Paraguarí:** Cordillera de Altos, Jan. 1900, *E. Hassler 2986* (BM, F, GH, K, MA, NY, W). **Presidente Hayes:** Gran Chaco, Santa Elisa, 5 Oct. 1905, *E. Hassler 2645* (BM, F, GH, K, NY, W). **San Pedro:** Distr. Lima, Estancia Carumbé, 8 Oct. 1967, *T. M. Pedersen 8561* (C, K, NY, S). URUGUAY. **Artigas:** Santa Rosa de Cuareim, 50–100 m, Nov. 1927, *W. G. Herter 983* (F, GH, NY). **Canelones:** Santa Lucía, 20 Jan. 1938, *B. Rosengurt B2409* (F, GH). **Colonia:** Cerros de San Juan, 21 Jan. 1977, *T. M. Pedersen 11604* (GH, MO). **Flores:** Río Yí y Arroyo Marincho, 25 Dec. 1936, *B. Rosengurt B644* (F, GH). **Lavalleja:** Cerro Arequita, 3 Apr. 1949, *B. Rosengurt B-5709* (MA). **Montevideo:** Montevideo, *Archavaleta s.n.* (W [7144]). **Paysandú:** Arroyo San Francisco, May 1938, *A. Lombardo 3347* (GH). **Río Negro:** Orillas del río Uruguay, Rincón de las Gallinas, Arroyo de los Patos, Estancia de Goneaga, 22–

23 Oct. 1942, *B. Rosengurt B-4106* (GH). **Rivera:** Cuiapiurú, 600–700 m, 1928, *D. Wright s.n.* (W). **San José:** Rincón del Pino, ca. de la costa, 10 Nov. 1970, *A. Lourteig 2473* (K). **Soriano:** Arenal Grande, 29 Nov. 1932, *A. L. Cabrera 2573* (GH).

16. *Acalypha vellamea* Baill., *Adansonia* 5: 228. 1865. *Ricinocarpus vellameus* (Baill.) Kuntze, *Revis. Gen. Pl.* 2: 618. 1891. TYPE: [Brazil.] Matto-Grosso: s.d., *C. Gaudichaud 246* (holotype, P [barcode P000645427!]).

Acalypha communis var. *brevipetiolata* Chodat & Hassl., *Bull. Herb. Boissier, sér. 2*, 5: 605. 1905. TYPE: [Paraguay.] In campo in regione cursu superioris fluminis Apa, Dec., *E. Hassler 8313* (lectotype, designated by Cardiel et al., 2013a: 1301, BM!; isolectotype, NY!).

Iconography. None known.

Distribution. *Acalypha vellamea* is known from Brazil (Cardiel, 2010), Argentina, and Paraguay. In Argentina, one collection was examined from the province of Corrientes. In Paraguay, two collections were examined, both from the department of Amambay. The species occurs in the Atlantic Forest and Cerrado regions and has been collected from elevations of 300–500 m (Fig. 6A).

References. Berry et al. (2007), Cardiel et al. (2013a).

Notes. *Acalypha vellamea* belongs to *Acalypha* sect. *Communes* (Cardiel et al., 2013a). This is a common species in southern Brazil, but it is scarcely represented in the countries studied herein. The species has been frequently misidentified as *A. communis*, but *A. vellamea* can be mainly distinguished by its young branches and lower leaf surfaces

that are tomentose to velutinous as well as by its subsessile or shortly petiolate leaves. *Acalypha communis* has young branches and lower leaf surfaces variably pubescent, and the leaves are conspicuously petiolate.

Selected specimens examined. ARGENTINA. **Corrientes:** banks of the Paraná near Corrientes, Apr. 1883, *D. Parodi s.n.* (K). PARAGUAY. **Amambay:** Iter ad Paraguaiam Septemtrionalem, in regione cursus superioris fluminis Apa, Dec. 1901–1902, *E. Hassler 8313* (BM, NY).

17. *Acalypha villosa* Jacq., Enum. Syst. Pl. 32. 1760. *Ricinocarpus villosus* (Jacq.) Kuntze, Revis. Gen. Pl. 2: 618. 1891. *Gymnalypha jacquinii* Griseb., Bonplandia 6: 2. 1858. TYPE: [Colombia. Bolívar]: Habitat Carthagenae in silvis & sepibus, tab. 183, fig. 16 in Jacquin, Select. Stirp. Amer. Hist. 1763 (lectotype, designated by Howard & Bornstein, 1989: 10, tab. 183, fig. 16 [Jacquin, 1763]). EPITYPE: tab. 47 in Jacq., Hort. Bon. Vindov. 3. 1776 (epitype, designated by Cardiel, 1995b: 232, tab. 47 [Jacquin, 1776]).

Iconography. Lourteig and O'Donell (1942: 330, fig. 19; 1943: tab. 95).

Distribution. *Acalypha villosa* is known from Mexico, the West Indies, Central America, northern and western South America, Brazil, Argentina, and Paraguay (Muñoz-Rodríguez et al., 2014).

In Argentina, two collections were examined from the province of Salta. In Paraguay, seven collections were examined from the departments of Amambay and Concepción. This species occurs in cerrado and the north-central Wet Andes regions, in foothills, and has been collected from elevations of 100–400 m (Fig. 6B).

References. Berry et al. (2007), Cardiel and Muñoz-Rodríguez (2012), Cardiel et al. (2013b), Muñoz-Rodríguez et al. (2014).

Notes. *Acalypha villosa* is the only species in the treated area that is not in the autonymic subgenus. It is assigned to *Acalypha* subg. *Linostachys* on the basis of its pedicellate pistillate flowers, five sepals, and inconspicuous pistillate bracts that do not become foliaceous in the fruit. *Acalypha villosa* is the most widely distributed species of this genus in the New World.

Selected specimens examined. ARGENTINA. **Salta:** Orán, Campamento Y.P.F., Río Pescado, 420 m, 26 Feb. 1943, *T. Meyer 4865* (BM, F, LIL). PARAGUAY. **Amambay:** in regione cursus superioris fluminis Apa, Nov. 1901–1902,

E. Hassler 7859 (BM, F, GH, K, MO, NY, W). **Concepción:** Estancia San Luis de la Sierra, 1 km O, 21 Feb. 1990, *R. Palacios 1898* (MO).

18. *Acalypha wilkesiana* Müll. Arg., Prodr. [A. P. de Candolle] 15(2): 817. 1866. *Ricinocarpus wilkesianus* (Müll. Arg.) Kuntze, Revis. Gen. Pl. 2: 618. 1891. *Acalypha amentacea* Roxb. subsp. *wilkesiana* (Müll. Arg.) Fosberg, Smithsonian Contr. Bot. 45: 10. 1980. TYPE: [Fiji.] In insulis Fidji (U.S. Expl. Exped. under Capt. Wilkes), s.d., *B. C. Seeman 22* (holotype, G-DC!; isotypes, GH!, K [2]!, US [2]!).

Iconography. Pérez-Arbeláez (1990: fig. 289).

Distribution. Native to the Melanesian island of Fiji, *Acalypha wilkesiana* is used as an ornamental plant in gardens throughout the tropics and frequently appears to be naturalized. In Paraguay, two collections were examined from the department of Central. The species has been found in the Chaco region and has been collected from elevations of 50–100 m (Fig. 6B).

Notes. *Acalypha wilkesiana* is easily identifiable by its large and broad leaves, usually variegated from coppery green to red.

Selected specimen examined. PARAGUAY. **Central:** Trinidad, Asunción, Reserva Natural, Aug. 1991, *B. Pérez 1034* (MO).

EXCLUDED NAME

Acalypha punctata D. Parodi, Anales Soc. Ci. Argent. 11: 52. 1881, nom. nud. inval., non *Acalypha punctata* Meisn. ex C. Krauss, Flora 28: 83. 1845.

Acalypha punctata D. Parodi was considered by Pax and Hoffmann (1924) as “pessime descripta, verisimiliter ad *A. communem* pertinent.” It was described from Asunción (Paraguay), but no collection is mentioned and it is an invalid name.

Literature Cited

- Acevedo-Rodríguez, P. & M. T. Strong. 2012. Catalogue of Seed Plants of the West Indies. Smithsonian Contr. Bot. 98: 1–1192.
- Bacigalupo, N. M. 2005. *Acalypha*. Pp. 170–176 in A. Burkart & N. M. Bacigalupo. Flora Ilustrada de Entre Ríos (Argentina), Vol. 6(4). Instituto Nacional de Tecnología Agropecuaria, Buenos Aires.
- Bacigalupo, N. M. & M. E. Mulgúra. 1999. *Acalypha*. Pp. 590–592 in O. Zuloaga & O. Morrone (editors), Catálogo de las Plantas Vasculares de la República Argentina, Vol. 2. Missouri Botanical Garden Press, St. Louis.

- Berry, P. E., M. B. R. Caruzo, I. Cordeiro, H. J. Esser, F. J. Fernández-Casas, G. A. Levin, L. R. Lima, R. Riina & K. J. Wurdack. 2007. *Acalypha*. Pp. 2010–2014 in O. Zuloaga, O. Morrone & M. J. Belgrano (editors), *Catálogo de las Plantas Vasculares del Cono Sur* (Argentina, Sur de Brasil, Chile, Paraguay y Uruguay), Vol. 2. Monogr. Syst. Bot. Missouri Bot. Gard. 107.
- Bianco, C. A. & J. J. Cantero. 1992. Las Plantas Vasculares del Suroeste de la Provincia de Córdoba. Iconografía. Universidad Central de Río Cuarto, Córdoba.
- Brummitt, R. K. 2001. World Geographical Scheme for Recording Plant Distributions, 2nd ed. Plant Taxonomic Database Standards, No. 2. International Working Group on Taxonomic Databases for Plant Sciences (TDWG). Hunt Institute for Botanical Documentation, Carnegie Mellon University, Pittsburgh.
- Cardiel, J. M. 1995a. *Acalypha* (Euphorbiaceae). Flora de Colombia. Monografía, no. 15. Universidad Nacional de Colombia y Real Jardín Botánico-CSIC, Madrid.
- Cardiel, J. M. 1995b [1996]. Tipificación de las especies de *Acalypha* L. (Euphorbiaceae) descritas por Jacquin. *Anales Jard. Bot. Madrid* 54: 230–233.
- Cardiel, J. M. 1999. Contribuciones a la Flora de Venezuela: Revisión del género *Acalypha* (Euphorbiaceae). *Acta Bot. Venez.* 22(2): 255–324.
- Cardiel, J. M. 2007. Catálogo de las especies peruanas de *Acalypha* Linnaeus (Euphorbiaceae). *Fontqueria* 55(50): 405–414.
- Cardiel, J. M. 2010. *Acalypha*. Pp. 963–964 in R. Camopstrini Forzza, J. F. A. Baumgratz, C. E. M. Bicudo, A. A. Carvalho Jr., A. Costa, D. P. Costa, M. Hopkins, P. M. Leitman, L. G. Lohmann, L. C. Maia, G. Martinelli, M. Menezes, M. P. Morim, M. A. Nadruz Coelho, A. L. Peixoto, J. R. Pirani, J. Prado, L. P. Queiroz, V. C. Souza, J. R. Stehmann, L. S. Sylvestre, B. M. T. Walter & D. Zappi. (editors), *Catálogo de Plantas e Fungos do Brasil*. Rio de Janeiro, Vol. 2. Andrea Jakobsson Estúdio. Instituto de Pesquisas Jardim Botânico do Rio de Janeiro, Rio de Janeiro.
- Cardiel, J. M. & P. Muñoz-Rodríguez. 2012. Synopsis of *Acalypha* (Euphorbiaceae) of continental Ecuador. *PhytoKeys* 17: 1–17.
- Cardiel, J. M., P. Muñoz-Rodríguez & F. Muñoz-Garmendia. 2013a. Revised taxonomy and nomenclature of *Acalypha* sect. *Communes* (Euphorbiaceae), a complex group of species widespread in the north of the Southern Cone. *Taxon* 62(6): 1296–1304.
- Cardiel, J. M., M. Nee & P. Muñoz-Rodríguez. 2013b. Synopsis of *Acalypha* (Euphorbiaceae) of Peru and Bolivia, with description of a new species. *Anales Jard. Bot. Madrid* 70(2): 152–177.
- Cardiel, J. M., P. Muñoz, E. Dorda & M. Pardo de Santallana. 2015. *Acalypha* Taxonomic Information System, <<http://www.acalypha.es>>, accessed June 2015.
- De Egea, J., M. Peña-Chocarro, C. Espada & S. Knapp. 2012. Checklist of vascular plants of the department of Ñeembucú, Paraguay. *PhytoKeys* 9: 15–179.
- Global Biodiversity Information Facility (GBIF). *Acalypha* dataset 12046. <<http://www.gbif.org>>, accessed 2 March 2015.
- Guantay, M. E., A. C. Slanis & E. Bulacio. 2008. Caracterización del indumento caulinar de *Acalypha poiretti* (Euphorbiaceae, Acalyphaeae). *Lilloa* 45(1–2): 61–65.
- Howard, R. A. & A. J. Bornstein. 1989. Flora of the Lesser Antilles, Leeward and Windward Island, Vol 5(2). Arnold Arboretum, Harvard University, Jamaica Plain, Massachusetts.
- Lourteig, A. 1954. Euphorbiaceae argentinae. *Addenda II*. *Ark. Bot. Ser.* 2, 3(5): 71–87.
- Lourteig, A. & C. A. O'Donnell. 1942. *Acalyphaeae argentinae* (Euphorbiaceae). *Lilloa* 7: 273–333.
- Lourteig, A. & C. A. O'Donnell. 1943. *Acalypha*. Pp. 208–226, tab. 86–95 in H. R. Descole, *Genera et Species Plantarum Argentinae*, Vol. 1. G. Kraft, Buenos Aires.
- McNeill, J., F. R. Barrie, W. R. Buck, V. Demoulin, W. Greuter, D. L. Hawksworth, P. S. Herendeen, S. Knapp, K. Marhold, J. Prado, W. F. Prud'homme van Reine, G. F. Smith, J. H. Wiersema & N. J. Turland (editors). 2012. International Code of Nomenclature for Algae, Fungi, and Plants (Melbourne Code). *Regnum Veg.* 154.
- Müller Argoviensis, J. 1865. Euphorbiaceae. *Vorläufige Mittheilungen aus dem fir De Candolle's Prodrum bestimmt Manuscript über diese Familie*. *Linnaea* 34: 1–224.
- Muñoz-Rodríguez, P., J. M. Cardiel & D. Atha. 2014. *Acalypha* subgenus *Linostachys* (Euphorbiaceae, Acalyphoideae): A global review. *Phytotaxa* 166(3): 199–221.
- Pax, F. A. & K. Hoffmann. 1924. Euphorbiaceae-Crotonoideae-Acalyphaeae-Acalyphinae in A. Engler (editor), *Das Pflanzenreich*, 4, 147, XVI(Heft. 85). Engelmann, Leipzig.
- Pensiero, J. F., H. F. Gutiérrez, A. M. Luchetti, E. Exner, V. Kern, E. Brnich, L. Oakley, D. Prado & J. P. Lewis. 2005. Flora Vascular de la Provincia de Santa Fe. Claves para el reconocimiento de las familias y géneros. *Catálogo sistemático de las especies*. Universidad Nacional del Litoral, Santa Fe, Argentina.
- Pérez-Arbeláez, E. 1990. *Plantas Útiles de Colombia*, 14th ed. Víctor Hugo, Medellín.
- Small, J. K. 1913. Euphorbiaceae. Pp. 452–477 in N. L. Britton & A. Brown (editors), *An Illustrated Flora of the Northern United States*. Scribner's Sons, New York.
- Steinmann, V. W. 2002. Diversidad y endemismo de la familia Euphorbiaceae en México. *Acta Bot. Mex.* 61: 61–93.
- Steinmann, V. W. & G. A. Levin. 2011. *Acalypha herzogiana* (Euphorbiaceae), the correct name for an intriguing and commonly cultivated species. *Brittonia* 63(4): 500–504.
- Thiers, B. 2011. Index Herbariorum: A global directory of public herbaria and associated staff. New York Botanical Garden's Virtual Herbarium. <<http://www.sweetgum.nybg.org/ih/>>, accessed 5 February 2014.
- Tressens, S. G., H. A. Keller & V. Revilla. 2008. Las plantas vasculares de la reserva de uso múltiple Guaraní, Misiones (Argentina). *Bol. Soc. Argent. Bot.* 43(3–4): 273–293.
- Zuloaga, O., O. Morrone & M. J. Belgrano (editors). 2008. *Catálogo de las Plantas Vasculares del Cono Sur* (Argentina, Sur de Brasil, Chile, Paraguay y Uruguay). *Monogr. Syst. Bot. Missouri Bot. Gard.* 107.