

**STUDIES OF NEOTROPICAL COMPOSITAE—XIII.
LAGASCEA ESPINALII (HELIANTHEAE: HELIANTHINAE),
A NEW SPECIES FROM DRY CANYONS IN ANTIOQUIA, COLOMBIA,
AND TWO NOTEWORTHY RANGE EXTENSIONS**

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ABSTRACT

The uniflorous-capitulate new species *Lagascea espinalii* Pruski, **sp. nov.** is described, and is endemic to dry canyons in the Cauca river basin in Antioquia, Colombia. *Lagascea espinalii* (Heliantheae) is placed in *Lagascea* sect. *Nocca*, and compared to its congeners. *Lagascea espinalii* is the ninth species recognized in the genus, the second species of the genus known in South America, and the first species of *Lagascea* sect. *Nocca* reported in South America. A key to species of *Lagascea* is given. Additionally, noteworthy range extensions reported here include the first report of the genus *Florestina* (*F. latifolia*) (Bahieae) in South America and the first report of the genus *Gongylolepis* (*G. colombiana*) (Mutisieae s.l.) in Antioquia, Colombia.

Herbarium studies in Colombia have resulted in the present description of a new species of the paucispicose, western Mexico-centered, uniflorous-capitulate genus *Lagascea* Cav. (Heliantheae: Helianthinae). The new species, shrubby, white-flowered *Lagascea espinalii* Pruski, occurs in seasonally dry forested (bosque seco tropical) canyons and bordering premontane areas of the inter-Andean Cauca River basin in Antioquia, Colombia. *Lagascea espinalii* is partly sympatric with the similarly-scurfy, regional *Simsia fruticulosa* (Spreng.) S.F. Blake (Helianthinae) and the well-known *L. mollis* Cav. (Fig. 1A). Vegetative portions of *L. espinalii* resemble in gestalt Mexican-Central American *Tithonia longiradiata* (Bertol.) S.F. Blake (Helianthinae), and perhaps tellingly *Lagascea* and *Tithonia* Desf. ex Juss. were given as sister genera by Schilling and Panero (2011).

The relations of *Lagascea* were discussed and the genus revised by Stuessy (1976, 1978), who recognized eight species in three sections. Stuessy (1978) recognized two species in diffusely branched, herbaceous, minutely coroniform-fruited *Lagascea* sect. *Lagascea* (Fig. 1A); two shrubby species with golden-yellow corollas and an often rudimentary pappus in *Lagascea* sect. *Calhounia* (A. Nels.) Stuessy (Fig. 1B); and four (now five) shrubby species with white (-pinkish) corollas and a biaristate pappus within *Lagascea* sect. *Nocca* (Cav.) DC. (Fig. 1C).

The genus *Lagascea* is characterized traditionally as being (secondarily) uniflorous-capitulate, with the single floret surrounded proximally by a thin, gamophyllous, tubular-dentate, calyx-like true involucre (Figs. 2–3, 7–8; viz also Hind et al. 1993: pl. 64). In interpreting the capitula as monocephalous, Brown (1817) noted the significance of the ovary as free from (rather than adnate to) the surrounding gamophyllous involucre, as is typical of ovaries in pluriflorous-capitulate Compositae. These epaleate, uniflorous capitula of *Lagascea* are sessile and aggregated onto a shared base of a larger, pluricapitulate, (tertiary) compound glomerate-synflorescence (Stuessy 1978; Harris 1994; Medabalimi & Aluri 2017; Pruski & Robinson 2018). Each pluricapitulate synflorescence (aka compound head, syncephalum, etc.) is in turn usually subtended by a leafy-paucibracteate, false secondary involucre (Figs. 4–7). The synflorescences of *Lagascea* are either grouped terminally on branchlets (Figs. 1A, 1C, 4–5), or on occasion (e.g., *Lagascea* sect. *Calhounia*) they occur singly (Figs. 1B, 2B).

The interpretation of the capitula as typically uniflorous is further supported by Hemsley (1881) and Stuessy (1978), who noted the occasional occurrence of 2–5(–8) florets in *Lagascea decipiens* (Fig. 2A right; viz also *Parkinson s.n.*, the type of synonymous *L. biflora* Hemsley) within the calyx-like involucre of some individual capitula. In instances when > 3-flowered, Stuessy gave capitula as often weakly paleate, with involucres and paleae developmentally and structurally distinct. Species of the genus *Lagascea* may often be recognized without dissection by the basically eximbricate (never spirally gradually-imbricated), leafy-bracteate, false involucre of their synflorescences (Figs. 4–7), and by the characteristic sericeous-pilose indument of their involucres, stems, and/or leaves.

The synflorescences of the genus *Lagascea* (Figs. 1–2, 4–7) functionally mimic pluriflorous capitula of archetypal Compositae (viz Cavanilles 1794, 1803; Jacquin 1809; Brown 1817; Kunth 1820; Cassini 1828; Lessing 1832; Candolle 1836; Endlicher 1836–1840; Spach 1841; Gardner 1846; Walpers 1846–1847; Schultz-Bipontinus 1861). The aforementioned early authors mostly treated uniflorous-capitulate *Lagascea* as tribe Vernoniae near monotypic and uniflorous-capitulate *Rolandra* Rottb. and *Spiracantha* Kunth. *Lagascea* superficially resembles tribe Vernoniae by its linear-lanceolate, long-papillose style branches with continuous stigmatic surfaces. Although *Lagascea* and Vernoniae have vaguely similar style branches, the smooth-glabrous style trunk, recurved style branches, and carbonized cypselae of *Lagascea* are obviously at odds with a placement in Vernoniae. Uniflorous-capitulate *Lagascea* was treated subsequently as a member of tribe Heliantheae (e.g., Bentham & Hooker 1873; Clarke 1876; Hemsley 1881; Hooker 1881; Baillon 1882; Baker 1884; Hoffmann 1894), where it still remains.

The uniflorous capitula of *Coulterella* Vasey & Rose lead these authors to suggest a placement of the genus in subtribe Lagasceinae, but Stuessy (1976) distanced *Lagascea* and *Coulterella*, and "abandoned" Lagasceinae. Stuessy (1976) gave *Coulterella* as closest to *Flaveria* Juss. (both are now placed in tribe Tageteae; Panero 2007). Stuessy (1976) placed *Lagascea* in subtribe Helianthinae as "at least somewhat close" to *Alvordia* Brandege, which was reduced to synonymy with *Aldama* La Llave (Helianthinae) by Schilling and Panero (2011). *Aldama dentata* La Llave and *Sclerocarpus* Jacq. (Helianthinae), by their disk cypselae held within paleae in perigynia-like structures, are superficially similar to *Lagascea*, but differ obviously by their pluriflorous, radiate capitula. Brandege (1899, sub *Alvordia*) characterized the capitula of *Aldama fruticosa* (Brandege) E.E. Schill. & Panero as uniflorous-capitulate, and Schilling and Panero (2011) highlighted the trend to few-flowered capitula in this and several other Helianthinae. Stuessy (1976) stated that although *Alvordia fruticosa* Brandege is "almost secondarily headed," it lacks the "common secondary involucre" of *Lagascea*.

Elsewhere in Heliantheae, pistillate capitula of wind-pollinated *Ambrosia* L. (subtribe Ambrosiinae) are also characteristically uniflorous-capitulate. Pistillate capitula of *Xanthium* L. (subtribe Ambrosiinae) are 2-flowered. In these two Ambrosiinae genera, the florets of the pistillate capitula are extremely reduced and lack corollas. Nearly as reduced are the often 2-flowered capitula of *Delilia biflora* (L.) Kuntze and *Stachycephalum asplundii* H. Rob. & Tangerini, each Heliantheae. Nevertheless, *Lagascea* is equally odd, and is the sole primarily uniflorous-capitulate (Figs. 2–3, 7–8), syncephalous (Figs. 1–2, 4–7) genus of Heliantheae, a tribe of 100+ genera and about 1500 species, more or less 0.5 % of the Angiosperms (Panero 2007; Pruski & Robinson 2018). The circumscription of subtribe Helianthinae and the component genera recognized basically follows the treatments of H. Robinson (1981), Schilling and Panero (2002, 2011), Panero (2007), and Pruski and Robinson (2018). Schilling and Panero (2011) gave the singular *Lagascea* as late divergent in Helianthinae. Although flower color varies (Fig. 1), the gamophyllous phyllaries, uniflorous capitula, and stipitate glands of the branches help define *Lagascea*.

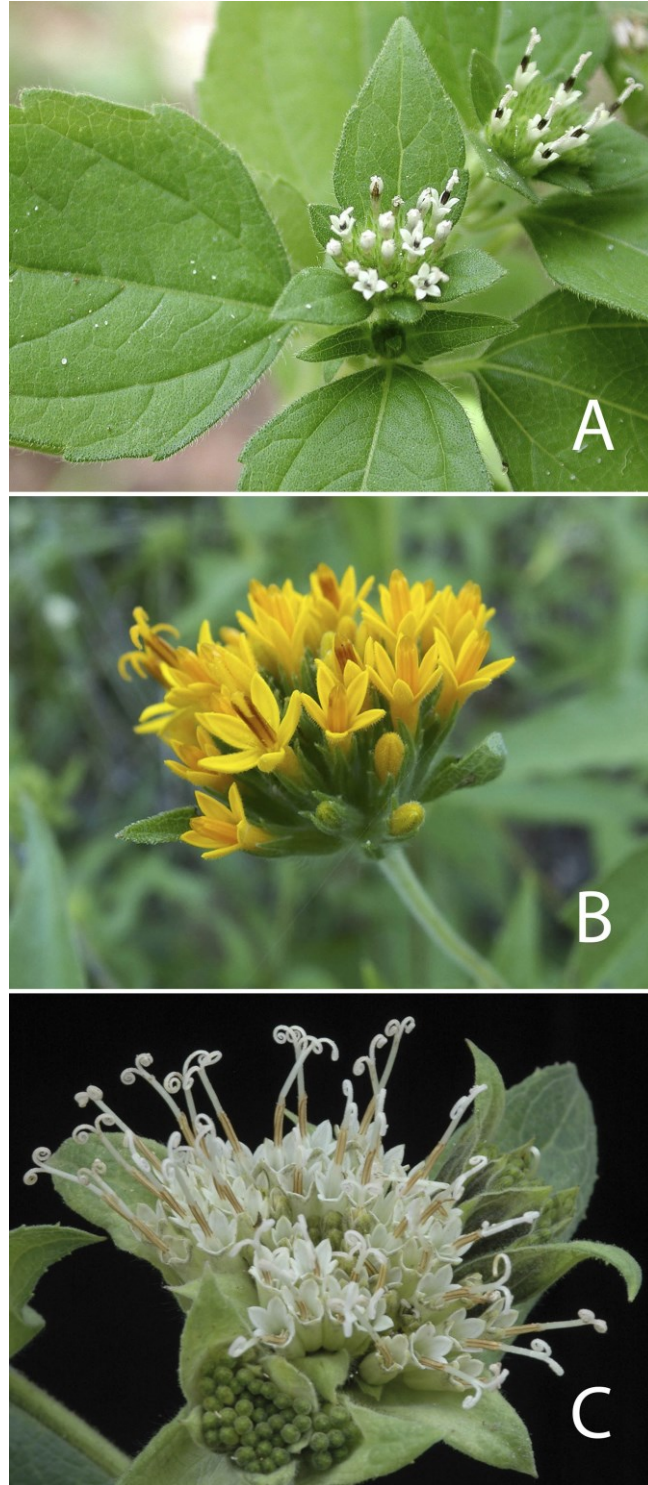


Figure 1. Glomerate-synflorescences of the three sections of *Lagascea*. A. Herbaceous *Lagascea mollis* of sect. *Lagascea*, with white corollas and black anthers. B. Shrubby *Lagascea decipiens* of sect. *Calhounia*, showing golden-yellow corollas. C. Shrubby *Lagascea helianthifolia* of sect. *Nocca*, with white corollas, brownish-anthers, and several clustered synflorescences (a compound head of compound heads, so to speak). (A *John Hayden 4711*, Yucatán, Mexico; B *Susan Carnahan 1959*, Arizona, USA; C *Pedro Tenorio Lezama s.n.*, same species as *Pedro Tenorio Lezama 21374*, Oaxaca, Mexico; photographs by the collectors).

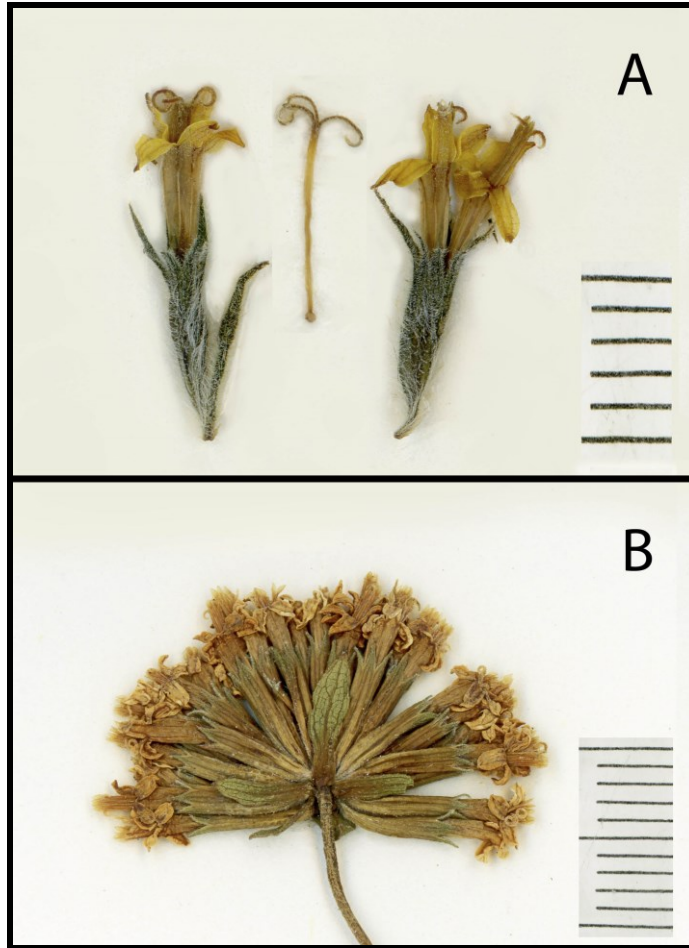


Figure 2. Capitula and synflorescence of *Lagascea* sect. *Calhounia*. A. Capitula (left, uniflorous; right, biflorous) and aberrant trifid style (center) of *L. decipiens*. B. Synflorescence of *L. palmeri*, showing the individual component capitula between narrow synflorescence bracts. (A Sanders et al. 12935, MO; B García & Delgado 931, MO). Metric scales lower right.

Important early summaries of *Lagascea* were given by Candolle (1836), Hemsley (1881), and B.L. Robinson (1901, 1907). Stuessy (1978) recognized a few infraspecies using the character of stipitate-glands on branchlets subtending the synflorescences. *Lagascea espinalii* typically has distal branchlets obviously stipitate-glandular (e.g., holotype, Fig. 5), albeit some more-proximal branchlets with budding flowers (e.g., paratype, Fig. 4) are not obviously glandular. Because the very striking stipitate glands are not always obviously manifest on the clearly conspecific material examined of *L. espinalii*, this character is not used by me as important in infraspecies taxonomy.

Of the eight species of *Lagascea* recognized by Stuessy (1978), only herbaceous *L. mollis* Cav. (Fig. 1A) (the generitype) was given formerly as occurring in South America. *Lagascea mollis* is found in Mexico, Central America, the West Indies, South America, and has also been reported as introduced sporadically in the Paleotropics (e.g., Africa, Asia, and Pacific Islands) (viz treatments by Kunth 1820; Candolle 1836; Bentham & Hooker 1873; Clarke 1876; Hooker 1881; Baker 1884; B.L. Robinson 1901, 1907; Liogier 1962, 1996, 1997; Aristeguieta 1964; Adams 1972; Clewell 1975; Nash & Williams 1976; Cabrera 1978; Stuessy 1978; Howard 1979; Grierson 1980; H. Robinson 1981, 2006; McVaugh 1984; Villaseñor 1989; Smith & Carr 1991; Hind et al. 1993; Badillo 1994; Bremer 1994; Chowdhery 1995; Funk & Pruski 1996; Pruski 1997; Strother 1999; Dillon et al. 2001; Beentje et al. 2005; Barkley et al. 2006; Panero 2007; Chen & Hind 2011; Pruski & Funston 2011;

Rzedowski et al. 2011; Freire 2015; Turner 2015; Koyama et al. 2016; Pruski & Robinson 2018). The second of two species of herbaceous *Lagascea* sect. *Lagascea* is *L. aurea* Stuessy, a Mexican endemic with yellow corollas. Both species have main nerves of the involucre with several small resinous glands, which are especially prominent in fruit. *Lagascea* sect. *Lagascea* is in turn the sole section known previously to occur in South America.

Stuessy (1978) treated the two shrubby species [*Lagascea decipiens* Hemsl. and *L. palmeri* (B.L. Rob.) B.L. Rob.] having florets with short-tubed, golden-yellow corollas and usually one elongate gland in the main nerve of each involucre lobe (phyllary) as comprising the ditypic *Lagascea* sect. *Calhounia*. *Lagascea decipiens* (Figs. 1B, 2A) and *L. palmeri* (Fig. 2B) are each typified by material from Mexico, with *L. decipiens* also extending northward into the United States. *Lagascea* sect. *Calhounia* is not known from Central America (Stuessy 1978; Pruski & Robinson 2018), and thereby seems unlikely to occur in South America.

The four remaining species of *Lagascea* [*L. angustifolia* DC., *L. helianthifolia* Kunth, *L. heteropappa* Hemsl., and *L. rigida* (Cav.) Stuessy] are each typified by Mexican material, and were treated by Robinson (1901) as *Nocca* Cav. Stuessy (1978) recognized them as *Lagascea* sect. *Nocca*, which he characterized as having a shrubby habit, white (-pinkish) corollas, usually two–few elongate glands in the main nerve of each involucre lobe (phyllary), and a biaristate pappus. Plants determined here as *L. espinalii* are shrubs, have white corollas, and are biaristate-pappose. It is thus within *Lagascea* sect. *Nocca* that I describe *L. espinalii*, although the plants are without obvious elongate glands in the main nerve of each phyllary (involucre lobe).

Among the four species of this section recognized by Stuessy (1978), *Lagascea espinalii* is least dissimilar to Mexican-Central American (Mexico, Guatemala, Honduras, El Salvador, and Nicaragua) *L. helianthifolia* (Figs. 1C, 6–8), with the two species being superficially alike in their relatively long leaves that are usually obviously trinerved. *Lagascea espinalii* differs from *L. helianthifolia* by always alternate (vs. usually opposite to sometimes alternate) flowering branch leaves; by petiolate and smooth-surfaced (vs. either sessile or reticulate-veined) leaves; by leaf blades 3-nerved from near (vs. 3-nerved from well-above) base; by sometimes purplish (vs. green) synflorescence bracts; by corollas 8–9.9 (vs. 10.5–17) mm long with tube 1.1–1.5 (vs. 2–4) mm long and about 3–4 (vs. 1–2) times shorter than corolla throat (viz Fig. 3 vs. Figs. 7–8); by style branches weakly (vs. well-) exerted from anther cylinder (viz Fig. 3 vs. Figs. 6–7); by immature cypselae 3.5–4 (vs. mature cypselae 5–7) mm long; and by pappus aristae 0.5–1.3 (vs. 0.4–0.5) mm long with the longer of the two about as long as (vs. shorter than) the short corolla tube (viz Fig. 3 vs. Fig. 8). *Lagascea espinalii* and *L. helianthifolia* are fairly disparate morphologically, and disjunct by about 1400 kms.

The three other species of *Lagascea* sect. *Nocca*—*L. angustifolia*, *L. heteropappa*, and *L. rigida* — are Mexican endemics and mutually similar by leaves always opposite throughout, short petioles, leaf blade size, leaf blade shape, and lack of long-narrow leaf blade tips. These three species thereby stand apart from *L. espinalii* and *L. helianthifolia*. *Lagascea rigida* has suprabasal leaf blade trinervy, which is also hinted at in *L. angustifolia* and *L. heteropappa*. *Lagascea heteropappa* by its strongly discolorous leaves with abaxial sericeous indument is somewhat similar to *L. espinalii*. *Lagascea heteropappa* clearly differs from *L. espinalii*, however, by its opposite (vs. alternate) flowering branch leaves, and nitidous (vs. dull-green) adaxial leaf blade surfaces. *Lagascea angustifolia* and *L. rigida* are very distinct from *L. espinalii*, and distinguished, respectively, by broad-acute-obtuse-tipped leaves or by adaxially nitidous, subglabrous leaves. The four species in the two other sections of *Lagascea* are either shrubs with golden-yellow corollas or are diffuse herbs, thus differing from *L. espinalii*. *Lagascea espinalii* can be inserted into the Stuessy (1978: 89) key before lead d. A key to species of *Lagascea*, modifying Stuessy (1978) and Turner (2015), is given below.



Figure 3. *Lagascea espinalii*, floral dissections of uniflorous capitula arranged following protologue figures of *Lagascea mollis* Cavanilles 1803: tab. 44 and *Lagascea rubra* Kunth 1820: tab. 311. A. Dissected synflorescence showing stipitate-glandular branchlet (bottom center), one bract (upper left), and a single capitulum (upper right). B. Unequally 5-lobed involucre, floret removed. C. Capitulum. D. Gamophyllous involucre (left) with floret removed and on right, showing immature biaristate cypselum with longer arista nearly as long as corolla tube. (A–B holotype, *Zapata 2147*, JAUM; C–D paratype, *Zapata 2148*, JAUM). Scale bars 5 mm.



Figure 4. *Lagascea espinalii*, portion of branch showing alternate leaves, blades trinerved from near base, long-narrow leaf blade tips, and axillary branchlets terminated by several pre-anthesis, leafy-bracteate synflorescences. (Paratype, Zapata 2148, sheet 1 of 2, JAUM).

Lagascea espinalii is the only species of *Lagascea* not occurring in Mexico, and is the sole species of *Lagascea* endemic to Colombia. *Lagascea espinalii* is the first species of *Lagascea* sect. *Nocca* reported in South America, and the second species of the genus known in South America. Similarly, only two species of *Lagascea* are known in Central America (Stuessy 1978; Pruski & Robinson 2018). The description of *L. espinalii* raises to nine the number of species of *Lagascea*, and to five the number of species now recognized in *Lagascea* sect. *Nocca*. It is quite natural to suggest that *L. espinalii* may be derived from congeners of Mexico-Central America, the center of distribution of *Lagascea* sect. *Nocca*.

LAGASCEA ESPINALII Pruski, **sp. nov.** **TYPE: COLOMBIA. Antioquia.** Mpio. Santa Fe de Antioquia, sector La Chorquina, vía a Urabá 10 km antes de Cativo, Bs-T, transición, vegetación secundaria, 1253 m, 5 Nov 2018, *Diego Zapata 2147* (holotype: JAUM-82165, as 2147 (1/2); isotype: JUAM-82166, as 2147 (2/2)). I annotated the holotype and isotype in JAUM as paratypes of a non-published name in *Lagascea* that used 'velezii' as the epithet. Figures 3–5.

Plantae fruticosae 1.5–2.5 m altae; ramuli sericeo-pilosi distaliter stipitato-glandulosi; folia 7–22 cm longa simplicia alterna petiolata, lamina (6.5–)9–19 × 3–8 cm lanceolata vel ovata 3-nervata basi cuneata integra apice acuminata vel longiattenuata supra brevisericea subtus longisericea, petiolo 0.5–3 cm longo; capitulescentia terminalis cymosa; synflorescentia 1.5–2.2 × 1.5–2.5 cm, campanulata 13+ capitulata bracteata, bracteas 5–6, 15–27 × 3–7 mm; capitula uniflora homogama discoidea 16–19 mm

longa epaleacea, involucrem 7–10 mm longum gamophyllum anguste obconicum quinquelobatum; flosculi disci 1 hermaphroditi 16–19 mm longis, corollis 8–9.9 mm longis infundibuliformis albis sericeo-pilosis tubo 1.1–1.5 mm longo lobis 1.8–2.3 mm longis; antherae 4–4.4 mm longae; styli rami circiter 1.5 mm longi; cypselae 3.5–4 mm longae biaristatae.

Monocious shrubs 1.5–2.5 m tall, woody-based with short main trunk, but with herbaceous flowering stems probably produced annually, without secretory cavities or latex; stems ascending, typically alternately several-many-branched from near mid-stem, leafy, flowering branchlets to ca. 1 m long, leafy, unbranched or few-branched only proximally, subdistal internodes shorter than leaves, brown, sericeous-pilose or hirsute to densely so, the pale-griseous trichomes often to 3+ mm long, branchlets subtending glomerules distally becoming mixed with long-stipitate-glandular indument often to 0.5+ mm long, sometimes the stipitate-glands nearly replace the sericeous-pilose trichomes. **Leaves** 7–22 cm long, simple, alternate for most of the length of the 10+ flowering stems, but leaves of young plants or proximal leaves opposite, petiolate; blade (6.5–)9–19 × 3–8 cm, mostly lanceolate to ovate, stiffly chartaceous, venation arching 3-nerved from acumination near base, this proximal pair of veins usually slightly thicker and more prominent than spreading distal secondaries, the larger distal secondary veins sometimes unequally thickened, more or less evenly spaced and arching towards apex, base tapering cuneate, margins unlobed, subentire, apex acuminate to long-attenuate or even nearly caudate, surfaces concolorous or slightly discolored, eglandular, adaxial surface short-sericeous, dull-green, abaxial surface long-sericeous, pale green; petiole 0.5–3 cm long, short and broad in immature plants, but ultimately distinct and narrowly winged distally from decurrent blade, pilose, trichomes to 4+ mm long and sometimes longer than petiole width. **Capitulescence** terminal and also on alternate branchlets one per node from distal nodes, the terminal portion to 30 cm long, few–several-branched, usually leafless, 25+–capitulate, the proximal axillary flowering branchlets with about 3–6 loosely-arranged cymose shortly stalked (mostly 0.5–1.5 cm long) synflorescences, unbranched in proximal 1/2–2/3, few-bracteolate, axillary branchlets usually 10–15 cm long and shorter than subtending leaves, all branches loosely pilose with trichomes to 5 mm long, trichomes often longer than branch diameter, distal branchlets subtending glomerules often also stipitate-glandular. **Synflorescences** mimicking a pluriflorous capitulum, each with 13+, aggregated-glomerate, sessile, free, uniflorous capitula, 1.5–2.2 × 1.5–2.5 cm, campanulate, subtended by a false involucre of leafy bracts, individual synflorescences loosely cymose at ends of distal branchlets; leafy bracts of false involucre mostly 5–6, 15–27 × 3–7 mm, mostly lanceolate to oblong, green or purplish, effectively eximbricate, weakly overlapping at anthesis but pressing as though loosely arranged, ascending to spreading, often trinerved from near base, apex acute, sericeous-pilose; branchlets subtending synflorescence mostly 0.5–1.5 cm long, sericeous-pilose and characteristically also densely stipitate-glandular, the stipitate-glandular indument sometimes becoming brownish or golden and partly obscuring the sericeous-pilose indument. **Capitula** uniflorous, homogamous, discoid, 16–19 mm long from base to tip of anthers, sessile on shared glomerule base; involucre 7–10 mm long, gamophyllous to near apex, narrowly-obconic, surrounding and enclosing the shorter cypselae, long-sericeous-pilose throughout but more densely so proximally, thin-scarious-chartaceous, the pale greenish surfaces nearly obscured by indumentum, trichomes to 1.3+ mm long, ca. 10-nerved, nerves brownish, the central nerve of each lobe (phyllary) thicker than laterals, slightly resinous-glandular, lobes 5, unequal or sometimes subequal, 1.5–3 mm long, linear-lanceolate, erect or spreading, attenuate-tipped; phyllaries connate for most of their length into an involucre tube with free apical lobes, thus effectively eximbricate and 1-seriate, persistent; clinanthium minute, epaleate. **Ray florets** 0. **Disk florets** 1, bisexual, 16–19 mm long from base to tip of anthers, exerted from involucre for about 1/3–1/2 their length, corolla tube and base of corolla throat held within involucre; corolla 8–9.9 mm long, reaching to about top of synflorescence bracts, funnelliform, shortly 5-lobed, white (cream-colored), loosely short-sericeous-pilose proximally, grading to moderately long-sericeous-pilose distally, trichomes mostly 0.2–0.7 mm long, tube 1.1–1.5 mm long, about 3–4 times shorter than corolla throat, limb slightly broadened, throat 5.1–6.1 mm long, without prominent fibers associated with the five nerves, nerves proximally alternating with lobes, divaricate at sinuses and passing laterally into adjacent lobes, lobes 1.8–2.3 mm long, ascending to slightly recurved, nerves intramarginal and confluent distally forming a closed loop; anthers 4–4.4 mm long, mostly exerted from corolla, ecaudate, short-sagittate, filaments glabrous, thecae pale yellow-brown, connective darkish, sericeous in

distal half, appendages 0.5–0.7 mm long, long triangular, concave-navicular, eglandular, without resin ducts, partly obscured proximally by elongate connective trichomes but apparently not sericeous; endothecial pattern polarized; pollen spheroidal, tricolporate, echinate; styles base short-nodular, trunk smooth and glabrous, branches ca. 1.5 mm long, linear-lanceolate, white, only weakly exerted from anther cylinder in herbarium material seen, slightly recurved, abaxially obviously long-papillose, stigmatic surfaces of each branch continuous to near apex, not at all obviously 2-banded, apex narrowly tapered. **Cypselae** (immature) 3.5–4 mm long, obovoid, free from the gamophyllous involucre, rounded apically and tapered proximally, black, carbonized with phytomelanin deposits, without raphid crystals, smooth and not at all tuberculate, exalate, glabrous or nearly so, carpopodium small and nearly obscure; pappus low coroniform and laterally biaristate, aristae 0.5–1.3 mm long, slightly unequal, crown 0.3–0.4 mm long. Chromosome number unknown, base number presumably $x = 17$, as in related (all diploid) species.



Figure 5. *Lagascea espinalii*, cymose glomerate-synflorescences showing leafy bracts of the false involucre partly obscuring the true involucre of the individual component capitula. (From the holotype, *Zapata 2147*, JAUM). Scale bars 1 cm.

Paratypes. COLOMBIA. Antioquia. Mpio. Peque, sector La Muñeca, cerca de la quebrada "peque", margen izquierda del Río Cauca, 515 m, 16 Apr 2014, *D. Zapata & J. Calle 495* (JAUM-64433); Mpio. Santa Fe de Antioquia, sector La Chorquina, vía a Urabá 10 km antes de Cativo, Bs-T, transición, vegetación secundaria, 1253 m, 5 Nov 2018, *D. Zapata 2148* (JAUM-2 sheets); Mpio. Santa Fe de Antioquia, sector La Sopera, vía a Urabá, Bs-T, talud, borde de carretera, 853 m, 24 Dec 2018, *D. Zapata 2151* (JAUM, as "2151 (1/2)").

Eponymy. *Lagascea espinalii* commemorates the late Luis Sigifredo Espinal Tascón, for whom the Herbario Luis Sigifredo Espinal-Tascón of the Universidad del Valle in Cali is named. Espinal is well-known for his 1960s collections with Jose Cuatrecasas in Valle de Cauca, and species from there named for him include *Brunellia espinalii* Cuatr., *Hypericum espinalii* N. Robson, and *Pleurothallis espinalii* Luer. Luis Sigifredo Espinal is the author of several fine treatments of vegetation types of Colombia (e.g., Espinal and Montenegro 1963; Espinal 1989, 1990), and in particular those of Antioquia (e.g., Espinal 1964, 1985). He was for many years a professor at Universidad Nacional de Colombia sede de Medellín and *Magnolia espinalii* (Lozano) Govaerts named in his honor is based on his material from Antioquia. It is altogether fitting and proper to dedicate this Compositae—*Lagascea espinalii*—from Antioquia to Luis Sigifredo Espinal Tascón.

Distribution and ecology. *Lagascea espinalii* is endemic to Antioquia in northwestern Colombia, where it is known from municipios Peque and Santa Fe de Antioquia. The species is found from about 500–1250 meters elevation and flowers from November–December(+ April). The synflorescences are often beetle-damaged affecting seed set, as has been noted (Schilling and Panero 2011) in other Helianthinae. *Lagascea espinalii* grows in open areas of seasonally dry forested canyons and in transitional zones with bordering "bosque humedo premantano" (viz map in Espinal 1985: 63) of the Cauca River basin between the Cordillera Central and the older volcanic Cordillera Occidental. Espinal (1985) and Vélez (2004) gave the upper elevational range of Cauca basin dry forests as 1000 meters, but material at 1253 meters elevation is from a dry area, which was designated by Diego Zapata (in sched.) as "Bs-T, transición" (bosque seco tropical, transition).

Colombian dry forests (bosque seco tropical) have been referenced as "bs-T" by Espinal and Montenegro (1963) and Espinal (1989, 1990), who stated their average annual rainfall is between 1000–2000 mm. Gentry (1995) said "categorization" of low rainfall sites as dry forest is "straightforward" noting there is a close correlation between rainfall regimes and "recognizable dry forest." Studies of Colombian pollen deposits reveal Pleistocene Epoch floristic shifts, with dry glacial maxima lowering sea levels and causing downslope "displacement of vegetation" belts (Simpson Vuilleumier 1971; van der Hammen 1974). Sarmiento (1975) and Gentry (1982) noted the current formations of dry forests in Colombia were influenced by "increasing dry climatic regimes of the Pliocene and Pleistocene" epochs. Sarmiento (1975) and Gentry (1995) mapped the dry forests of Colombia, and showed them to be isolated from each other forming "a chain of dry islands." Gentry (1982) and Vélez (2004) noted the high endemism in Colombian dry forests.

Dry forests in Antioquia were mapped by Espinal (1985: 25), and include those along the Cauca River, as well as an isolated zone about 40 kms further west, between Uramita and Dabeiba. Vélez (2004) provided an excellent floristic survey of the seasonally dry forested canyons of the Cauca River basin in Antioquia. Pizano and García (2014: 11) also mapped dry forests (in bright green) along the Cauca River in Antioquia, but not those between Uramita and Dabeiba. Espinal (1989) provided a profile between Medellín and Turbo (on the east side of the Golfo de Urabá), and schematically diagramed the dry canyon along the Cauca River near Santa Fe de Antioquia, basically where *Lagascea espinalii* appears to be endemic. The low-end bordering "bosque humedo premantano–bh-P" that Espinal (1985: 62) gave as at about "900" meters elevation are equivalent to the transitional zone indicated by Diego Zapata (in sched.), and presumably have at least some shared characters and influences with seasonally dry tropical forests.

The most detailed maps that I have seen of seasonally dry forests in Colombia are those of IGAC (1983: planchas 5-05 and 5-08), where this zone is labeled as "Wa." These fairly detailed maps show Colombian dry forests as discontinuous along the length of the Cauca River, and plotted in detail the Cauca River basin tropical dry forests in Antioquia. In Antioquia, the dry forests in the Cauca River basin are mapped at their southern limit near Pintada. Pintada is about 90 kms south of Santa Fe de Antioquia at about 5° 50' N latitude, near the border with Caldas. The Cauca River basin dry forests in Antioquia reach their northern limit near Puerto Valdivia about 75 kms northeast of Santa Fe de Antioquia at about 7° 10' N latitude. The few localities of *Lagascea espinalii* known to me are within a few kms of the south-north flowing Cauca River, three near Santa Fe de Antioquia, and original collection about 50 kms north of the colonial city (i.e., from about 6° 34' N latitude to 7° 00' N latitude). The range of *Lagascea espinalii* thus falls completely within the 150+ km-long zone (ca. 180 km by river, fide Álvaro Idárraga, pers. comm.) of Cauca River basin dry canyons in Antioquia. It seems possible that further collections of *Lagascea espinalii* may be discovered in similar dry canyons between the known localities or elsewhere within the 150+ km-long Cauca River seasonally dry forests in Antioquia or adjacent Caldas. Similarly, the Mexican-Central American lagasceas (except for *L. mollis* and *L. helianthifolia*; viz maps in Stuessy 1978 and Turner 2015) are mostly restricted to the relatively dry Pacific watershed.

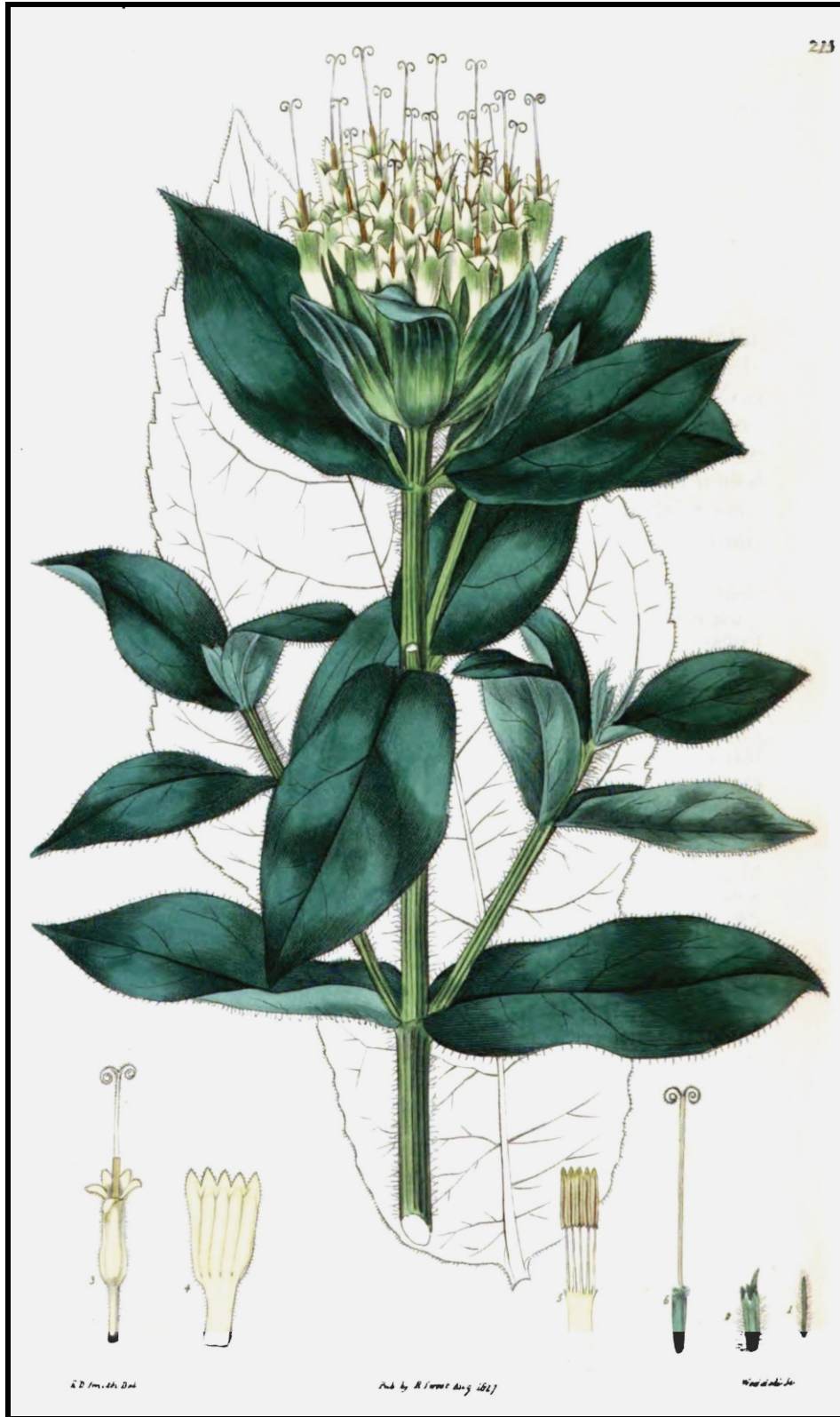


Figure 6. *Lagascea helianthifolia*, showing leaves subsessile and subauriculate and several terminal, sessile, glomerate synflorescences appearing as a single capitulum; the corollas are white and not as yellowish as seen in this figure. (From Robert Sweet, *British Flower Garden*, vol. 3, tab. 215. 1827–1829, as *Nocca latifolia*).

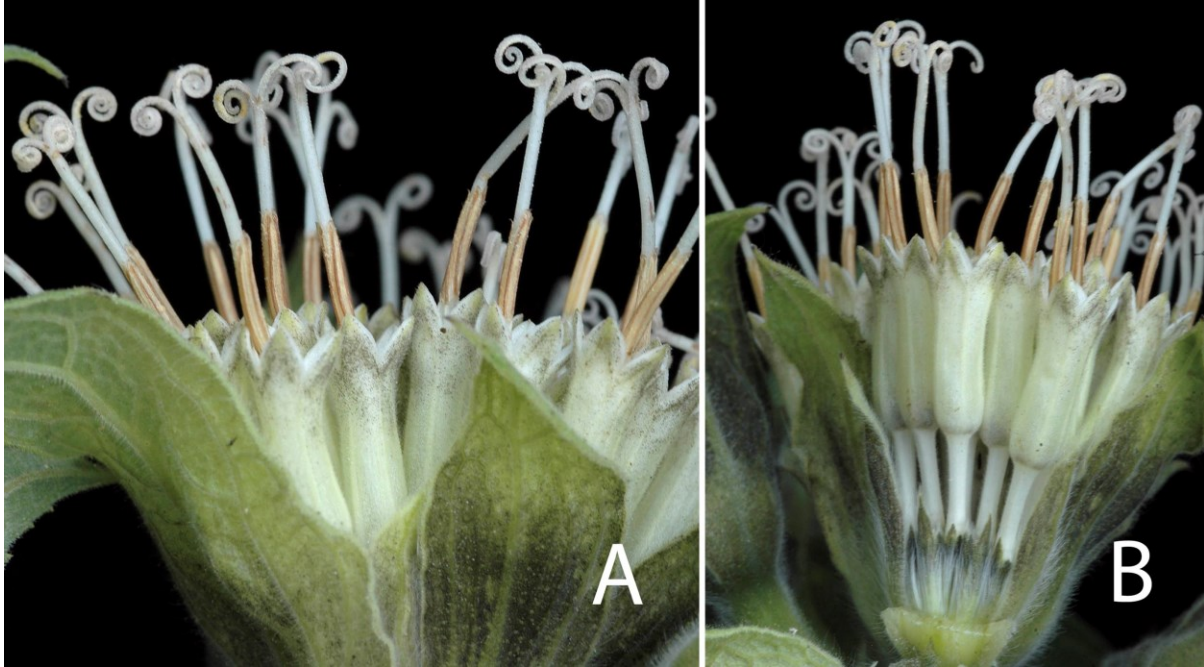


Figure 7. Synflorescences of *Lagascea helianthifolia*. A. Synflorescence showing leafy bracts of the false secondary involucre and exserted florets. B. Synflorescence with a large leafy bract removed, revealing several uniflorous capitula with short gamophyllous true involucre. The styles of this species are typically well-exserted. *Pedro Tenorio Lezama s.n.*, same species as *Pedro Tenorio Lezama 21374*, Oaxaca, Mexico; photographs by the collector.

About 20 Compositae species were reported as endemic to Antioquia by Pruski and Funston (2011), of which only five (*Perymenium colombianum* B.L. Turner, and two species of each of *Clibadium* and *Espeletia*) are Helianthoids. The *Perymenium* is obviously radiate-capitulate, and the *Espeletias* are páramo caulirosculatae. The *clibadiums*, although moderately low-elevational and shrubby, are opposite-leaved, heterogamous, and disciform-capitulate (marginal florets pistillate and disk florets functionally staminate). None of these five previously mentioned Antioquian endemic Helianthoid species are likely to be confused with *Lagascea espinalii*. *Acanthospermum hispidum* DC., *Lagascea mollis* Cav., *Melanthera nivea* (L.) Small, *Pectis elongata* Kunth, *Pectis linearis* La Llave, and *Tridax procumbens* L. are other widespread Neotropical Heliantheae sensu lato found in Antioquia only in the Cauca River basin (Pruski & Funston 2011): none are endemic to Antioquia. *Lagascea espinalii* is thoroughly distinctive, without sympatric close relatives, and is the only Composite endemic to the Cauca River basin in Antioquia, Colombia.

The isolated, seasonally dry, inter-Andean valleys of the Cauca River drainage where *Lagascea espinalii* occurs, are found intermittently along the river system's length, have a flora very distinct from adjacent wetter mountains, and a high percentage of regional endemism (Gentry 1982; Vélez 2004). *Lagascea espinalii* fits well morphologically within the Mexican-centered, strange genus *Lagascea* (Compositae: Heliantheae: Helianthinae), and its endemism to Cauca River seasonally dry forests in Antioquia is noteworthy. The detection of narrowly endemic *L. espinalii* is testament to the regional endemism and under-collected aspect of inter-Andean seasonally dry forests, and shows that novelties awaiting discovery may remain, even in the most well-trodden genera.



Figure 8. Uniflorous capitula of *Lagascea helianthifolia*. A. Two capitula showing sericeous involucres with unequal lobes, and elongate corolla tubes. B. Dissected capitulum, showing adaxial glabrous surface of involucre (lower right) with unequal teeth and the main nerve of each phyllary with an elongate resinous glands, an immature ovary (lower left), and a corolla tube and throat. C. Dissected floret with corolla limb opened and showing adaxial surface, lobes with intramarginal nerves, anthers (upper left), and sericeous involucre (bottom). (From *Croat & Hannon 64179*, MO, from Honduras). Metric scales lower left.

Key to species of *Lagascea*

1. Diffusely branched herbs; involucres with vertical lines of several small round glands; (minutely coroniform-fruited); (*Lagascea* sect. *Lagascea*).
 2. Corollas yellow; anthers yellow to light brown; peduncles strigose; (west-central Mexico)

..... ***Lagascea aurea*** Stuessy
 2. Corollas white; anthers dark brown to black; peduncles stipitate-glandular; (Pantropics)

..... ***Lagascea mollis*** Cav.
1. Shrubs; involucres with vertical lines of 1–few elongate glands.
 3. Corollas golden-yellow; synflorescences globose, single; pappus often rudimentary; (*Lagascea* sect. *Calhounia*).
 4. Individual capitula with involucre lobes linear-lanceolate, 1–4 mm long; secondary involucre bracts strigose and sometimes stipitate-glandular; (southern Oaxaca, Mexico to southern Arizona)

..... ***Lagascea decipiens*** Hemsl.
 4. Individual capitula with involucre lobes triangular-lanceolate, 0.2–0.3 mm long; secondary involucre bracts subglabrous to short-setulose; (west-central Mexico)

..... ***Lagascea palmeri*** (B.L. Rob.) B.L. Rob.
 3. Corollas white (-pinkish); synflorescences campanulate, grouped terminally; pappus biaristate; (*Lagascea* sect. *Nocca*).

5. Leaf blade apices acuminate to long-attenuate; disk corolla tubes relatively short, about 3–4 times shorter than corolla throat, about as long as the longest pappus arista; (narrowly endemic to Cauca river basin in Antioquia, northwestern Colombia) **Lagascea espinalii** Pruski
5. Leaf blade apices acute-acuminate; disk corolla tubes relatively long, usually 1–2 times shorter than corolla throat, much longer than longest pappus arista.
6. Leaves mostly 10–20+ cm long, subsessile and/or reticulate-veined abaxially, often subauriculate basally; (northern to southern Mexico, Guatemala, Honduras, El Salvador, Nicaragua) **Lagascea helianthifolia** Kunth
6. Leaves mostly 3–9(–13) cm long, petiolate and surfaces smooth to weakly reticulate abaxially, obtuse to attenuate basally.
7. Leaf blades strongly discoloured, abaxial surfaces sericeous; (west-central Mexico) **Lagascea heteropappa** Hemsl.
7. Leaf blades more or less concolorous, abaxial surfaces strigillose to strigose(-tomentose).
8. Leaf blades lanceolate to oblanceolate, apices broad-acute–obtuse, adaxial surfaces strigose, not nitidous; (western Mexico) **Lagascea angustifolia** DC.
8. Leaf blades elliptic-ovate, apices usually acute, adaxial surfaces nitidous (west-central Mexico) **Lagascea rigida** (Cav.) Stuessy

Noteworthy range extensions

FLORESTINA LATIFOLIA (DC.) Rydb. [**Bahieae**]. First South American voucher of the genus *Florestina*. **COLOMBIA**. **Santander**. Mpio. Los Santos, Vereda El Pozo, sector N de La Mesa de Los Santos, calizas orientadas al Chicamocha, vegetación xerofítica, 1300–1500 m, 23 Sep 2004, *J.F. Fernández-Alonso et al.* 22675 (COL-592763, HUA-169398). Figure 9.

The genus *Florestina* Cass. (formerly treated with typically paleate Heliantheae), contains six(-eight) species, and until now was thought to be distributed only from the southwestern United States into Mesoamerica, where three species occur (Turner 1963; Soto-Trejo et al. 2016; Pruski & Robinson 2018). One of these three Mesoamerican species, *F. latifolia*, was known previously to extend from Mexico southeastward into Nicaragua (Turner 1963; Dillon et al. 2001; Soto-Trejo et al. 2016; Pruski & Robinson 2018). Its disjunction from Nicaragua to South America is an uncommon pattern, albeit similar to that seen in *Oxylobus glandulifer* (Sch. Bip. ex Hemsl.) A. Gray ex Klatt, *Stenocephalum jucundum* (Gleason) H. Rob., and *Stevia incognita* Grashoff (Pruski & Robinson 2018). The reverse-directional pattern of taxa common in South America, and thence disjunct northwestward to Nicaragua, such as is reported in *Lessingianthus rubricaulis* (Bonpl.) H. Rob. and *Vernonanthura brasiliensis* (L.) H. Rob. (Pruski & Robinson 2018), appears to be even less frequent.

Colombian species of epaleate tribe Bahieae include the widespread (southwestern United States to Chile) low-herbaceous, narrowly pinnatifid-leaved *Schkuhria pinnata* (Lam.) Kuntze ex Thell., but this species has been reported only at 2000+ meters elevation from central to southern Colombia, and is unknown in Antioquia. *Florestina latifolia* and *Schkuhria pinnata*, although each members of tribe Bahieae, are unlikely to be confused. Among regional Bahieae genera, *Florestina* is diagnosed by its herbaceous habit, leaves opposite proximally becoming alternate distally, discoid epaleate capitula, narrow-attenuate style branches, and symmetrically arranged pappus scales.

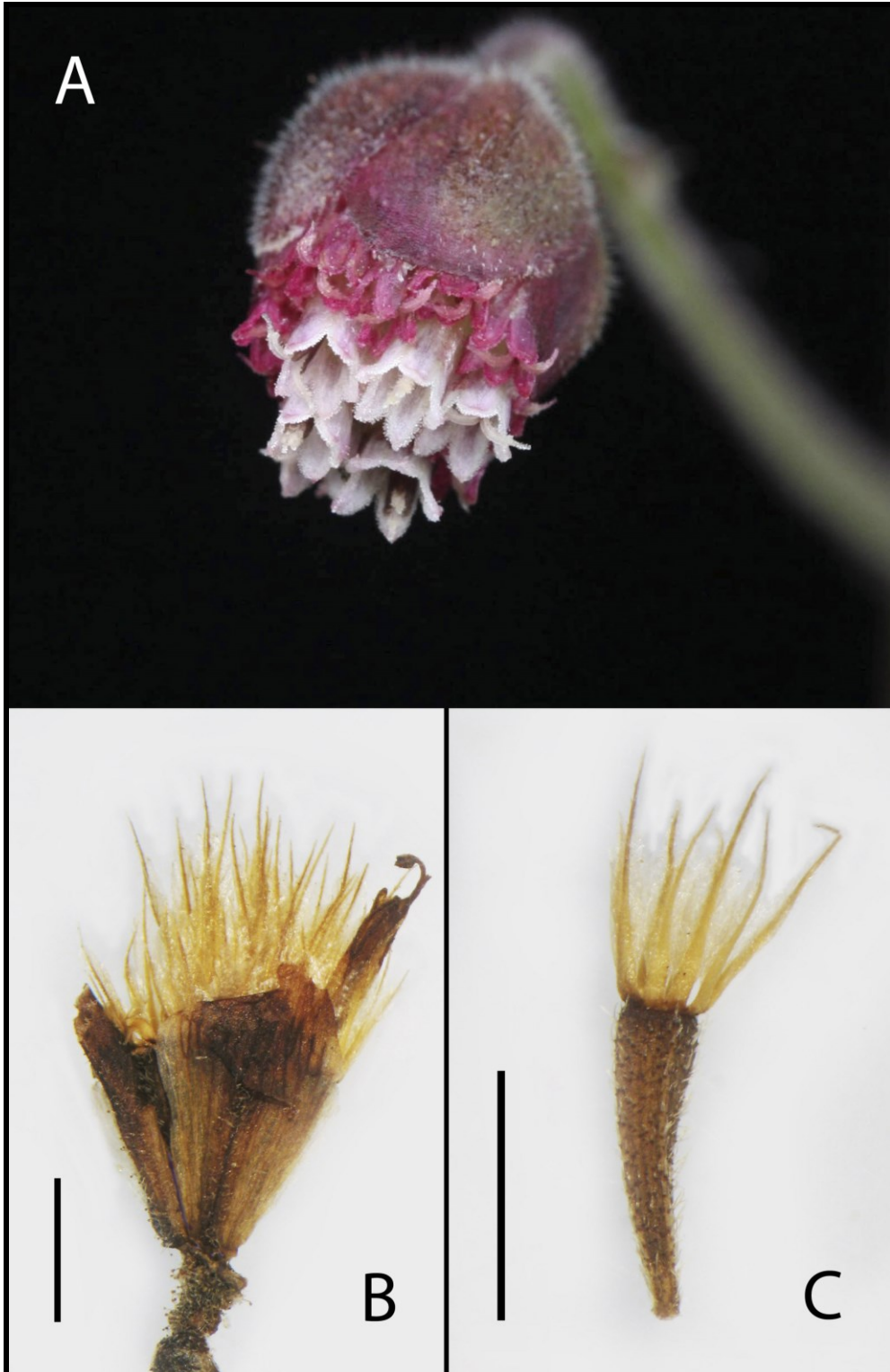


Figure 9. *Florestina latifolia*. A. Discoid epaleate capitulum, showing broad subequal phyllaries and corollas; marginal florets post-anthesis with corollas pinkish-red, central florets at anthesis with corollas cream-colored. B. Fruiting capitulum showing narrow-tipped pappus scales that are about as long as the fragmentary corolla (towards upper right). C. Cypsela with narrow-tipped pappus scales nearly as long as cypsela body. (A Stevens & Montiel 28751, from Nicaragua, photograph by Olga Martha Montiel; B–C Fernández-Alonso *et al.* 22675, COL). Scale bars 2 mm.

Florestina latifolia is distinguished by its simple leaves, capitula with broad subequal sparsely stipitate-glandular phyllaries, apically narrowed pappus scales nearly as long as the corollas but shorter than the cypselae, and corollas at anthesis that are cream-colored but post-anthesis turn pinkish-red (Fig. 9). The South American plants match the Mexican-Central American ones in critical morphological features, albeit on average having slightly longer pappus aristae. *Florestina platyphylla* (B.L. Rob. & Greenm.) B.L. Rob. & Greenm. is similar in gestalt, but differs by shorter pappus squamellae that are broadly rounded to truncate apically. *Florestina latifolia* typically occurs in rocky areas, dry forests, and savannas.

The determination here of Colombian *Fernández-Alonso et al.* 22675 as *Florestina latifolia* extends the range of the species about 1700 kms to the southeast. This report represents the first known record of the genus *Florestina* in continental South America, and in turn a new record of the genus and species in Colombia. This range extension is not wholly unexpected, however, as the Colombian collection was labeled as occurring in "vegetación xerofítica," a common habitat of *Florestina latifolia*.

GONGYLOLEPIS COLOMBIANA (Cuatr.) Cuatr. [Stifftieae]. First Antioquian voucher of the genus *Gongylolepis*. **COLOMBIA. Antioquia.** [Cordillera Occidental], Mpio. Ituango, alto de Santo Domingo, 1800–2200 m, 21 Feb 1995, *F. Giraldo & M. Correa 413* (JAUM-24450).

Mutisieae s. lat. are a striking component of the Neotropical Flora, in that these species are often either trees, have large coriaceous leaves, or have large, colorful capitula. *Gongylolepis colombiana* was known previously only in Cordillera Oriental of Norte de Santander, Colombia, and Mérida and Táchira, Venezuela. Here, *Gongylolepis colombiana* is documented in Antioquia in the northern reaches of the Cordillera Occidental and vouchered by the newly determined, albeit collected two decades ago, *Giraldo & Correa 413* (JAUM). This collection thus represents a new record for both the Cordillera Occidental and for Antioquia, Colombia. The species should be expected in the Cordillera Central of Antioquia.

Gongylolepis R.H. Schomb. is a Guayana-centered genus with homogamous flowers with isomorphic, bilabiate corollas, and has been placed traditionally in tribe Mutisieae. *Gongylolepis* contains 14 species and is Guayana-centered, but one species, *Gongylolepis colombiana* (Cuatr.) Cuatr., is extra-Guayan and is endemic to the northern Andes (Pruski 1989, 1991, 1997; Díaz-Piedrahita & Vélez-Nauer 1993). In its size and biogeography *Gongylolepis* is thus similar to *Stenopadus* S.F. Blake. *Stenopadus* contains 15 species, is also Guayana-centered but contains a single species, *Stenopadus andicola* Pruski, endemic to the Andes of Ecuador and Peru (Pruski 1991, 1997, 1998, 2010; Pruski & Beltrán 2003). Like *Gongylolepis*, *Stenopadus* is arborescent, homogamous, has isomorphic corollas, and large capitula, but *Stenopadus* differs from *Gongylolepis* by being discoid-capitulate. Moreover, at a glance the genera may be distinguished vegetatively: *Gongylolepis* has leaves stoutly clasping-based, whereas *Stenopadus* has leaves either narrowly petiolate or sessile but non-clasping. This vegetative character was used to determine the collection in Antioquia: the JAUM sheet has only a single post-fruit capitulum but characteristic broad-based, clasping leaves.

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