

**TWO NEW GENERA OF WHITE-BRACTED GNAPHALIEAE
(ASTERACEAE)
FROM THE NORTHERN AND CENTRAL ANDES**

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ABSTRACT

Two new genera of Gnaphalieae from the Northern Andes (Venezuela, Colombia, Ecuador) and Central Andes (Bolivia) are described, **OROGNAPHALON** Nesom, **gen. nov.**, and **HYPSESION** Nesom, **gen. nov.**, each with five species.

Orognaphalon paramorum (Blake) Nesom, **comb. nov.** (Venezuela and Colombia) GENERITYPE

Orognaphalon rosulatum (S. Moore) Nesom, **comb. nov.** (Colombia)

Orognaphalon santamartense Nesom **sp. nov.** (Colombia)

Orognaphalon grandiflorum Nesom **sp. nov.** (Colombia)

Hypserion major Nesom, **sp. nov.** (Colombia and Ecuador) GENERITYPE

Hypserion minor Nesom, **sp. nov.** (Ecuador)

Hypserion boliviense Nesom, **sp. nov.** (Bolivia)

Hypserion subsericeum (Blake) Nesom, **comb. nov.** (Costa Rica)

Hypserion baru (Nesom) Nesom, **comb. nov.** (Panama)

Plants of both genera grow at high altitudes and are low or rosetiform herbaceous perennials with a single, compact capitulescence, phyllaries with a white, terminal appendage, heterogamous heads (pistillate and bisexual both fertile), and basally connate pappus bristles. Achenes of *Orognaphalon* are glabrous; achenes of *Hypserion* are minutely pubescent with viscid, multicellular, elongate trichomes.

Recent studies have placed early-typified species of South American Gnaphalieae in new genera of the *Lucilia* group (Freire et al. 2014) — the dioecious *Quasiantennaria* Bayer & Dillon (2019; *Antennaria linearifolia* Wedd.) and the stoloniferous *Chryselium* Freire & Urtubey (2019; *Helichrysum gnaphalioides* Kunth). These are small herbaceous perennials with white-tipped phyllaries. More than one species (in at least two other genera) exists among the specimens cited for *Chryselium*, however, and the *in situ* photo from Peru identified as such (Urtubey & Freire, their Figure 2) is a different species (described here as *Hypserion*, not *Chryselium*) — indicating that this taxonomy needs review. Further, there are entities in Bolivia, Peru, and Ecuador similar in aspect to *Quasiantennaria* that have not been previously recognized or described, as well as species in Venezuela, Colombia, and Ecuador that do not fit within any previously described genus. The present study is based primarily on collections at herbarium US of the Smithsonian National Museum of Natural History and presents conclusions regarding previously unrecognized taxonomic patterns.

Most South American Gnaphalieae are in the *Lucilia* group, which was early defined (Merxmüller et al. 1977; Anderberg & Freire 1991) by slender pappus bristles often basally connate or coherent in groups, dorsally pubescent style branches, and "polychromous" involucre bracts. A history of taxonomic shifting of species among genera was provided by Freire et al. (2014), who noted (p. 2) that "The evident instability in the classification of the *Lucilia* group reflects the general scarcity of morphological characters traditionally considered relevant for the classification of the group and their high level of homoplasy." The group's concept has been modified and expanded by recent phylogenetic analyses based on molecular data (Dillon and Luebert 2015; Nie et al. 2016; Luebert et al. 2017; Freire and Urtubey 2019; Smissen et al. 2020; and see summaries in Nesom 2023) — in the broad sense it

now appears to include these genera, in groups roughly corresponding to phylogeny: (a) *Antennaria*, *Diaperia*, *Gnaphaliothamnus*, and *Mexerion*; (b) *Chryselium*, *Chevreulia*, *Cuatrecasasiella*, *Jalcophila*, *Loricaria*, *Quasiantennaria*, *Belloa* in part, *Luciliocline*, and *Mniodes*; (c) *Chionolaena*, *Belloa* in part, *Lucilia*, *Berroa*, *Micropsis*, *Facelis*, and *Gamochaeta* (incl. *Gamochaetopsis*, *Stuckertiella*). Dillon (2018) has made further changes in the taxonomy of *Lucilia* and *Mnioides*. All are strictly American genera, except *Antennaria*, which has species in Eurasia.

Two new genera of the *Lucilia* group from the Northern Andes are described here: ***Orognaphalon*** (Venezuela, Colombia) and ***Hypserion*** (Costa Rica, Panama, Colombia, Ecuador). Plants of both are herbaceous perennials with erect stems, a densely compact capitulescence, heterogamous heads (pistillate and bisexual both fertile), phyllaries with a white apex, and basally connate pappus bristles. Achenes of *Orognaphalon* are glabrous; achenes of *Hypserion* are minutely pubescent with viscid, elongate, multicellular hairs.

Plants of *Orognaphalon* have a basal rosette, heads in a dense cluster (except one species) on an erect stem, and white-tipped phyllaries. *Quasiantennaria* is dioecious, with a short, thickened, often branching caudex, and the fibrous remains of persistent dead leaves and the capitate-glandular achenial trichomes are distinctive. *Chryselium* also is similar in aspect but is stoloniferous and has truncate-penicillate style branches and 2-nerved achenes with duplex hairs — on plants not showing stolons, the lack of bracts subtending the cluster of heads is distinctive. Otherwise, in the *Lucilia* group, a relationship of *Orognaphalon* might be suspected with *Mniodes*, which often has a prominent basal rosette, but those plants have sessile (stemless) heads and achenes with globose trichomes.

Plants of *Hypserion* have evenly distributed cauline leaves (without basal leaves), heads in a dense cluster on an erect stem, white-tipped phyllaries, and achenes with minute, viscid, elongate hairs. They are similar in aspect to some species of *Gnaphaliothamnus*, particularly those of the Sierra de Santa Marta, but the achenial vestiture is different.

A more definitive phylogenetic position of the two new genera probably will depend on molecular evidence — none of the species have yet been included in an analysis.

Genus 1 — ***Orognaphalon***

Gnaphalium paramorum Blake has been placed in *Gamochaeta* (Anderberg 1991), *Lucilia*, (Badillo 1997), and *Pseudognaphalium* (Dillon & Luebert 2015), but it is out of place in any of those. Little comment, if any, has been provided regarding its generic placement. The most detail was given by Dillon & Luebert (p. 72), who noted that "The terminal capitulescences [of *G. paramorum*] are not spicate, they are densely glomerate corymbs. The type collection has capitular and floral morphology consistent with *Pseudognaphalium*; the cypselas are papillose [not verified here] and lack the 2-celled, sessile trichomes diagnostic for *Gamochaeta*." The species was not treated in the overview of the "Lucilia group" (Freire et al. 2014), where *Gamochaeta* and *Lucilia* are included, nor was it included in the recent phylogenetic study and revised subtribal classification of Gnaphalieae (Smitsen et al. 2020).

Pruski (2018) included a full description of "19. *Pseudognaphalium* aff. *paramorum*," perhaps based on the Costa Rican collection *Pruski et al.* 3903 (MO), which he cited. He noted, however, that the species identity and generic disposition of the Costa Rican plants were both in doubt. This collection is under study by Pruski (pers. comm.).

Gnaphalium badillanum Aristeg. was described in 1964 from páramo along the Merida/Barinas border in Venezuela — it is regarded here as conspecific with *Gnaphalium paramorum*. The narrow leaf shape emphasized by Aristeguieta in recognition of *G. badillanum* (e.g., Figs. 11-14) is common in Lara and Trujillo, Venezuela, but intermediates in shape occur through the range.

Gnaphalium rosulatum S. Moore was described in 1900 from a collection made in the Sierra de Santa Marta of northeastern Colombia, but apparently that name has barely edged into floristic

literature — it is listed in ColPlantA (2024) and is noted to be an accepted name in the Global Compositae Database (Compositae Working Group (2024).

Two other species of *Orognaphalon* are described here, each known only by a single collection from Colombia.

OROGNAPHALON Nesom, **gen. nov.** **TYPE:** *Orognaphalon paramorum* (Blake) Nesom (*Gnaphalium paramorum* S.F. Blake)

Herbaceous, non-stoloniferous perennials with a basal rosette of leaves, a single, densely compact capitulescence immediately subtended by ovate-elliptic bracts, heterogamous heads (pistillate and bisexual florets fertile), phyllaries with a white, terminal appendage, achene surface glabrous, and pappus bristles basally connate. Distinct from *Gamochoaeta* in its glomerate capitulescence, lanceolate style branches, glabrous achenes, and weakly connate pappus bristles. Distinct from *Pseudognaphalium* in its rosetiform habit, glomerate capitulescence, white-tipped phyllaries, and undivided stereome.

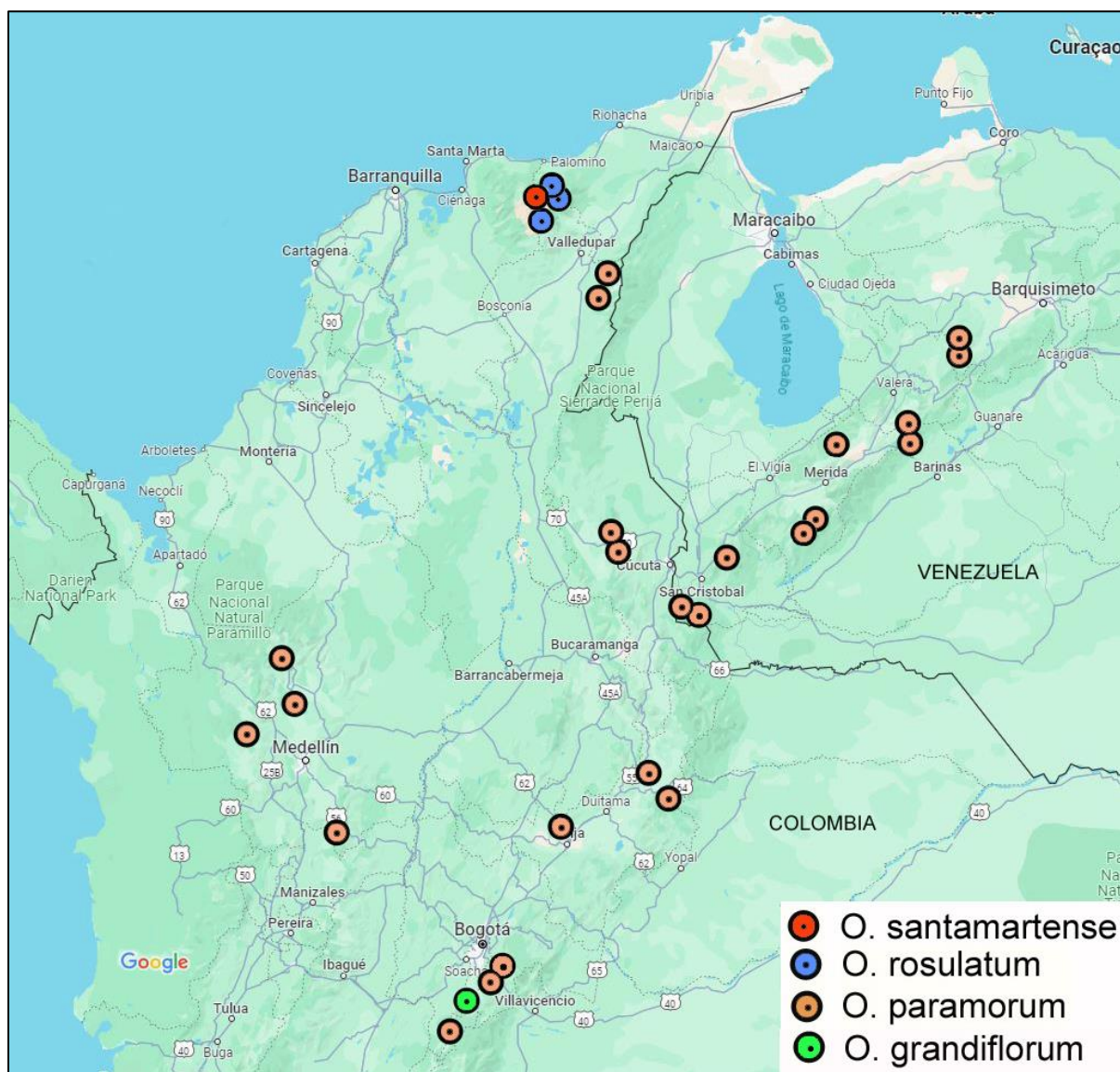
Herbaceous perennials, fibrous-rooted, without an evident caudex, without stolons. **Stems** erect, 2–30 cm tall, unbranched, closely tomentose, eglandular. **Leaves:** basal in a rosette, subspatulate to narrowly obovate, oblanceolate, or narrowly oblong, epetiolate, (0.5–)1–2.5 cm long, 2–7 mm wide, apex obtuse, margins entire, sometimes slightly revolute, densely tomentose at least abaxially, eglandular, margins entire; cauline 2–5(–8), ascending, similar in length to the basal but usually narrower, sessile, not basally ampliate, sometimes slightly subclasping, not decurrent. **Heads** ca. (6–)15–20, sessile in a single, dense, terminal cluster (1–)1.5–2 cm wide, the cluster immediately subtended by 4–6 ovate-elliptic, tomentose bracts. **Involucre** 4.5–7 mm high. **Phyllaries** in 3–5 series, mostly narrowly ovate, stereome undivided, inner with an oblong, creamy white apex ("apical appendage"). **Pistillate florets** 15–59, fertile. **Bisexual florets** 4–12, fertile, corollas 2.5–3 mm long, yellow, sometimes purplish on the throat and lobes; style branches lanceolate. **Achenes** oblong-ellipsoid, 0.8–1 mm long, slightly compressed, faintly 5-nerved, surfaces brown, glabrous; pappus bristles 15–24, apex acute, weakly connate basally, tardily deciduous and often separating in groups. **Chromosome number** unknown. In *O. grandiflorum*: stems (0.5–)1–2 cm tall, heads solitary, involucre 10–11 mm high, pistillate florets 130, bisexual florets 19, achenes 1–1.3 mm long; pappus bristles 28–30.



Figure 1. Type species of *Orognaphalon*, *O. paramorum* (detail of Fig. 3).

Key to *Orognaphalon* species

1. Stems (0.5–)1–2 cm tall; heads solitary ***Orognaphalon grandiflorum***
 1. Stems 2–30 cm tall; heads in a compact cluster.
2. Leaves concolor to weakly bicolor; pistillate florets 15–28(-40, 57, 75); Venezuela and Colombia ***Orognaphalon paramorum***
 2. Leaves strongly bicolor; pistillate florets 26–39 or 59; Sierra de Santa Marta, Colombia.
3. Leaves completely glabrous adaxially; pistillate florets 26–39; bisexual florets 5–8, cauline leaves not subclasping ***Orognaphalon rosulatum***
 3. Leaves persistently but sparsely strigose adaxially; pistillate florets 59; bisexual florets 22; cauline leaves subclasping ***Orognaphalon santamartense***



Map 1. Distribution of *Orognaphalon* species.

1. OROGNAPHALON PARAMORUM (Blake) Nesom, **comb nov.** *Gnaphalium paramorum* S.F. Blake, J. Wash. Acad. Sci. 21: 328. 1931. *Gamochoaeta paramora* (Blake) Anderb., Opera Bot. 104: 157. 1991. *Lucilia paramora* (Blake) V.M. Badillo, BioLlania, Ed. Espec. 6: 236. 1997. *Pseudognaphalium paramorum* (Blake) M.O. Dillon, J. Bot. Res. Inst. Texas 9: 72. 2015. **TYPE: VENEZUELA.** Merida, Páramo Quirorá, 2900 m, 24 Feb 1922, A. Jahn 883 (holotype: US). Figure 3.

Gnaphalium badillanum Aristeg., Fl. Venez. 10: 364. 1964. *Gamochoaeta badillana* (Aristeg.) Anderb., Opera Bot. 104: 157. 1991. **TYPE: VENEZUELA.** Merida, Páramo de Don Pedro [Merida/Barinas border], camino a Aricagua, ca. 3000 m, 18 Jul 1944, V.M. Badillo 995 (holotype: VEN). Figures 4-6.

Stems (2–)8–25 cm tall. **Leaves** oblanceolate to obovate, sometimes linear-oblong, (0.5–)1–2.5 cm long, 2–3 mm wide, concolor to weakly bicolor, silvery gray-tomentose on both surfaces, or slightly lighter abaxially, the tomentum usually tightly matted into a shiny, cloth-like covering but sometimes the hairs looser. **Pistillate florets** 15–28(–40, 57, 75). **Bisexual florets** 4–12, corollas 2.5–3 mm long. **Achenes** 1–1.2 mm long; pappus bristles ca. 15–16. Figures 3-16, 26-29.

Additional collections. COLOMBIA. Antioquia, Páramo Frontino, Cerro de Campanas, near summit, 29 Oct 1976, *Boeke 293* (US); Antioquia, Mpio. Belmira: 6-8 kms NE de la cabecera municipal en la vía a Vereda "El Yerbá", sitio Los Patos, margen izquierda del Río Chico, Alto de Sabanazos, 25 Mar 1991, *Callejas 10129* (US); Magdalena, Cerro Pintado, Sierra Perija, 3-6 Jul 1942, *Carriker 38* (US); Meta, Páramo de Sumapaz, Hoya El Nevado, Lagunas El Sorbedero y El Nevado y paramos en las cercanías, lajas de arenisca en páramo abierto ca. 500 m al N de la Laguna El Sorbedero, 1 Feb 1972, *Cleef 1510* (US); Boyacá, páramos al NW de Belén, cabeceras Quebrada Minas, Hoya Laguna El Alcohol Vertiente seco cerca de la orilla N, 26 Feb 1972, *Cleef 1833* (US); Boyacá, Páramo de Pisva, cercanías del Alto de Granados, 5 km al E de Los Pinos, 15 Jun 1972, *Cleef 4611* (US); Antioquia, Ituango, camino entre El Retiro y Cerro Paramillo, 25 Feb 1993, *Cuadros 5010* (US); Magdalena, Cerro Pintado, Sierra Perijá, 3-6 Jul 1942, *Carriker 38* (US); Magdalena, Sierra de Perijá, plain between Cerro Venado and Cerro Avión, paramo, 8 Nov 1959, *Cuatrecasas 25116* (US); Magdalena, Sierra de Perijá, eastern Manaure, Cerro Avión, páramo, 8 Nov 1959, *Cuatrecasas 25140* (US); Bogota D.C., Páramo Cruz Verde, Mar 1916, *Dawe 146* (US); Antioquia, Las Sabanas (Belmira), Apr 1962, *Espinal 474* (US); Antioquia, Mpio. de Belmira, Páramo "El Morro," 22 Apr 1993, *Fonnegra G. 4641* (US-2 sheets); Norte de Santander, línea divisoria entre los Deptos. Santander del Norte y Cesar, 20 km al S de Abrego, Las Jurisdicciones, 19-21 May 1969, *García-Barriga 19751* (US); Cordillera Oriental, límites entre los Deptos Norte de Santander y Cesar, Jurisdicciones, Cerro de Oroque, 22-27 Jul 1974, *García-Barriga 20657* (US); Cundinamarca, Bogota, Guadalupe, 12 Oct 1946, *Haught 5068* (US); Cundinamarca (near Bogota), 17 Jul 1949, *Haught 6495* (US); Boyacá, paramo, near Laguna de Iguaque, 19 Jul 1979, *Melampy 198-199* (US). **VENEZUELA.** Mérida, páramo alrededores de la Laguna Verde proximo Picos Humboldt y Bonpland, trail between La Laguna Coromoto and La Laguna Verde, on rounded rock outcrops with no apparent crevices or soil, ca. 3900 m, 4 Dec 1959, *Barclay & Juajibioy 10,029* (US); Tachira, Páramo de Tama, Jul 1939, *Cardona 318* (US); Tachira, Páramo de El Colorado (continuación de El Zumbador), cumbre del páramo, 3200-3300 m, 20 Jan 1973, *Cuatrecasas 28388* (US); Mérida, Páramo de Las Coloradas (entre Santa Cruz de Mora y El Molino), San Rafael, loma del cerro, 9 Feb 1973, *Cuatrecasas 28527* (US); Trujillo, Páramo de Guirigay, Monumento Natural Teta de Niquitao-Guirigay, sector Laguna San Jacinto, 21 Aug 2002, *Dorr 9181* (US); Trujillo (límite con Lara), Mpio. Carache, Parque Nacional Dinira, arriba de Mesa Arriba, camino del Páramo de Jabón al Pico Cendé, páramo, 3000 m, arbustal y bosques, 30 Dec 1999, *Duno de Stefano 1129* (US); Merida, Sierra del Norte [aka Sierra de la Culata], 3100 m, 6-8 Oct 1952, *Humbert 26829* (US); Trujillo, Páramo del Jabón, 2 Oct 1910, *Jahn 22* (US); Tachira, NE side of Páramo de Tama from cave to top, 18 Oct 1978, *Luteyn 5905* (US); Tachira, WSW slopes of Pata de Judío, 19 Oct 1978, *Luteyn 5919* (US); Lara, Parque Nacional Dinira, Páramo de Jabón, laderas mirando hacia al NE, vista al Tocuyo, veg. paramera herbácea, 3000 m, 13 Aug 1999, *Riina et al. 550* (US); Trujillo, Laguna Larga, vía Laguna Las Parías, to Laguna Eco, Páramo de Motumbo, Monumento Natural Teta de Niquitao-Guirigay, 15 Sep 2003, *Stergios 20380* (US); Mérida, Páramo de Pozo Negro, between San José and Beguilla, 3 May 1944, *Steyermark 56290* (US);

Tachira, limestone outcrops of Páramo de Tama, near Colombian-Venezuelan boundary, 15 Jul 1944, *Steyermark* 57392 (US); Tachira, Páramo de Tama, en la region calcarea, cerca de la frontera Colombo-Venezolana, 22-23 May 1967, *Steyermark* 98758 (US); Apure, a lo largo del Río Talca (Oira) y sus afluentes en páramo entre Alto de Cruces y Tierra Negra, Páramo de Pata de Judío, en la frontera Colombo-Venezolana, 30 km al S de San Vicente de la Revancha, 32 km al S de Alquitrana, sur E del Páramo de Tama, SW de Santa Ana, 19 Jan 1968, *Steyermark* 101120 (US-2 sheets); Tachira, laderas pantanosas al pie de penascos de arenisca de Pata de Judío, entre Alto de Cruces y el paramo arriba de la Quebrada Teleferica, cerca de la frontera Colombo-Venezolana, 28 km al S de San Vicente de la Revancha, 30 km al S de Alquitrana, SE del Páramo de Tama, SW de Santa Ana, 20 Jan 1968, *Steyermark* 101201 (US).

Collections from the Sierra Perijá in northeastern Colombia, along the Venezuelan border, are unusual in their large numbers of pistillate florets, although the bisexual floret numbers are characteristic of the rest of the species (*Carriker* 38, **40/10**; *Cuatrecasas* 25140, **57/12**; *Cuatrecasas* 25116, **75/6**). This isolated population system is otherwise similar to typical *Orognaphalon paramorum*, and some Venezuelan collections have relatively large numbers of pistillate florets (e.g., *Cuatrecasas* 28388, **34/7**; *Riina* 550, **37/7**; *Stergios* 20380, **43/12**). See comments below regarding *Orognaphalon santamartense*.

2. OROGNAPHALON ROSULATUM (S. Moore) Nesom, **comb. nov.** *Gnaphalium rosulatum* S. Moore, J. Bot. 38: 156. 1900. **TYPE: COLOMBIA.** [Magdalena]:

protologue: Sierra Nevada, Santa Marta, New Grenada, 1880

label: stony places near the snow, Nevada de Sta Marta, June 1844 [the date apparently wrong or the handwriting misinterpreted]

F.A.A. Simons s.n. (holotype: BM not seen; isotype: K, Figs. 17-19).

In the protologue, Moore noted that "The small specimens were gathered at 12,000 ft. of elevation; the larger ones probably lower down."

Stems 2–15 cm tall, densely and closely gray-tomentose. **Leaves** oblanceolate to narrowly obovate, (0.5–)1–2 cm long, 2–6 mm wide, strongly bicolor, glabrous and dark green adaxially, densely white-tomentose abaxially and around margins ("framing" the dark top), cauline (1–)3–6. **Pistillate florets** 26–39. **Bisexual florets** 5–8, corollas 2.8–3 mm long, lobes purple. **Achenes** 0.8–1 mm long; pappus bristles 18–24. Figures 17-20.

Additional collections. COLOMBIA. La Guajira, Sierra Nevada de Sta. Marta, Laguna Sabaca, Nacimiento Rio San Miguel, 26 Aug 1986, *Cuadros* 2691 (US); Magdalena, Sierra Nevada de Santa Marta, valle del Rio Donachuy, en el camino del campamento al valle superior del rio, 18 Nov 1958, *Hammen* 1216 (US); Magdalena, Sierra Nevada de Santa Marta, Valle Donachín, 3500-4500 m, 1 Jan 1967, *Weston* 5481 (COL not seen).

Orognaphalon rosulatum is known only from the Sierra Santa Marta. F.A.A. Simons, who collected the type, made surveys of the Sierra Santa Marta for three years, beginning in 1878, and reported his findings to the Royal Geographical Society of London (Simons 1881). There is no precise indication of the collection locality other than "Sierra Nevada, Santa Marta" — his published map (Map 2) shows the primary survey area.

3. OROGNAPHALON SANTAMARTENSE Nesom, **sp. nov.** **TYPE: COLOMBIA.** Magdalena, Sierra Nevada de Santa Marta, along the edge of Laguna Chubdula, ca. 10° 55' N, 73° 53' W, 3480 m, 29 Jul 1972, *J.H. Kirkbride and E. Forero* 1780 (holotype: US). Figure 21.

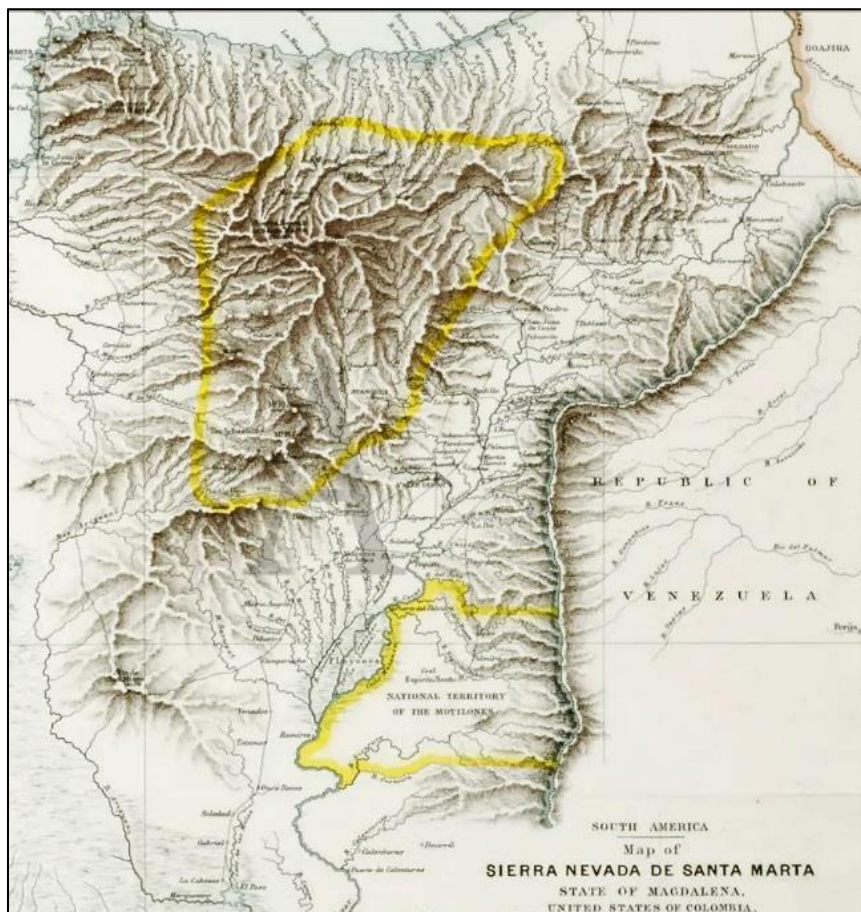
Distinct from *Orognaphalon paramorum* in its strongly bicolor basal leaves, subclasping cauline leaves, and large number of pistillate and bisexual florets. Distinct from *O. rosulatum* in its greater number of pistillate and bisexual florets.

Stems 12–30 cm tall. **Leaves** narrowly obovate, 1.5–2 cm long, 4–7 mm wide, bicolor, tomentose on both surfaces, sparsely so adaxially, densely white-tomentose-sericeous abaxially,

cauline 3–5, subclasping. **Involucres** 7 mm high. **Pistillate florets** 59. **Bisexual florets** 22, corollas 2.8–3 mm long. **Achenes** 0.8 mm long; pappus bristles ca. 18.

Known only from the type collection.

Given the variation in floret number in plants of *Orognaphalon paramorum* from the Sierra Perijá, this collection might be accepted within a further expanded concept of that species. The difference, however, seems discontinuous and the strongly bicolor basal leaves (like those of *O. rosulatum*) and subclasping cauline leaves further rationale for formal recognition of *O. santamartense*. Higher floret numbers separate this collection from *O. rosulatum*.



Map 2. Sierra de Santa Marta, from the survey of F.A.A Simons, as provided in his report (Simons 1881). The highest point in the sierra is about 5700 meters — it is "the highest coastal range in the tropics, and one of the highest coastal ranges in the world" (Wikipedia) and encompasses about 17,000 sq km (6600 sq mi), the source of 36 rivers. *Orognaphalon rosulatum* and *O. santamartense* are endemic to the Sierra de Santa Marta.

4. OROGNAPHALON GRANDIFLORUM Nesom, *sp. nov.* **TYPE: COLOMBIA.** Cundimarca [at Bogota border?], Sierra de Usme, Páramo de Chisacá, ridge above Laguna Grande and Laguna Negra, ca. 4000 m, rock outcrops with grasses, *Espeletia*, and a few shrubs, soil between rocks, 16 Nov 1958, *H. Barclay & P. Juajibioy* 6229 (holotype: US). Figures 22-25.

Distinct in the genus in its large, solitary heads with large numbers of pistillate and bisexual florets.

Stems (0.5–)1–2 cm tall. **Leaves** obovate-oblongate, 0.5–1.5 cm long, 1.5–2.5 mm wide, gray and loosely tomentose adaxially, white-tomentose-sericeous abaxially with densely matted hairs

like a cloth, cauline ca. 3–5. **Heads** solitary, immediately subtended by oblong-lanceolate bracts. **Involucre** 10–11 mm high, 1.2 cm wide (pressed). **Pistillate florets** 130. **Bisexual florets** 19, corollas 4.5–5 mm long, yellow, throat and lobes orange. **Achenes** 1–1.3 mm long; pappus bristles 28–30.

Known only from the type collection.

Despite the production of just a single large head (with many florets and elongate corollas), these plants appear to fit into *Orognaphalon*. At least there is no other obvious place for them. The basal rosette, vegetative vestiture, bracts subtending the heads, white-tipped phyllaries, glabrous achenes, and basally connate pappus bristles are similar to other *Orognaphalon* species. The heads are terminal on uncharacteristically short (for the genus) stems and the locality is at the southmost extension of the range of the genus.

Regarding the epithet, size is relative.

Genus 2 — *Hypserion*

This new genus includes three previously undescribed South American species. They have been identified at US mostly as *Gnaphalium antennarioides* (= *Chryselium*), *Antennaria linearifolia* (= *Quasiantennaria*), or simply *Gnaphalium* sp. or "Gnaphalieae." Harold Robinson in 1989 saw the close resemblance of a Colombian collection (*Zarucchi 5198*) to the Costa Rican *Gnaphalium subsericeum* and annotated it as such. Observations and photos of Ecuadoran plants on iNaturalist (see *Hypserion major*, below) have recently been identified as *Chryselium*, perhaps based on the color photo included by Freire and Urtubey (2019) in illustration of *C. gnaphalioides*.

Upon recognizing the Andean plants as a distinct group, it was apparent that the Central American *Gnaphaliothamnus baru* Nesom (Panama; Nesom 2023) and *Gnaphaliothamnus subsericeus* (Blake) Nesom (Costa Rica; Nesom 2024) are inseparable from *Hypserion*. The distance of their geographic separation from Columbia-Ecuador populations is considerably less than between the latter and clearly congeneric Bolivian populations. The habit of the Central American plants is similar to *Gnaphaliothamnus*, but their achenial trichomes resemble those from the Andes and are considered here as diagnostic.

HYPSESION Nesom, **gen. nov.** **TYPE:** *Hypserion major* Nesom

Distinct as herbaceous, non-stoloniferous perennials with erect stems, without basal leaves, cauline leaves bicolor, even-sized and evenly distributed, a compact, ebracteate capitulescence, heterogamous heads (pistillate and bisexual florets fertile), phyllaries with a white apex, achenes with minutely hairy surfaces, and basally connate pappus bristles.

Perennial herbs, fibrous-rooted, sometimes woody or lignescent at the base, sometimes developing a creeping caudex. **Stems** erect or basally ascending, 10–80 cm tall, unbranched above the base. persistently white-tomentose, eglandular. **Leaves** all cauline, linear-oblongate to linear, 2–14 cm long, (1.5–)2–8 mm wide, relatively even-sized and evenly distributed, sessile, not clasping or decurrent, margins not revolute, apex acute, surfaces bicolor, persistently white-tomentose abaxially with densely matted hairs, green and glabrate or quickly totally glabrous adaxially. **Capitulescence** a dense, terminal cluster of ca. 10–100+ heads, the cluster without subtending bracts. **Heads** sessile (epedunculate). **Involucres** 4–6(–7) mm high; phyllaries in 3–5 series, mostly narrowly ovate to ovate or ovate-triangular, sterile undivided, ovate, brown to yellow-brown, margins whitish, inner with an oblong to oblong-lanceolate, white, sharply demarcated (in shape) apex ("apical appendage") (or not sharply demarcated in *O. subsericeum*). **Pistillate florets** 53–161(–180), fertile. **Bisexual florets** 8–15, fertile, corollas 2.2–3 mm long, yellow, usually with throat and lobes red or purplish; style branches lanceolate. **Achenes** oblong, 0.8–1 mm long, brown to tan, sparsely hairy with loosely appressed, short, viscid, multicellular, filiform, thin-walled trichomes; pappus bristles 14–20, not apically thickened, tardily deciduous, basally connate and often separating in groups. **Chromosome number** unknown.



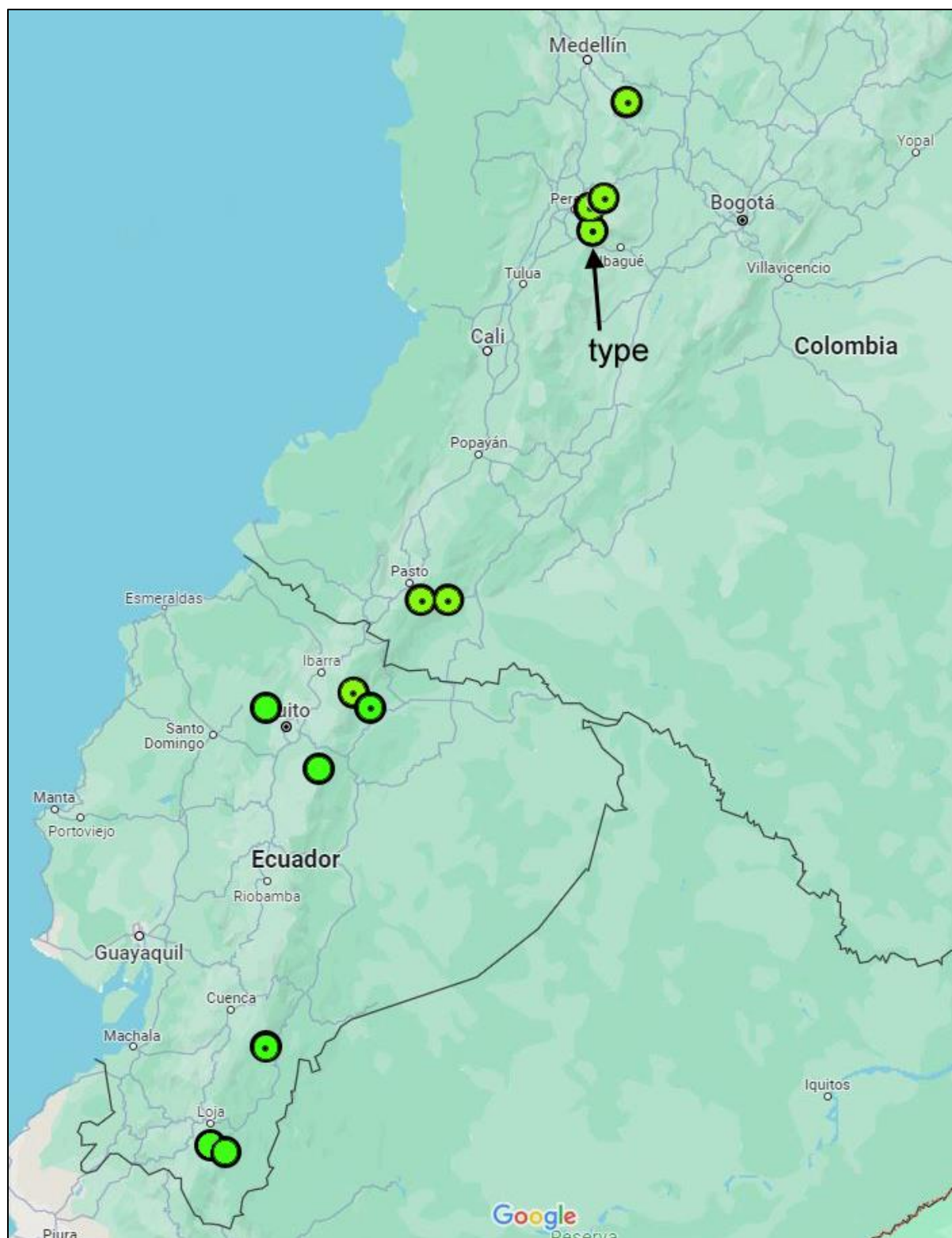
Figure 2. Type species of *Hypserion*, *H. major* (detail of Fig. 35).

Keys to *Hypserion* species

- 1. Stems 30–80 cm tall; leaves 6–14 cm long; capitulescence comprising ca. 50–100+ heads; involucre 4–5 mm high; pistillate florets 132–161 ***Hypserion major***
 - 1. Stems 10–25 cm tall; leaves 2–6 cm long; capitulescence comprising ca. 10–25 heads; involucre 5–6(–7) mm high; pistillate florets 53–86 ***Hypserion minor***
-
- 1. Stems 30–80 cm tall; capitulescence comprising 50–100+ heads; pistillate florets 132–161 ***Hypserion major***
 - 1. Stems 6–30 cm tall; capitulescence comprising (12–)15–40(–60) heads; pistillate florets 69–112(–180) ***Hypserion boliviense***
-
- 1. Stems 25–35 cm tall, with a long, lignescent, rhizome-like caudex; bisexual florets 17 ***Hypserion baru***
 - 1. Stems 11–18 cm tall, without a long caudex; bisexual florets 8 ***Hypserion subsericeum***



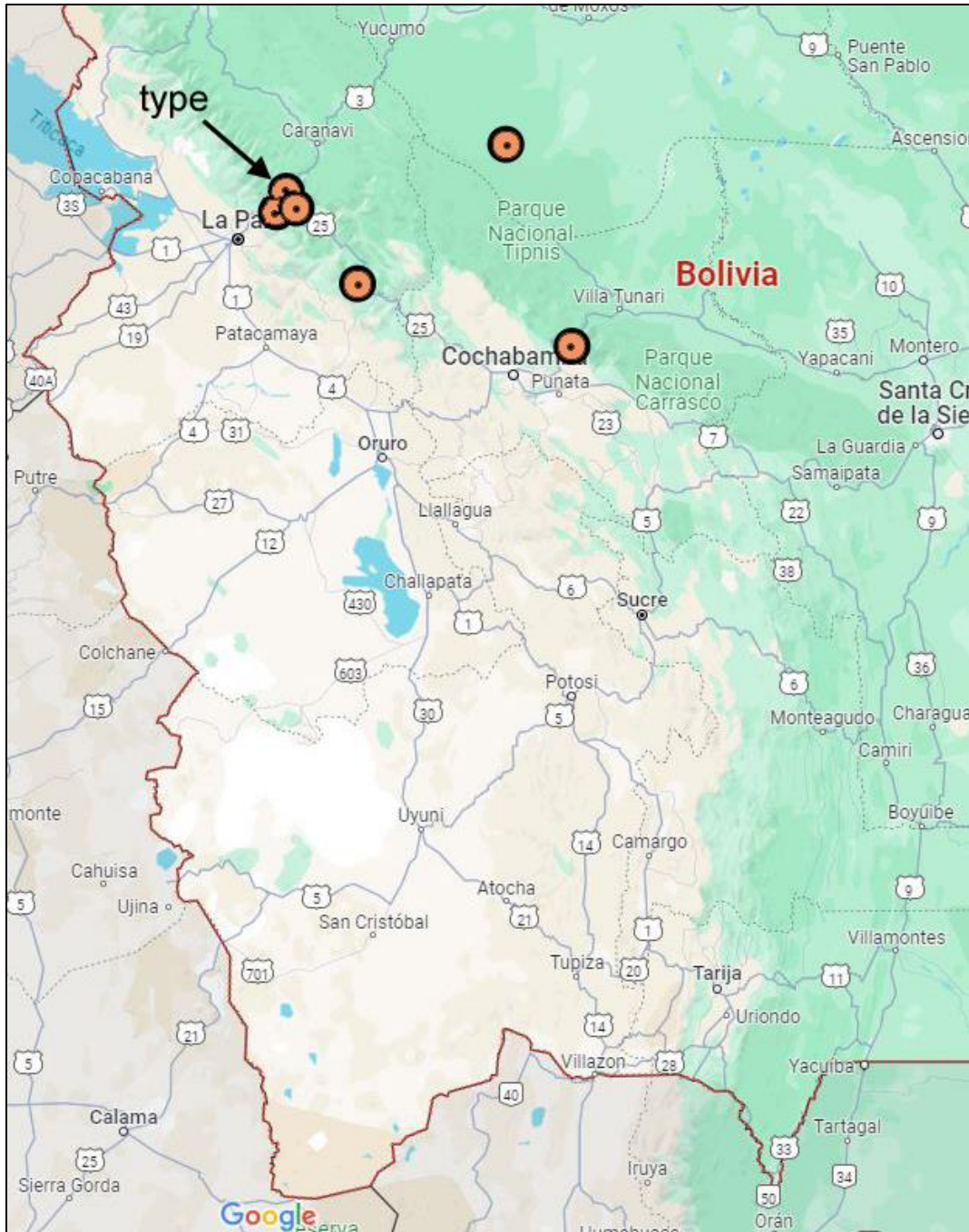
Map 3. Distribution of *Hypserion* species. Costa Rica, Panama, Colombia, Ecuador, Bolivia.



Map 4. Distribution of *Hypserion major*. Colombia, Ecuador. Undotted symbols are localities from iNaturalist observations noted in the text.



Map 5. Distribution of *Hypserion minor*. Colombia, Ecuador.



Map 6. Distribution of *Hypserion boliviense*.

1. HYPSESION MAJOR Nesom, *sp. nov.* **TYPE:** COLOMBIA. Caldas, ca. 40 km ESE of Manizales, ca. 3330 m, 16 Jul 1965, *R.M. King et al.* 5983 (holotype: US). Figure 35.

Distinct among all *Hypserion* species in its combination of tall stature, long leaves, and larger number of pistillate florets.

Stems 30–80 cm tall. **Leaves** 6–14 cm long, 2–8 mm wide, white abaxially. **Capitulescence** 3–6(–8) cm wide, comprising ca. 50–100+ heads. **Involucre**s 4–5 mm high. **Pistillate florets** 132–161. **Bisexual florets** 8–15, corollas 2–2.5 mm long. Figures 35–36.

Additional collections. COLOMBIA. Putumayo, alta cuenca del Río Putumayo en el Valle de Sibundoy, bosque paramero en el filo de la Cordillera La Cabaña, 2800 m, 2 Jan 1941, *Cuatrecasas 11605* (US); Tolima, La Línea, cerro El Campanario, subpáramo y páramo, 3600–3700 m, 4 Mar 1969, *Cuatrecasas 27648* (US); Antioquia, Páramo de Sonsón, above Sonsón, scarce in paramillo brush, with *Lepechinia*, 2800 m, 23 May 1944, *Ewan 15702* (US); Tolima, 8 km E of Tolima-Caldas state line, 35 km W of Palua and 53 km W of Fresno on road from Bogotá to Manzales, paramo, steep hillsides, 3300 m, 28 Jul 1979, *Stuessy 5685* (US); Nariño, estribaciones del Páramo El Bordoncillo, en barrancos húmedos, 3300 m, Aug 1965, *Uribe U. 5374* (US); Antioquia, Mpio. de Sonsón, KM 11 of road Sonsón-Nariño (25 km from Nariño) near KM post 151 marking distance from Bogotá, 05° 42' N, 75° 15' W, pluvial subparamo vegetacion, edge of road, 2780 m, 1 Apr 1987, *Zarucchi 5198* (US). **ECUADOR.** Napo-Pastasa, ENE of Cayambe Mountain, stream on Oriente trail, 10,700 ft, 6.12 1961, *Cazalet & Pennington 5521* (US); Napo, Archidona Cantón, Sumaco Napo-Galeras National Park, Sumaco, 00° 34' S, 77° 38' W, shrubby páramo at summit crater, 3732 m, 16 Mar 1996, *Clark 2216* (US); Morona-Santiago, Páramo de Matanga, KM 36 on road Sigsig-Gualaquiza (old muletrack) E of the pass, 03° 11' S, 78° 47' W, scrub páramo, 3300 m, 14 Dec 1980, *Holm-Nielsen 29375* (US).

The geographic range of *Hypserion major* essentially encompasses that of *H. minor*, but the two appear to be discontinuous in morphology and their sympatry can be taken as evidence of genetic isolation. The type locality of both species is in Dept. Caldas, Colombia, emphasizing the distinction — field observations where both of the two putative species have been found (Páramo El Bordoncillo, Cerro Sumaco, Nevado Cayambe) will test this hypothesis.

In situ photos of *Hypserion major* have been posted on iNaturalist from localities in Ecuador — Loja, Reserva de la Biosfera Podocarpus (Fig. 48) and Loja, Cerro Toledo; Napo, Archidona (Fig. 47); Napo, Quijos; Pichincha, Reserva de la Biósfera Chocó Andino (Figs. 44–46) — their localities are indicated on the distribution map of *H. major* (Map 4) with a distinct symbol. The color photo identified as *Chryselium* in Freire and Urtubey (2019, their Fig. 2) is *H. major* from Napo, Cerro Sumaco.

2. HYPSESION MINOR Nesom, sp. nov. TYPE: COLOMBIA. Caldas, Cerro Tatama, dry grassy paramo, 3400–3700 m, 8–10 Sep 1922, *F.W. Pennell 10586* (holotype: US). Figure 30.

Distinct from *Hypserion major* in its shorter stature, shorter leaves, fewer heads, and fewer pistillate florets.

Stems 10–25 cm tall. **Leaves** 2–6 cm long, 2–4 mm wide, white or sometimes tawny abaxially. **Capitulescence** 2–3 cm wide, comprising ca. 10–25 heads. **Involucre**s 5–6(–7) mm high. **Pistillate florets** 53–86. **Bisexual florets** 10–11, corollas 2.5–3 mm long. Figures 30–34.

Additional collections. COLOMBIA. Nariño, Páramo de Bordoncillo bei Paolo, 3400 m, Feb 1881, *Lehmann 571* (US); Cauca, Puracé, in páramo, 3400 m, 1 Apr 1939, *von Sneidern 2751* (US; UC-cited by Freire & Urtubey 2019 as *Chryselium*). **ECUADOR.** Napo, SE side of Cerro Sumaco, 00° 34' S, 77° 43' W, dominated by thick layers of mosses on the vertical slopes, 3750 m, 30 Apr 1979, *Holm-Nielsen 17499* (US); Napo, Cerro Sumaco, 00° 35' S, 78° 38' W, páramo, N face, base of landslide in gravel, 3750 m, 4 Apr 1979, *Madison 6915* (US); Pichincha, Nevado Cayambe, W side of the volcano, 00° 01' N, 78° 01' W, grazed and burned grass páramo with scattered *Gynoxys* trees, 4200 m, 3 Jul 1995, *Sklenar & Kosteckova 66-7* (US).

3. HYPSESION BOLIVIENSE Nesom, sp. nov. TYPE: BOLIVIA. La Paz-Nordyungas, Unduavi, 3100 m, Oct 1931, *O. Buchtien 9098* (holotype: US). Figure 37.

Distinct from *Hypserion minor* in its shorter involucre, greater number of pistillate florets, and Bolivian geography.

Stems 6–30 cm tall. **Leaves** 3–8(–12) cm long, 2–3(–8) mm wide, white abaxially. **Capitulescence** 1.5–2.5(–4) cm wide, comprising ca. (12–)15–40(–60) heads. **Involucre**s 4.5–5 mm high. **Pistillate florets** 69–112(–180 in *Lewis 39734*). **Bisexual florets** 9–13, corollas 2.5 mm long. Figures 37–41.

Additional collections. BOLIVIA. La Paz-Nordyungas, al borde del pueblo de Unduavi (abandonado), ca. 3000 m, 30 Oct 1986, *Beck 11975* (US); La Paz-Nordyungas, Unduavi, 3300 m, Nov 1910, *Buchtien 3060* (US); La Paz-Nordyungas, Unduavi, 14 Nov 1958, *Kelly 1059* (UC, not seen, cited by Freire & Urtubey 2019 as *Chryselium*); La Paz-Inquisivi, "Río Ocsalla" — along the Río Ocsalla between the Aquilani-Choquetanga trail crossing and 1 km down the river from its jct with the Río Janko Kalani, 10 km N of Choquetanga, 16° 45' S, 67° 17' W, riverine scrub and woodlands in deep, narrow canyon, gravel of river bed, 3300-3350 m, 4 Sep 1991, *Lewis 39734* (US); La Paz-Nordyungas, Unduavi, 10,000 ft, Oct 1885, *Rusby 1600* (US); Cochabamba, KM 104 camino al Chapare, terrenos pedegosos entre la colina boscosa y húmeda, abunda en terreno planos con sol, 3100 m, 17 Dec 1966, *Steinbach 627* (US!; S and UC, not seen, both cited by Freire & Urtubey 2019 as *Chryselium*).

Hypserion boliviense is close in aspect to *H. major* and plants from along the Río Ocsalla (*Lewis 39734*) have exceptionally large leaves and a high number of pistillate florets, seemingly approaching *H. major*. The geographic disjunction of about 1100 miles between *H. boliviense* and the closest populations of *H. major* (and even greater distance for *H. minor*) is a significant factor in recognizing them as formally distinct.

4. HYPSESION BARU (Nesom) Nesom, **comb. nov.** *Gnaphaliothamnus baru* Nesom, Phytoneuron 2023-50: 21. 2023. **TYPE: PANAMA.** Prov. Chiriquí, camino de acceso al Parque Nacional Volcán Barú (vertiente oriental), 2950 m, 25 Jun 1991, *M. Vega 183* (holotype: US). Figure 42.

Stems ca. 25–35 cm tall, with a long, lignescent, rhizome-like caudex. **Leaves** mostly 3–6 cm long, 1.5–4 mm wide, very narrowly revolute, obscurely decurrent (1–2 mm), adaxial surface minutely sericeous, glabrescent and usually glabrate. **Capitulescence** 2-4 cm wide, comprising ca. 25–40 heads. **Involucres** 4.5–5 mm high. **Pistillate florets** ca. 85. **Bisexual florets** ca. 17, corollas 1.8–2 mm long. **Pappus bristles** weakly connate basally.

Additional collection. PANAMA. Bocas del Toro, Cordillera de Talamanca, headwaters of the Río Culubre, 6 airline km NW of the peak of Cerro Echandi on the Costa Rican-Panamanian international border, 09° 05' N, 82° 50' 30" W, mixed *Quercus-Podocarpus-Magnolia-Symplocus*-laurel forest with *Chusquea* understory, on mossy boulders in stream, 2450-2600 m, 2-3 Mar 1984, *Davidse et al. 25173* (MO, US).

Hypserion baru differs from other species in its persistently and minutely sericeous adaxial leaf surfaces and greater number of bisexual florets. The lignescent, rhizome-like caudex is similar to those sometimes observed in the South American species.

5. HYPSESION SUBSERICEUM (Blake) Nesom, **comb. nov.** *Gnaphalium subsericeum* S.F. Blake, J. Wash. Acad. Sci. 17: 61. 1927. *Pseudognaphalium subsericeum* (Blake) Anderb., Opera Bot. 104: 148. 1991. *Gnaphaliothamnus subsericeus* (Blake) Nesom, Phytoneuron 2024-08: 1. 2024. **TYPE: COSTA RICA.** Prov. San José, La Palma, wet meadow, ca. 1600 m, 3 Feb 1924, *P.C. Standley 32941* (holotype: US). Figure 43.

Stems 11–18 cm tall, herbaceous. **Leaves** narrowly lanceolate to narrowly elliptic-lanceolate or oblong-lanceolate, mostly 4–6 cm long, 3–5 mm wide, very narrowly revolute, slightly decurrent (ca. 1 mm), white abaxially. **Capitulescence** 3–3.5 cm wide, comprising ca. 30–40 heads. **Involucres** 3.5–4 mm high. **Phyllaries** (inner) with an acute, white apex, not sharply distinct in shape from the body. **Pistillate florets** 69. **Bisexual florets** 8.

Additional collection. COSTA RICA. Prov. Cartago, páramo, Cerro de la Muerte, 7 Dec 1948, *León 1376* (US). Pruski (2018) cited *Jimenez 1824* (MO) from Costa Rica and *Klitgaard et al 809* (MO) from Panama, the latter perhaps a collection of *O. baru*.

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Figure 3. *Gnaphalium paramorum*. Venezuela, holotype, Jahn 883 (US).

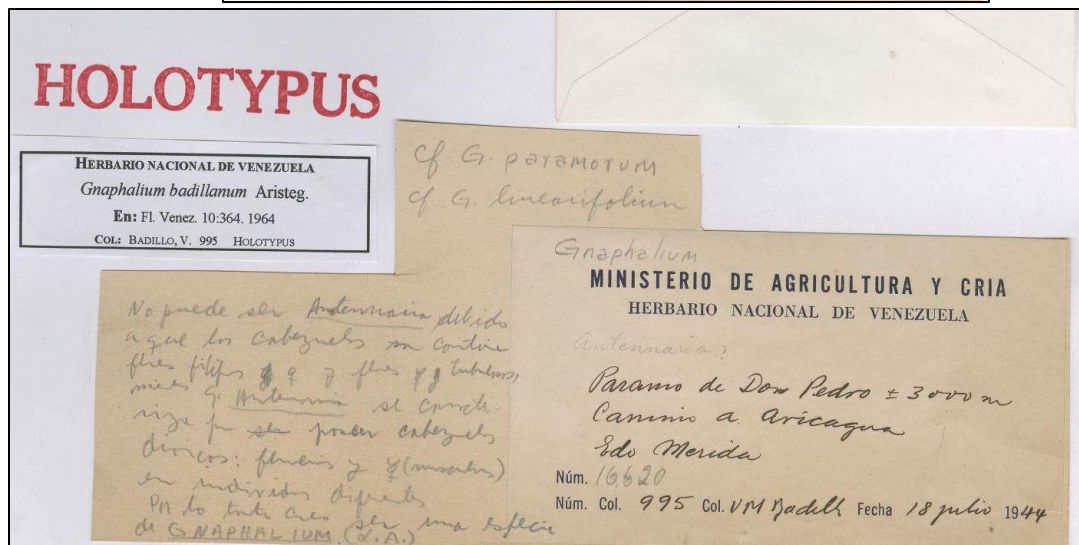


Figure 4. *Gnaphalium badillanum*. Holotype (VEN) and detail of label.



Figure 5. *Gnaphalium badillanum*. Detail from VEN type (Fig. 4).



Figure 6. *Gnaphalium badillanum*. Detail from VEN type (Fig. 4).



Figure 7. *Oroglyphalton paramorum*. Venezuela, Stergios 20380 (US).



Figure 8. *Orognaphalon paramorum*. Venezuela, Cuatrecasas 28527 (US). Stem of *Achyrocline lehmannii* on the right.



Figure 9. *Oroglyphalon paramorum*. Colombia, Carriker 38 (US).



Figure 10. *Orogaphalon paramorum*. Colombia, Callejas 10129 (US).



Figure 11. *Orogaphalon paramorum*. Colombia, Garcia-Barriga 19751 (US).



Figure 12. *Oroglyphon paramorum*. Colombia, Haught 5068 (US).



Figure 13. *Oroglyphon paramorum*. Venezuela, Humbert 26829 (US).



Figure 14. *Oroglyphalon paramorum*. Venezuela, Riina 550 (US).



Figure 15. *Oroglyphalon paramorum*. Venezuela, Cuatrecasas 28388 (US).



Figure 16. *Oroglyphalon paramorum*. Venezuela, Duno de Stefano 1129 (US).



Figure 17. *Orognaphalon rosulatum*. Simons s.n., isotype (K).



Figure 18. *Oroglyphalton rosulatum*. Detail from K isotype (Fig. 17).



Figure 19. *Oroglyphalton rosulatum*. Detail from K isotype (Fig. 17).



Figure 20. *Oroglyphalium rosulatum*. Colombia, Sierra de Santa Marta, Cuadros 2691 (US).



Figure 21. *Oroglyphalon santamartense*. Colombia, Sierra de Santa Marta, *Hammen 1216* (US).



Figure 22. *Orognaphalon grandiflorum*. Colombia, Páramo de Chisacá, Barclay & Jauberty 6229 (US). The elongated [root] probably is from some other plant.



Figure 23. *Oroglyphalton grandiflorum*. Detail from Figure 22.



Figure 24. *Oroglyphalton grandiflorum*. Detail from Figure 22.

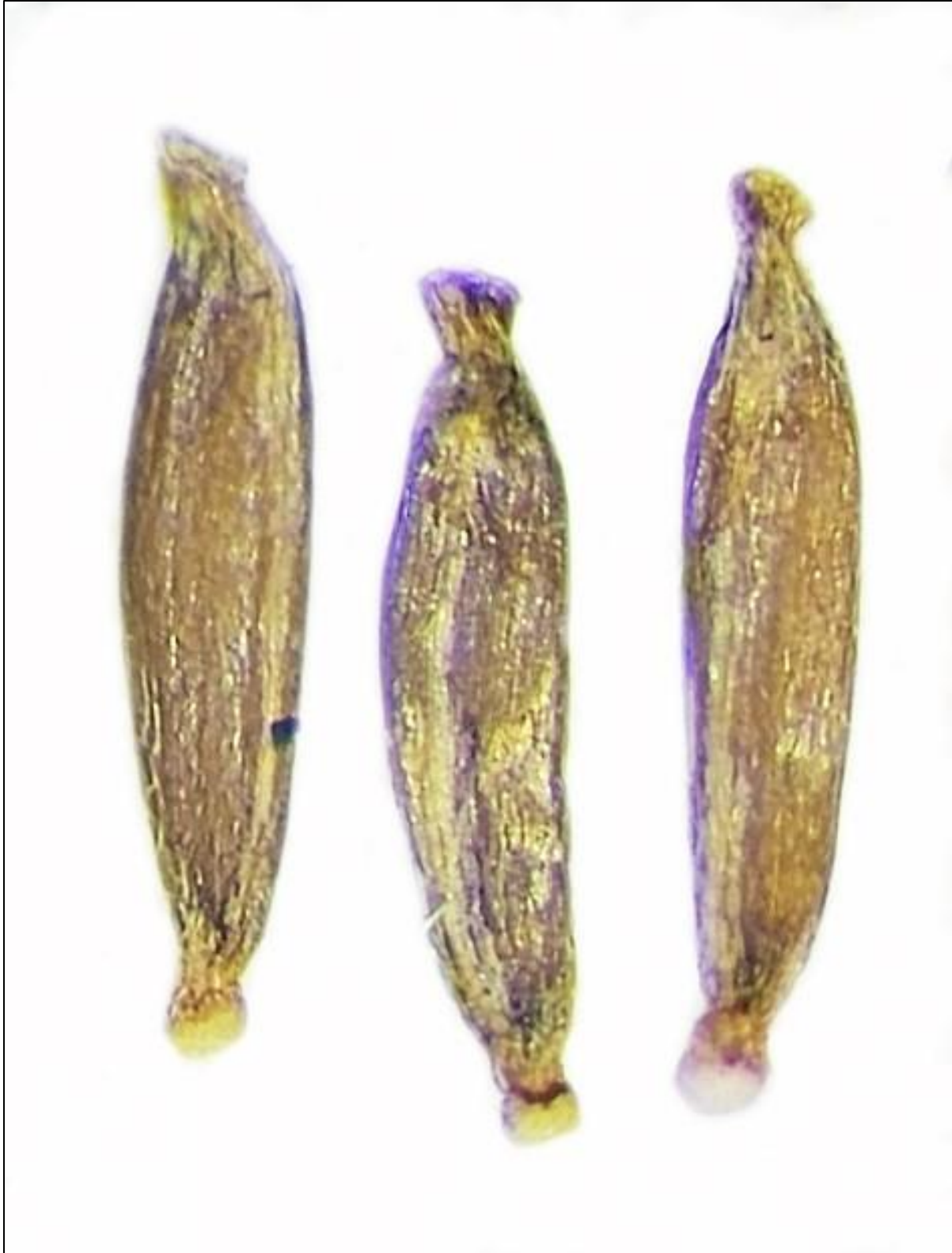


Figure 25. *Oroglyphalon grandiflorum* achenes from Barclay & Juajibioy 6229. Surfaces glabrous.



Figure 26. *Oroglyphalon paramorum*. Colombia, Boyacá, Arcabuco, iNaturalist photo by "Apipa," 29 Sep 2023. Red-tipped corollas.



Figure 27 *Oroglyphalon paramorum*. Colombia, Boyacá, Arcabuco, iNaturalist photos by Daniel Cahen, 16 Nov 2017.



Figure 28. *Orognaphalon paramorum*. Colombia, Cundimarca, Camino Real Bogotá-Choachí, Ubaqué, iNaturalist photo by Jessica Wu, 11 Jun 2022.



Figure 29. *Orognaphalon paramorum*. Colombia, Cundimarca, Ubaque. iNaturalist photo by Carlos G. Velazco-Macias, 12 Oct 2019.



Figure 30. *Hypserion minor*. Ecuador, Pennell 10586 (US). Holotype.



Figure 31. *Hypserion minor*. Colombia, Prov. Cauca, Puracé, von Sneidern 2751 (US).



Figure 32. *Hypserion minor*. Ecuador, Napo, Cerro Sumaco, Madison 6915 (US).



Figure 33. *Hypserion minor*. Ecuador, Napo, Cerro Sumaco, Holm-Nielsen 17499 (US).



Figure 34. *Hypserion minor*. Ecuador, Nariño, Páramo de Bordoncillo, Lehmann 571 (US).



Figure 35. *Hypserion major*. Ecuador, Napo-Pastaza, Cayambe Mountain, Cazalet & Pennington 5521 (US).



Figure 36. *Hypserion major*. Ecuador, Morona-Santiago, Páramo de Matanga, *Holm-Nielsen* 29375 (US).



Figure 37. *Hypserion boliviense*. Bolivia, Unduavi, Buchtien 9098 (US).



Figure 38. *Hypserion boliviense*. Bolivia, Unduavi, Rusby 1600 (US).



Figure 39. *Hypserion boliviense*. Bolivia, toward Chapare, Steinbach 627 (US).



Figure 40. *Hypserion boliviense*. Bolivia, Unduavi, Buchtien 3060 (US).



Figure 41. *Hypserion boliviense*. Bolivia, Río Ocsalla, Lewis 39574 (US).



Figure 42. *Hypserion baru*. Panama. Davidse et al. 25173 (US).



Figure 43. *Hypserion subsericeum*. Costa Rica. Standley 32941 (US). Holotype.



Figure 44. *Hypserion major*. Ecuador, Pichincha, Reserva de la Biosfera Chocó Andino, Páramo Cuenca Río Esmeraldas. iNaturalist photo, Diego Torres Sierra, 26 Sep 2021.



Figure 45. *Hypserion major*. Ecuador, Pichincha, Reserva de la Biosfera Chocó Andino, Páramo Cuenca Río Esmeraldas. iNaturalist photo, Diego Torres Sierra, 26 Sep 2021.



Figure 46. *Hypserion major*. Ecuador, Pichincha, Reserva de la Biosfera Chocó Andino, Páramo Cuenca Río Esmeraldas. iNaturalist photo, Diego Torres Sierra, 26 Sep 2021.



Figure 47. *Hypserion major*. Ecuador, Napo, Archidona, Parque Nacional Antisana. iNaturalist photo, Ruth Ripley, 4 Oct 2007.



Figure 48. *Hypserion major*. Ecuador, Loja, Reserva de la Biosfera Podocarpus. iNaturalist photo, Nick Moore, 29 Oct 2022.