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Taxonomic Studies in *Pseudognaphalium* Kirp. (Asteraceae, Gnaphalieae) from Peru

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Abstract—An account of the nine species of *Pseudognaphalium* occurring in Peru is provided, i.e. *P. cheiranthifolium*, *P. dysodes*, *P. elegans*, *P. gaudichaudianum*, *P. lacteum*, *P. lanuginosum*, *P. luteoalbum*, *P. psilophyllum*, and *P. viravira*. A number of species are placed in synonymy: *Gnaphalium ecuadorensis*, *G. ecuadorensis* var. *boliviense*, and *Pseudognaphalium pellitum* are synonymized under *P. cheiranthifolium*; *Gnaphalium imbaburense*, *G. jelskii*, *G. peruvianum*, *G. sodiroi*, and *Pseudognaphalium cabrerai* are synonymized under *P. gaudichaudianum*; *Gnaphalium humillimum* and *Pseudognaphalium dombeyanum* are synonymized under *P. dysodes*; *Gnaphalium helichrysoides* and *Pseudognaphalium melanosphaeroides* are synonymized under *P. lanuginosum*; and *Gnaphalium polium* is synonymized under *Pseudognaphalium viravira*. Lectotypes are designated for *Gnaphalium dombeyanum*, *G. elegans*, *G. gaudichaudianum*, *G. gaudichaudianum* var. *subrufescens*, *G. helichrysoides*, *G. jelskii*, *G. luteoalbum* var. *pallidum*, *G. multiceps*, *G. poeppigianum*, and *G. sodiroi*. Descriptions, notes on habitat and phenology, distribution maps, full specimen citations for all taxa treated, an identification key, as well as line drawings of four of the nine species, are provided.

Keywords—Compositae, *Gnaphalium*, lectotypification, South America, synonyms.

Pseudognaphalium Kirp. is one of the largest genera of tribe Gnaphalieae (Asteraceae), with about 60 species mainly distributed in South, Central, and North America, but some species also occur in Asia and Africa (Anderberg 1991; Bayer et al. 2007). Although *Pseudognaphalium* was split off from *Gnaphalium* L. by Kirpichnikov and Kuprijanova (1950), this has not been adopted by subsequent authors (e.g. Cabrera 1963, 1971, 1974, 1978; Aristeguieta 1964; Espinosa-García 1985, 2001; Dillon and Sagástegui-Alva 1991; Freire 1995, 1998) who employed the traditional, expanded concept of the genus *Gnaphalium*. However, studies of detailed morphological characters (Hilliard and Burt 1981), studies based on cladistic analysis inferred from morphology (Anderberg 1991), and recent results from molecular studies (Bayer et al. 2007; Ward et al. 2009) have been interpreted as providing support for recognizing *Pseudognaphalium* as a distinct genus. The most recent molecular phylogenies (e.g. Smitsen et al. 2011; Galbany-Casals et al. 2010, 2014; Nie et al. 2015) recover *Pseudognaphalium* in the “HAP clade” (sensu Smitsen et al. 2011) including *Helichrysum* Mill., *Anaphalis* DC., *Achyrocline* (Less.) DC., and *Pseudognaphalium*. Consequently, *Pseudognaphalium* was adopted in subsequent regional works such as Hilliard (1983) for South Africa; Nesom (2001, 2004, 2006) and Ballard et al. (2004) for North America; Deble & Marchiori (2006), and Freire et al. (2011) for Brazil; Hind (2011) for Bolivia; Chen et al. (2011) for Asia, and Villaseñor (2016) for Mexico. The genus is characterized by the presence of disciform, heterogamous capitula, monochromous phyllaries with a divided stereome, truncate style branches with apical sweeping hairs, and pappus bristles free at the base. *Pseudognaphalium* most resembles the genus *Achyrocline* in having pistillate florets that outnumber the disc florets. It differs from *Achyrocline*, however, in having many-flowered capitula; in contrast, *Achyrocline* has capitula with less than 20 florets.

The highest diversity of *Pseudognaphalium* in South America occurs in Argentina, Bolivia, Chile, and Ecuador. Freire et al. (2014b) cited 15 species (three endemic) for Argentina. Hind (2011) and Beck and Ibáñez (2014) reported ten (as *Pseudognaphalium*) and 18 species (as *Gnaphalium*, but many are now considered as synonyms), respectively for Bolivia. Freire et al. (2014a) cited 12 species (three endemic) for Chile. Jørgensen

and León-Yáñez (1999) mentioned 15 species for Ecuador (as *Gnaphalium*, including two of the genus *Gamochoaeta* Wedd.). Deble and Marchiori (2006) and Freire et al. (2011) cited five species for Brazil. Aristeguieta (1964) and Hokche et al. (2008) cited seven and eight species, respectively (both as *Gnaphalium*) for Venezuela, and Freire (1998) only one species (as *Gnaphalium*) for Paraguay.

Dillon and Sagástegui-Alva (1991) in their taxonomic study of *Pseudognaphalium* (as *Gnaphalium*) for the Flora of Peru, cited seven species and added another six poorly known species placed in the *Gnaphalium dombeyanum* complex. Additionally, these authors considered four species doubtful and excluded them from *Gnaphalium* in Peru. Only three species recognized by Dillon and Sagástegui-Alva (1991) are approximately retained among the nine species treated here. Dillon and Hensold (1993) reported nine species of *Gnaphalium* for Peru. More recently, González (2016) cited five species for the Department of Lima, Peru.

In the present paper we clarify the species delimitations within the *Gnaphalium dombeyanum* complex, through close examination of the protologues and types, bringing the total accepted species for Peru to nine. We present descriptions, typifications, synonymy, notes on habitat and phenology, and distribution maps for all nine species of *Pseudognaphalium* occurring in Peru. An identification key to species and line drawings of four species are also provided.

MATERIALS AND METHODS

The study is based on herbarium material from the following herbaria (abbreviations according to Thiers 2017): GH, HUT, K, MO, NY, S, and USM. Electronic images of type specimens at CTES, CORD, E, F, G-DC, GH, GOET, HAL, K, LP, NY, P, SGO, and US were also studied. Type collections are cited with bar code numbers. Holotype specimens and type citations are in accordance with the ICN (McNeill et al. 2012). An index to numbered collections examined is presented in Appendix 1. Leaf descriptions were made utilizing the terminology of Harris and Harris (1994). Characteristics of phyllaries were observed and recorded in cleared samples using the technique of Dizeo de Strittmatter (1973). Observations were carried out using a light microscope (Gemalux), equipped with a photographic camera PAL CCD. Original illustrations were drawn by one of the authors (MAM).

TAXONOMIC TREATMENT

PSEUDOGNAPHALIUM Kirp., Trudy Bot. Inst. Akad. Nauk S.S.S.R., Ser. 1, Fl. Sist. Vyssh. Rast. 9: 33. 1950. TYPE: *Gnaphalium oxyphyllum* DC. = *Pseudognaphalium oxyphyllum* (DC.) Kirp.

Hypelichrysum Kirp., Trudy Bot. Inst. Akad. Nauk S.S.S.R., Ser. 1, Fl. Sist. Vyssh. Rast. 9: 33. 1950. TYPE: *Gnaphalium heterotrichum* Phil. = *Hypelichrysum heterotrichum* (Phil.) Kirp. = *Pseudognaphalium heterotrichum* (Phil.) Anderb.

Gnaphalium L. sect. *Calolepis* Kirp., Bot. Mater. Gerb. Bot. Inst. Komarova Akad. Nauk S.S.S.R. 20: 309. 1960. *Pseudognaphalium* Kirp. subg. *Laphangium* Hilliard & B.L.Burttt, Bot. J. Linn. Soc. 82(3): 205. 1981. *Laphangium* (Hilliard & B.L.Burttt) Tzvelev, Byull. Moskovsk. Obsch. Isp. Prir. Otd. Biol. 98(6): 105. 1993 [1994]. TYPE: *Gnaphalium luteoalbum* L. = *Pseudognaphalium luteoalbum* (L.) Hilliard & B.L.Burttt

Annual, biennial or perennial herbs, woolly or glandular-woolly. Leaves alternate, sessile, usually narrow, linear, lanceolate, or oblanceolate, base often stem-clasping or decurrent, margins entire. Capitula small, heterogamous, disciform, sessile or short pedunculate, in small clusters arranged in corymbs or panicles; involucre often campanulate; phyllaries 3–4-seriate, papery, phyllary lamina

opaque-white or hyaline and shiny; receptacle smooth or honeycombed, glabrous, epaleate. Florets many, pistillate florets outnumbering the bisexual florets; pistillate florets with corollas filiform or narrowly tubular; bisexual florets with corollas tubular, scarcely broadened above, 5-lobed, all corollas yellowish or whitish, lobes glandular and often yellowish or whitish; apical anther appendages small, obtuse, tails slightly longer or shorter than filament collar; style branches truncate and penicillate. Achenes glabrous often with imbricate microscopic papillae or setuliferous with short twin myxogenic hairs; pappus bristles monomorphic, barbellate, apical cells sometimes inflated, individually separated but often bases cohering by patent cilia, usually white or whitish. Chromosome number: $2n = 14, 28$.

Phyllaries—The phyllary lamina considered to be diagnostic feature for *Pseudognaphalium* (Anderberg 1991) is monochromous and the stereome is divided in all taxa studied (Fig. 1).

Pseudognaphalium species are widely distributed through America with some African and Asian species. Synonyms proposed in recent taxonomic revisions (Freire et al. 2014a, b) and in the present treatment (Appendix 2) decreased the number of valid taxa from ca. 90 (Anderberg 1991; Bayer et al. 2007) to 60, of which nine are represented in Peru.

KEY TO THE SPECIES OF *PSEUDOGNAPHALIUM* IN PERU

1. Stems prostrate, branched *P. lacteum*
1. Stems erect to ascending, branched or unbranched
 2. Annual herbs; achenes setuliferous *P. luteoalbum*
 2. Perennial herbs; achenes glabrous (rarely setuliferous in *P. viravira*)
 3. Leaves concolorous or slightly discolorous
 4. Plants with conspicuous glandular trichomes on stems and leaves *P. psilophyllum*
 4. Plants with short glandular trichomes obscured by the woolly trichomes (rarely with long glandular trichomes raised over woolly trichomes)
 5. Leaves lanuginose *P. lanuginosum*
 5. Leaves densely whitish-woolly
 6. Capitula usually arranged in dense terminal clusters; stem leaves linear or linear-ovate to linear-oblong *P. viravira*
 6. Capitula arranged in corymbs; stem leaves linear-lanceolate or lanceolate *P. cheiranthifolium*
 3. Leaves conspicuously discolorous
 7. Stem leaves lanceolate to elliptic, apex acute; stems densely whitish-woolly *P. elegans*
 7. Stem leaves linear or linear-lanceolate to lanceolate, apex acute and attenuate; stems lanuginose to whitish-woolly
 8. Stem leaves linear (1–8 mm wide) *P. gaudichaudianum*
 8. Stem leaves linear-lanceolate to lanceolate (10–25 mm wide) *P. dysodes*

1. *PSEUDOGNAPHALIUM CHEIRANTHIFOLIUM* (Lam.) Hilliard & B.L.Burttt, Bot. J. Linn. Soc. 82(3): 205. 1981. *Gnaphalium cheiranthifolium* Lam., Encycl. [J. Lamarck et al.] 2(2): 752. 1788. TYPE: [URUGUAY]. “Commerson à trouvé cette plante á Monte Video” (P-Lam. not seen).

Gnaphalium pellitum Kunth, Nov. Gen. Sp. Pl. (Humb., Bonpl. & Kunth) [folio ed.] 4: 63. 1818; 80 [ed. quarto, 1820]; *Pseudognaphalium pellitum* (Kunth) Anderb., Opera Bot. 104: 147. 1991. TYPE: PERU. Cajamarca. Hualgayoc, juxta urbem Micuipampa, 1830 m, A. J. A Bonpland & F. W. H. A. Humboldt s.n. (P 00322304!, photo FOBN37604!, F 0043734F! fragment), syn. nov.

Gnaphalium citrinum Hook. & Arn., Bot. Beechey Voy.: 31. 1830. *Gnaphalium cheiranthifolium* Lam. f. *citrinum* (Hook. & Arn.) Kuntze, Revis. Gen. Pl. 3(3): 151. 1898. TYPE: CHILE. ‘Hab. Concepción’ (holotype: probable K; isotype: SGO 72232!).

Gnaphalium erectum Vell., Fl. Flumin. Icon. 8: Table 98. 1831 [1827 publ. 29 Oct 1831]. TYPE: Fl. Flum., Icones 8, Table 98. 1831 (lectotype designated by Deble and Marchiori 2006).

Gnaphalium paniculatum Bertero ex Colla, Mem. Reale Accad. Sci. Torino 38: 17. 1835. *Gnaphalium cheiranthifolium* Lam. var. *paniculatum* (Bertero ex Colla) Skottsbo., Kongl. Svenska Vetenskapsakad. Handl. 51(9): 5. 1914. TYPE: CHILE. ‘Cultum in H. Ripul. e seminibus missis a Bertero sine nomine specifico et lectis in saxosis apricis Valparaíso, servatur hyeme in frigidario, et floret secundo anno, ac raro diutius perdurat.’ (probably TO, not seen).

Gnaphalium valdivianum Phil., Linnaea 29(1): 6. 1858. TYPE: CHILE. Valdivia, Apr 1852, without coll. (SGO 64374!).

Gnaphalium araucanum Phil., Anales Univ. Chile 43: 502. 1873. TYPE: CHILE. Biobio: Lebu, *Volkmann* s.n. (lectotype designated by Freire et al. 2014a: SGO 71287!; isolectotype: SGO 71287!).

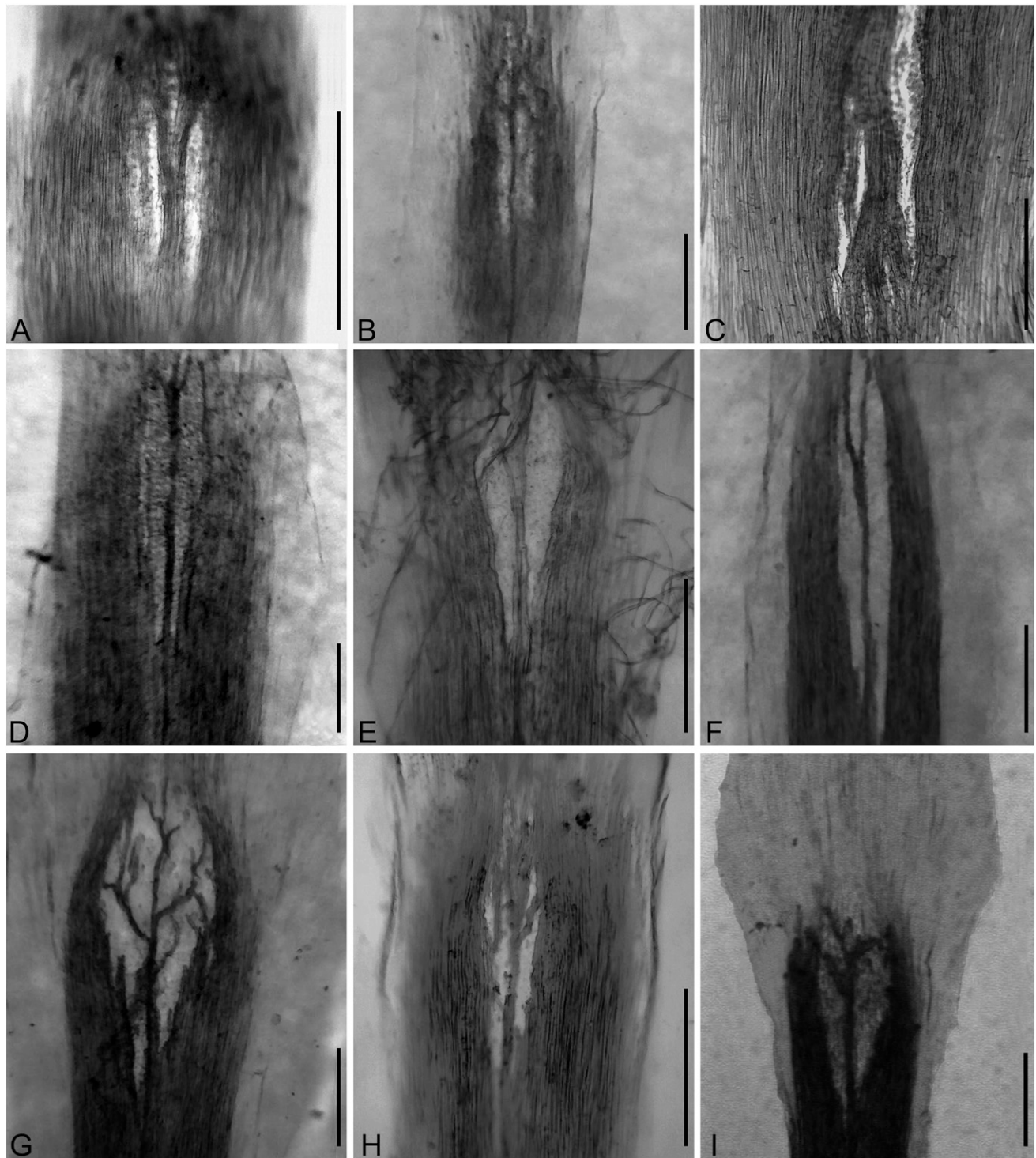


FIG. 1. Phyllaries showing the divided stereome. A. *Pseudognaphalium cheiranthifolium* (Marticorena et al. 1307, BAB). B. *P. dysodes* (Asplund 6908, MO). C. *P. elegans* (Böcher et al. 93, S). D. *P. gaudichaudianum* (Sagástegui et al. 12038, NY). E. *P. lacteum* (Richardson 2121, NY). F. *P. lanuginosum* (Wilkes s.n. in 1838–42, GH). G. *P. luteoalbum* (Mr. & Mrs. Rose 19011, NY). H. *P. psilophyllum* (Cabrera 5091, LP). I. *P. viravira* (Barros 6076, LP; published by Gayana Botánica, used by permission). Scale bars = 0.3 mm.

Gnaphalium riedelianum Klatt, *Linnaea* 42(2): 115. 1878. *Gnaphalium cheiranthifolium* Lam. var. *riedelianum* (Klatt) Baker, *Mart., Fl. Bras.* 6(3): 122, 1882. TYPE: BRAZIL. 'In Brasilia. leg. Riedel ... in Willdenow's Herbar. Nr. 15463' (GH 00008363!).

Gnaphalium acutifolium Phil., *Anales Univ. Chile* 90: 12. 1895. TYPE: CHILE. Arauco. Curanilahue, Jan 1893, *Philippi s.n.*

(lectotype designated by Freire et al. 2014a: SGO 64401!; isolectotypes: SGO 35992!, 44968!).

Gnaphalium ecuadorensis Hieron., *Bot. Jahrb. Syst.* 21(3): 347. 1895. TYPE: ECUADOR. Panecillo cerca de la Hacienda Pesillo en el camino de La Esperanza a Quito, Mar 1871, *A. Stuebel 82* (F 0BN015096!), syn. nov.

Gnaphalium ecuadorensis Hieron. var. *boliviense* Cuatrec., Anales Univ. Madrid, Ci. 4, fasc. 2: 223. 1935. SYNTYPES: BOLIVIA: Monte llamado Tiaguanaco, 12 Jul 1863, *Isern* 387 (MA 241104/1); BOLIVIA, cercanías de La Paz, 2 Jul 1863, *Isern* 386 (MA 241103), not seen, syn. nov.

Gnaphalium cheiranthifolium Lam. var. *multiflorum* J.Koster, Blumea 5(3): 655. 1945. TYPE: BOLIVIA. Samaipata, 2000–2200 m, Mar 1911, *T. Herzog* 1758 (B 10 0093571!, L, LP 001906!, Z 000046606).

Iconography: Freire et al. 2014a, Fig. 7: 78.

Perennial herbs, 40–80 cm, stem usually solitary (2 or 3), erect, unbranched or branched at the distal part, uniformly leafy, woolly-glandulose. Stem leaves 30–45(–60) × 2–5 mm, lanceolate or linear-lanceolate, margins flat, apex long-attenuate, acute, base decurrent 6–13 mm long, basal leaves 40–80 × 3–8 mm, oblanceolate-spathulate, apex obtuse; concolorous, adaxial surface glandulose-tomentose, with long eglandular esepate, 3-cellular trichomes, and long glandular biseriate trichomes raised over wool, abaxial surface tomentose. Capitula numerous in clusters arranged in corymbs; involucre broadly campanulate, 4–6 × 5–6 mm; phyllaries 3–4-seriate, lamina yellow-greenish, hyaline and shiny, outer phyllaries 3.4–4 × 1–1.8 mm, ovate, apex subobtuse, inner phyllaries 3.5–4.5 × 0.3–1 mm, oblong-obovate, apex acute. Pistillate florets (50–)78–80; corollas yellow, filiform, 2–3 mm long. Bisexual florets (5–)10–15; corollas yellow, tubulose, 2–3 mm long. Achenes 0.5–0.8 mm long, glabrous, epidermis smooth or papillose; pappus bristles 2.5–3 mm long.

Vernacular Name—‘Té de burro’ (Freire et al. 2014a).

Distribution, Habitat and Phenology—*Pseudognaphalium cheiranthifolium* was known from Argentina, southern Bolivia and Brazil, central Chile, Ecuador and Uruguay (Cabrera 1978; Dillon and Sagástegui-Alva 1991; Freire et al. 2014 a, b) and now after the study of additional material at HUT and USM, this species is reported from Peru (Ancash, Arequipa, Cajamarca, Huánuco, Lima, Moquegua, and Puno). *Pseudognaphalium cheiranthifolium* was collected growing in rocky and sandy soils in open, grazed disturbed grounds, and in mountain cloud forests. In Argentina, southern Brazil, and Uruguay it is present from sea level to 2500 m, reaching 3500–4200 m in Bolivia, Ecuador, and Peru (Fig. 2A). Flowering from October to April.

Relationships—*Pseudognaphalium cheiranthifolium* is similar to *P. leucocephalum* (Cabrera) Anderb., from southern Brazil, Uruguay, and central-southern Argentina, since both usually have solitary stems, linear-lanceolate or lanceolate stem leaves, with attenuate apices, numerous capitula in clusters arranged in corymbs, and involucre 4–6 mm tall. Nevertheless, *Pseudognaphalium cheiranthifolium* differs because it has long glandular trichomes sticking out from the wool over stems and leaves, and its phyllaries are usually citrine, the inner obtuse or rounded (vs. glandular trichomes hidden within the wool, and phyllaries brown, the inner acute in *P. leucocephalum*). *Pseudognaphalium cheiranthifolium* has probably been misidentified as *P. gaudichaudianum*. However, *P. cheiranthifolium* can be distinguished by its concolorous leaves (vs. discolorous leaves in *P. gaudichaudianum*).

Notes—Deble & Marchiori (2006) designated as lectotype of *Gnaphalium erectum* a plate in Flora Fluminensis (1831, Icones 8, Table 98). The original illustration is insufficient to apply the name with certainty since it does not include dissections

showing essential characters. Unfortunately, no appropriate material was available from this species, so no epitype is designated here. *Gnaphalium ecuadorensis* is considered a synonym of *Pseudognaphalium cheiranthifolium* since there are no characters to separate them. Both have linear or linear-oblong leaves, 2–5 mm wide, which are attenuate at the apex and concolorous. Despite the fact of not gaining access to the type material of *Gnaphalium ecuadorensis* var. *boliviense*, according to the protologue of this variety the only difference with *Gnaphalium ecuadorensis* is that it has bigger and more branched plants. As a result, this name is considered a synonym of *Pseudognaphalium cheiranthifolium*. *Gnaphalium pellitum* is considered a synonym of *Pseudognaphalium cheiranthifolium*. After studying the respective images of the type material and protologues, it was observed that both taxa show erect plants, with solitary stems, linear-lanceolate, attenuate at apex leaves, capitula many-flowered in clusters gathered in corymbs, and brown-yellowish phyllaries. Dillon and Sagástegui-Alva (1991) considered *Gnaphalium pellitum* as a synonym of *Achyrocline alata* (Kunth) DC. However, the 40–50-flowered capitula and involucre of 50–55 phyllaries mentioned in the protologue of *Gnaphalium pellitum* are referable to genus *Gnaphalium* (vs. few-flowered capitula and involucre of few phyllaries in *Achyrocline*). In addition, no winged stems are mentioned in its protologue or distinguished in the digital image of the type.

Additional Specimens Examined—Peru.—ANCASH: Bolognesi, Carretera a Huallanca, vertiente oriental de la Cordillera Blanca, 3740–3780 m, 28 May 2001, *Cano et al.* 11403 (USM); Bolognesi, Chiquián, 3540–3560 m, 14 Apr 1949, *Cerrate* 178 (USM); Bolognesi, alrededores de Chiquián, 3350 m, 15 May 1950, *Cerrate* 655 (USM).—AREQUIPA: Arequipa, Chilina, 2540 m, 1 Jan 1981, *González Jimenes* 14 (USM). Cajamarca: Hualgayoc, Road Cajamarca-Cajabamba, 3600 m, 9 May 1999, *Binder & Binder* 1999/101 (HUT); Cajamarca, Road from Cajamarca to Hualgayoc, Km 25–30, first quebrada after turn off to Yanacocha, 3200–3500 m, 7 Mar 1998–9 May 1998, *Doster* 98/134, 98/135 (USM); Cajamarca, arriba de la Encañada, 3300 m, 14 Jun 1993, *Mostacero et al.* 2917 (HUT); Contumazá, Guzmango, La Erilla, 2800 m, 2 Apr 1981, *Sagástegui* 9696 (HUT).—HUÁNUCO: Dos de Mayo, Shiriragra, Apr 1956, *Cardich* 219 (USM).—LIMA: Canta, Lachaqui, camino Lllamarume a Chocororo, 3900 m, 29 Apr 2012, *Vilcapoma & Enciso* 7979 (USM).—MOQUEGUA: General Sánchez Cerro, Ubinas, 3380 m, 1 Apr 2004, *Blanchard et al. s.n.* (HUT 186742); Moquegua, Santa Rosa, Puquina, 3342 m, 19 May 1999, *Cáceres et al.* 1155 (USM).—PUNO: Huanacáné, Miajachi, Isla Chirone, 3900 m, 29 Feb 1948, *J. O. P. s.n.* (USM 35363); Chucuito, Comunidad Challacollo, 3862–3960 m, 4 Mar 2010, *Ramírez* 2010–91 (USM).

2. PSEUDOGNAPHALIUM DYSODES (Spreng.) S.E.Freire, N.Bayón & C.Monti, Fl. Vasc. Argent. 7(1): 501. 2014. *Gnaphalium dysodes* Spreng., Syst. Veg. ed. 16, 3: 476. 1826, nom. nov. pro *Gnaphalium graveolens* Kunth, Nov. Gen. Sp. Pl. (Humb., Bonpl. & Kunth) (folio ed.) 4: 64. 1818, hom. illeg., non *G. graveolens* M.Bieb., 1808 [= *Helichrysum graveolens* (M.Bieb.) Sweet]. *Pseudognaphalium graveolens* Anderb., Opera Bot. 104: 147. 1991, nom. illeg. TYPE: [ECUADOR] Riobamba, F. W. H. A. Humboldt & A. J. A. Bonpland 3193 (P 00322307!).

Gnaphalium humillimum Spreng., Syst. Veg. [Sprengel] ed. 16, 3: 476. 1826, nov. nom. pro *Gnaphalium nanum* Kunth, Nov. Gen. Sp. Pl. (Humb., Bonpl. & Kunth) (folio ed.) 4: 66. 1818, hom. illeg., non *G. nanum* Willd. 1803, nov. nom. pro *G. pusillum* Thunb., Prodr. Pl. Cap. 2: 149. 1800, hom. illeg., non *G. pusillum* Haenke 1791 [= *Omalotheca supina* (L.) DC. var. *pusilla* (Haenke) Amich, E.Rico & J.Sánchez] 1981. TYPE: PERU. Ayavaca [Crescit locis obumbratis andium Peruvianorum, juxta pagum ayavacae, alt. 1410 hex. Floret Augusto], F. W. H. A. Humboldt & A. J. A. Bonpland s.n. (P 00322313!, B† photo F0BN015111!), syn. nov.

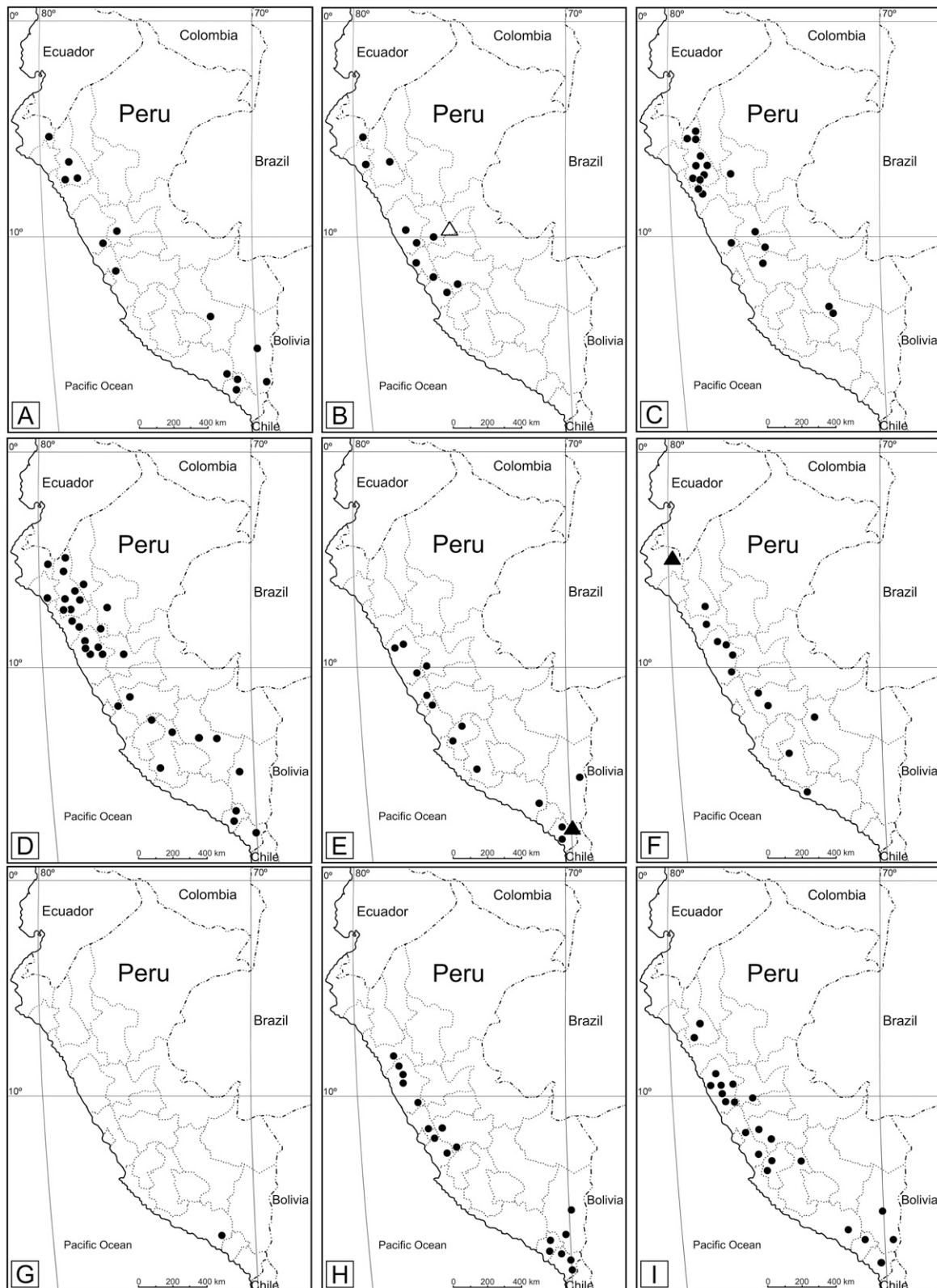


FIG. 2. Distribution maps of the nine Peruvian species of *Pseudognaphalium*. A. *P. cheiranthifolium*. B. *P. dysodes*. C. *P. elegans*. D. *P. gaudichaudianum*. E. *P. lacteum*. F. *P. lanuginosum*. G. *P. luteoalbum*. H. *P. psilophyllum*. I. *P. viravira*. Solid triangles = type locality; triangles = type locality unknown.

Gnaphalium dombeyanum DC., Prodr. 6: 225. 1838. *Pseudognaphalium dombeyanum* (DC.) Anderb., Opera Bot. 104: 147. 1991. TYPE: PERU. *J. Dombey s.n.* (lectotype designated here: P 00704545!; isolectotypes: G-DC 00312661!, LP 001912!, P 00704544!, P00704546!), syn. nov.

Annual to perennial herbs, 20–100 cm, stem usually solitary (2 or 3), erect, unbranched or branched at the distal part, uniformly leafy, lanuginose to whitish-woolly. Leaves 60–90 × 10–25 mm, linear-lanceolate to broadly lanceolate, margins flat, slightly revolute, apex long attenuate, acute, base

broadened, subamplexicaule, decurrent on stem, discolorous, with adaxial surface glabrous or glandulose-lanuginose and abaxial surface densely white-tomentose, with long eglandular eseptate 4-cellular trichomes and few short glandular trichomes hidden under wool. Capitula numerous in clusters arranged in corymbs; involucre broadly campanulate, $3.5\text{--}4 \times 3\text{--}4$ mm; phyllaries 3–4-seriate, lamina straw-coloured to brownish, hyaline and shiny, outer phyllaries 3×2 mm, ovate-elliptic, obtuse, inner phyllaries 2.6×0.6 mm, oblong-ovate, obtuse to acute. Pistillate florets ca. 140; corollas filiform, 1.8–2 mm. Bisexual florets 10–20; corollas tubular, 1.7–2 mm. Achenes 0.5–0.6 mm, glabrous, epidermis smooth to slightly papillose; pappus bristles ca. 2 mm, whitish. Figures 3, 4A–B.

Distribution, Habitat, and Phenology—Mountains of northwestern and central Argentina, Bolivia, Colombia, Ecuador, and Peru (Ancash, Cajamarca, Huánuco, Junín, Lambayeque, Lima, and Piura; Dillon and Hensold (1993) also reported Amazonas, Apurímac, Arequipa, Ayacucho, Huancavelica, La Libertad, Moquegua, and Puno). *Pseudognaphalium dysodes* has been found in grasslands between 2500 and 4500 m, and in the páramo between 3000 and 4400 m (Fig. 2B). Flowering from October to August.

Relationships—*Pseudognaphalium dysodes* is very similar to *P. gaudichaudianum*. Both species have discolorous, linear-oblong, acute and long-attenuate leaves at the apex, lanuginose stems, and involucre 4 mm high. *Pseudognaphalium dysodes* has leaves 10–25 mm wide (vs. 1–8 mm in *P. gaudichaudianum*). Figure 4C–D.

Notes—The protologue of *Gnaphalium dombeyanum* cited ‘in Amer. Merid. (verisim in Peruvia) legit cl. Dombey, ... (v. s. comm. à Mus. Reg. Paris)’. The collection *Dombey s.n.*, P 00704545, which fits in de Candolle’s description of *Gnaphalium dombeyanum*, and presents the most complete material, is selected as lectotype. We studied the types and the original descriptions of *Gnaphalium dombeyanum* and *G. dysodes* and found no distinguishing features. Both species have linear-lanceolate or lanceolate discolorous leaves that are attenuate at the apex and slightly to conspicuously broadened at the base. Dillon and Sagástegui-Alva (1991) considered that the type of *Gnaphalium nanum* was probably a weak specimen of *Gnaphalium dombeyanum*, which has leaves that are discolorous, lanceolate, and widened at the base. Dillon and Hensold (1993) reported *Gnaphalium nanum* as a synonym of *G. dysodes*. Both points of view are supported here, regarding *Gnaphalium humillimum* (nov. nom. pro *Gnaphalium nanum*) as a synonym of *Pseudognaphalium dysodes*.

Additional Specimens Examined—Peru.—ANCASH: Bolognesi, Pacacuna, cerca de Chilcas, 3600 m, 29 Apr 1978, *Cerrate* 7092 (USM); Bolognesi, Acas, 3600 m, 14 Jun 1979, *Cerrate* 7491 (USM); Huaraz, 10 Km by road from Cachabamba, $09^{\circ}27'S$, $77^{\circ}51'W$, 2870 m, 6–8 Jun 1985, *Smith & Buddenslek* 10934 (USM).—CAJAMARCA: Celendín, 3600 m, 23 Jun 1995, *Mostacero* 3735 (HUT).—HUÁNUCO: Huánuco, 2650 m, 22 Dec 1979, *Huapalla* 001443 (USM).—JUNÍN: Huancayo, Huaytapallanca, al E de Huancayo, 4500 m, 24 Apr 1973, *Tovar* 7068 (USM).—LAMBAYEQUE: Ferreñafe, cerca de Sinchigual, 9 Jul 1987, *Ferreya* 20955 (USM).—LIMA: Yauyos, Cruz Pampa, encima de Tupe, 2950 m, 7 Jan 1952, *Cerrate* 1105 (USM); Huarochiri, Calachaca, cerca a cumbre entre Santiago y Hacienda Tucto, 3900 m, 14 May 1953, *Cerrate* 1892 & *Tovar* 1669 (USM); Huarochiri, Hillpa, 3460 m, without date, *Espinoza Rimari* 49, 52 (USM); Cañete, Lomas de Quilmaná, entre Mala y Cañete, 250–320 m, 7 Oct 1949 *Ferreya* 6317 (USM); Huaura, Lomas de Lachay, entre Chancay y Huacho, 400–450 m, 4 Nov 1952, *Ferreya* 8774 (USM); Huarochiri, San Mateo, 3300 m, 27 Apr 1995, *Llatas Quiroz et al.* 3674 (USM); Huarochiri, Chicla, 3850 m, 30 Apr 1995, *Llatas Quiroz et al.* 3727 (USM); Yauyos, Huacrachocha a 17 Km de Tupe, 4400 m, 22 Jan 1952, *Tovar*

641 (USM).—PIURA: Huancabamba, 2000 m, 22 Jan 1994, *Llatas Quiroz et al.* 9629 (USM).

3. *PSEUDOGNAPHALIUM ELEGANS* (Kunth) Kartesz, Synth. N. Amer. Fl., Nomencl. Innov.: no. 28. 1999. *Gnaphalium elegans* Kunth, Nov. Gen. Sp. Pl. (Humb., Bonpl. & Kunth) (folio ed.) 4: 63. 1818. TYPE: ECUADOR. Pichincha, 2450 m, Jun 1802, *F. W. H. A. Humboldt & A. J. A. Bonpland* 3001 (lectotype designated here: P-HBK 00322306!; isolectotypes: P 00704547!, P 00704548!).

Gnaphalium poeppigianum DC., Prodr. 6: 227. 1838. TYPE: PERU. Dpto. Huánuco, Cuchero, Sep 1829, *E. F. Poeppig* n. 34 diar. 1368 (lectotype designated here: G-DC 00469598!; isolectotypes: F 881500!, F 970435!-fragment, B† photo F0BN015138!, GH 00008361! fragment, GH 00008362!, HAL 112159!, NY 00169513!, P 00704530!, P 00704531!).

Perennial herbs to subshrubs, 0.30–2 m, stem usually solitary (2 or 3), erect, unbranched or branched at the distal part, uniformly leafy, densely whitish-woolly. Leaves 45–90 \times 9–15 mm, lanceolate to elliptic, margins flat, apex acute, base subamplexicaule, not decurrent on stem, strongly discolorous, with adaxial surface glandular-puberulent and abaxial surface densely white-woolly, with long eglandular eseptate, 5–7-cellular trichomes, and few short glandular trichomes hidden under wool. Capitula numerous in clusters arranged in corymbs; involucre broadly campanulate, $5\text{--}6 \times 3\text{--}4$ mm; phyllaries 3–4-seriate, lamina white or white-cream coloured, outer phyllaries $3\text{--}(4) \times 2$ mm, ovate-elliptic, acute to subobtuse, inner phyllaries $4\text{--}5 \times 0.5\text{--}1$ mm, oblong-ovate, acute to apiculate. Pistillate florets 75–85(–100); corollas filiform, ca. 3 mm. Bisexual florets (5–)11–18; corollas tubular, 2.5–4 mm. Achenes ca. 0.8 mm, glabrous, epidermis smooth to slightly papillose; pappus bristles 2.5–3.5 mm, whitish. Figure 5.

Distribution, Habitat, and Phenology—Colombia, Ecuador, Mexico, Peru (Ancash, Cajamarca, Cusco, Huánuco, Junín, La Libertad, Pasco, and San Martín; Gonzáles (2016) also reports Lima; Dillon and Hensold (1993) also report Amazonas, Apurímac, Arequipa, Ayacucho, Huancavelica, Lambayeque, Moquegua, Piura, and Puno), Venezuela, and cited for Guyanas by Boggan et al. (1997). *Pseudognaphalium elegans* has been found in woods at 550 m and between 3000 and 3450 m in the páramo (Fig. 2C). Flowering in May, June, and from October to January.

Relationships—*Pseudognaphalium elegans* is similar to *P. dysodes*, since both have discolorous leaves, with numerous heads aggregated in clusters which form corymbiform cymes. However, *Pseudognaphalium elegans* differs because it has woolly stems, with very discolorous, elliptic to lanceolate, acute leaves (vs. lanuginose stems, with discolorous, linear-oblong and attenuate at apex leaves in *P. dysodes*).

Notes—According to the protologue, *Gnaphalium elegans* was based on the specimen ‘Crescit locis apricis Regni Quitensis prope Chillo et Cachabamba, alt. 1340. Floret Junio.’ We found three sheets at P: P 00322306, P 00704547, P 00704548. The first one, P 00322306, annotated in Kunth’s hand is proposed as the lectotype of *Gnaphalium elegans*. According to the protologue, *Gnaphalium poeppigianum* DC., was based on the specimen ‘in Peruvia legit cl. Poeppig (pl. exs. n. 34 diar. 1368!)’. We have located nine sheets, F 881500, F 970435 (Poeppig 1308 instead of Poeppig 1368, perhaps a mistake of transcription), G-DC G00469598, GH 00008361, GH 00008362,

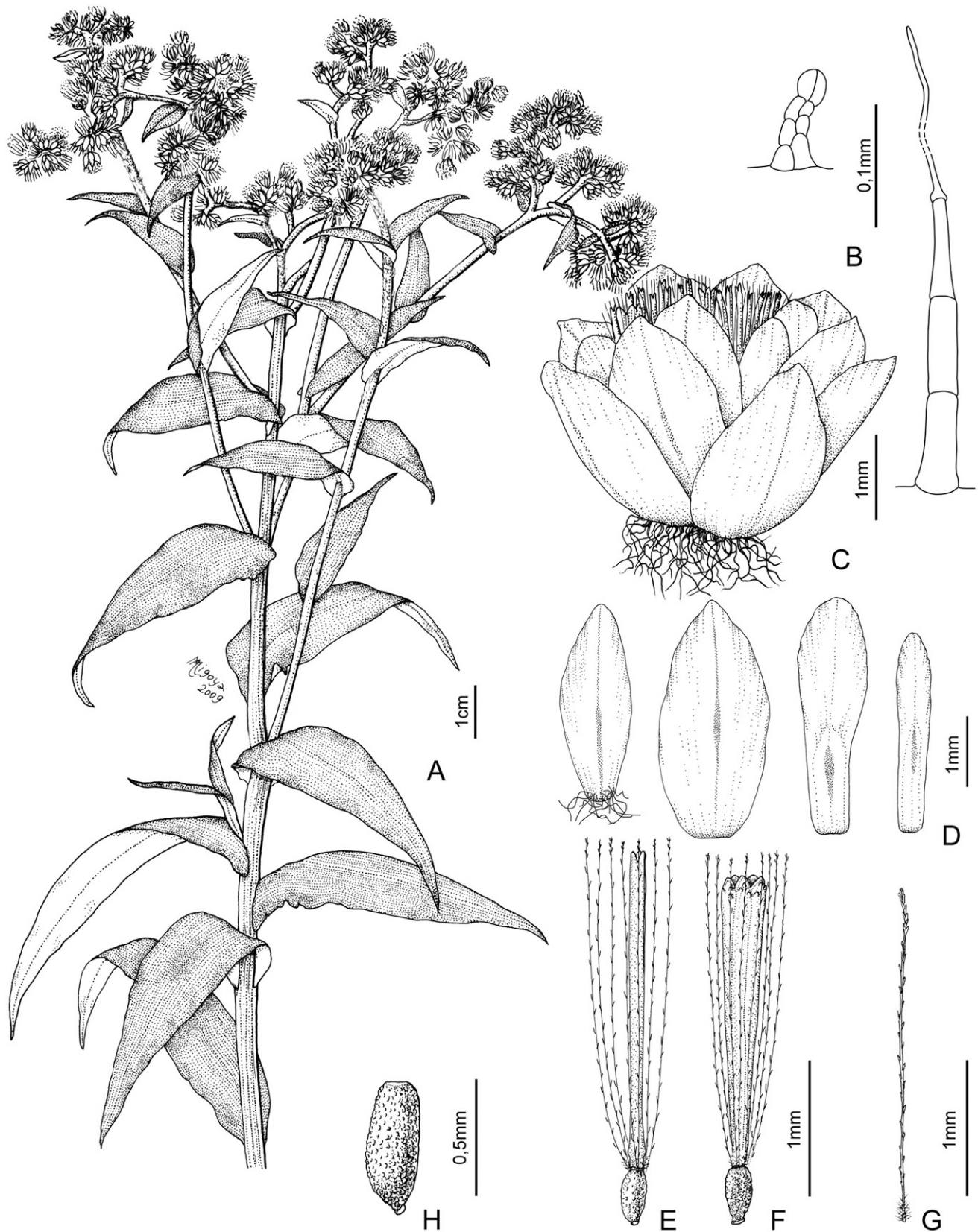


FIG. 3. *Pseudognaphalium dysodes*. A. Apical flowering stem. B. Foliar trichomes. C. Capitulum. D. Phyllaries. E. Pistillate floret. F. Bisexual floret. G. Bristle pappus showing basal portion with patent cilia. H. Achene. (A, C-H reproduced from Freire et al. (2014b); B from Holm-Nielsen et al. 6375).

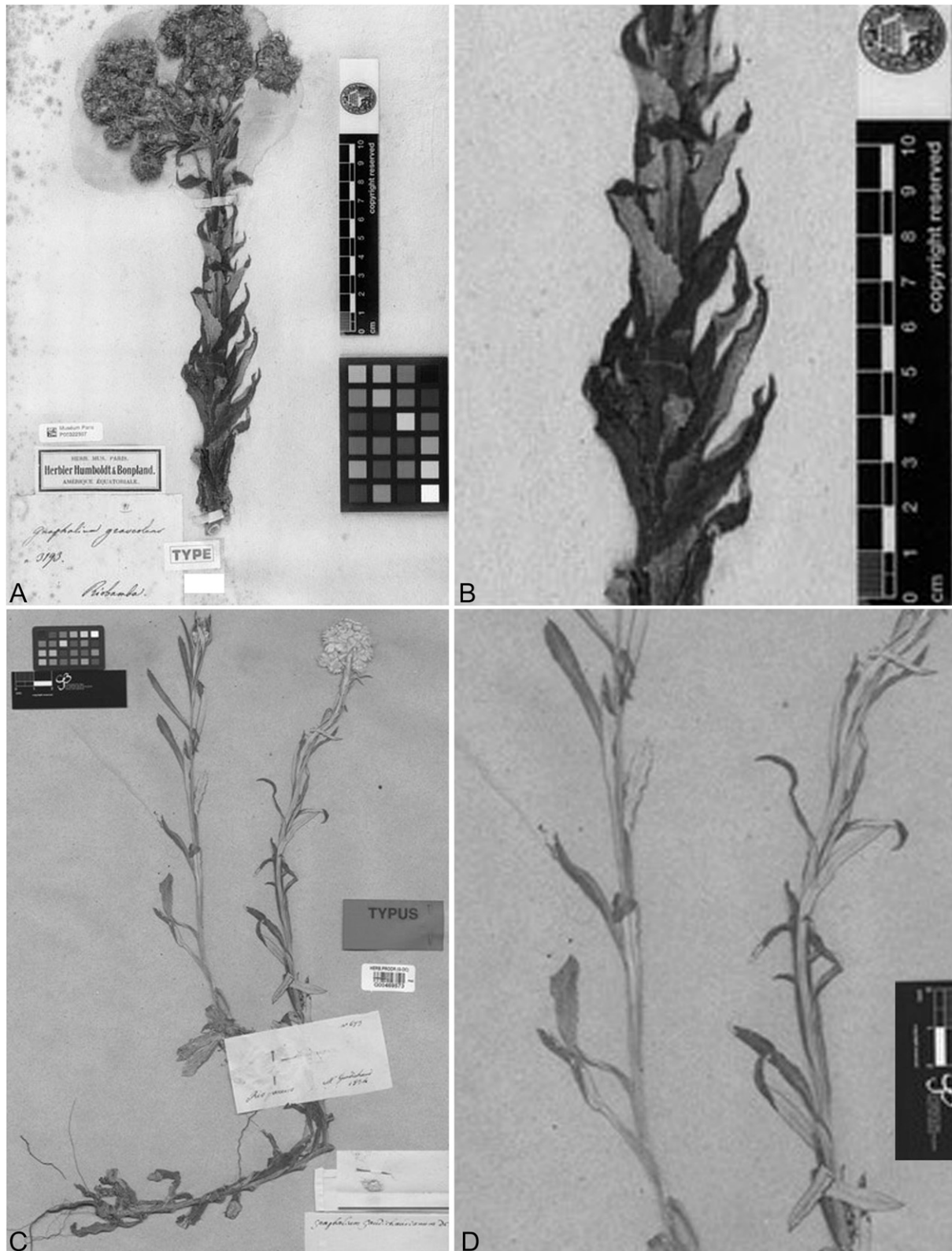


FIG. 4. A–B. Type of *Gnaphalium dysodes* (Humboldt & Bonpland 3193, P 00322307). A. Apical portion of flowering stem. B. Leaves linear-lanceolate, discolorous. C–D. Lectotype of *G. gaudichaudianum* (Gaudichaud 673, G-DC 00469573). C. Habit. D. Leaves linear, discolorous.

HAL 112159, NY 00169513, P 00704530, P 00704531 which are in accordance with the protologue. We propose the material at G-DC (00469598) where the original herbarium of de Candolle is probably kept, as the lectotype of *Gnaphalium poeppigianum*.

Additional Specimens Examined—Peru.—ANCASH: Bolognesi, Chiquián, 3540–3560 m, 14 Apr 1949, *Ferreira 5730 & Cerrate 178* (USM).—CAJAMARCA: Chota, camino a La Emancipación, Chalamarka, 2700 m, 29 Jul 2011, *García Llatas 7821* (USM); San Ignacio, Marisagua (San Ignacio-Nueva Esperanza), 17 Sep 1981, *López et al.* 8996 (HUT, K); Contumazá,

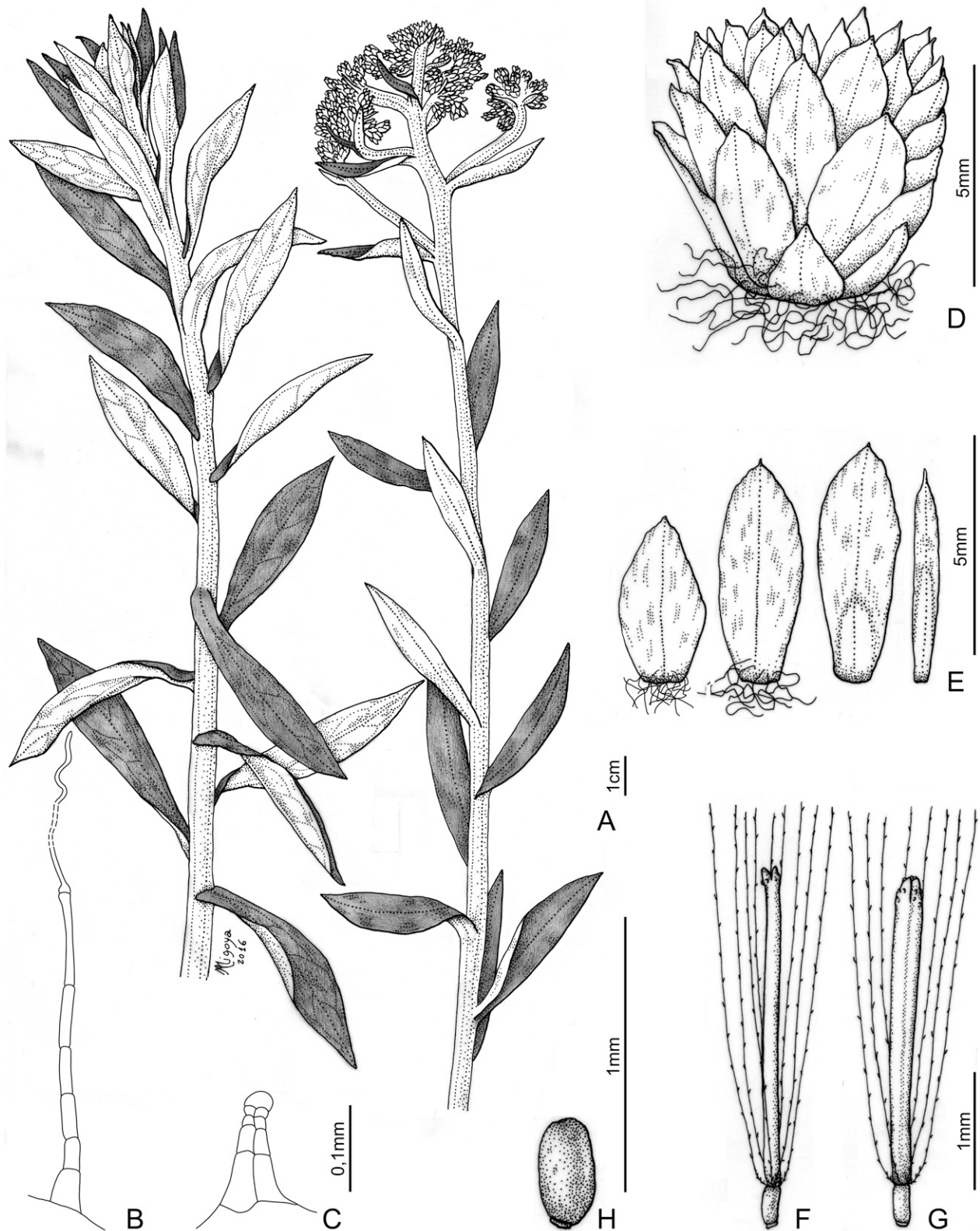


FIG. 5. *Pseudognaphalium elegans*. A. Apical portion of flowering stem. B–C. Foliar trichomes. D. Capitulum. E. Phyllaries. F. Pistillate floret. G. Bisexual floret. H. Achene. (A, D–H from Bequaert 20; B–C from Böcher et al. 93).

Tambo La Lima (Cascas-Contumazá), 1650 m, 24 Jun 1982, López et al. 9031 (HUT, K); Celendín, Sucre - Cantange, 3350 m, 15 Jun 1993, Mostacero et al. 2971 (HUT); San Ignacio, Huarango, Cordillera Huarango, El Romerillo, 05°16'12"S 078°40'28"W, 2300 m, 14 Jul 2005, Rodríguez et al. 2865 (USM); Cajamarca, Asunción-San Juan, 2500 m, 16 Jun 1981, Sagástegui et al. 10153

(HUT); Santa Cruz, Pulan, 2500 m, 31 Jul 2007, Santa Cruz 1999 (USM).—CUSCO: Urubamba, Río Urubamba, 2000 m, 7 Aug 1952, Angulo 1769 (HUT).—HUANUCO: Along hwy. between Huánuco and Tingo María, at Río Tulca vicinity of Km 443.5, 6 Km N of Acomayo, 9°04'S 76°04'W, 2450 m, 3 Apr 1984, Croat 57870, 57886 (USM). Junín: Chanchamayo [Tarma],

Huacapistana, margen izquierda del Río Tarma, 1800–1900 m, 22 Sep 1955, *Ferreya 11306* (USM).—LA LIBERTAD: Otuzco, Casmichem (Samme-Otuzco), 1700 m, *Sagástegui et al. 11516* (HUT, K).—PASCO: Yanachaga, camino a Villa Rica, 20 Jun 1986, *León 927* (USM); Oxapampa, Huanca-bamba, Parque Nacional Yanachaga-Chemillén, Quebrada Diablo Fuerte, 10°18'04"S 75°36'30"W, 2300 m, 31 Nov 2006, *Monteagudo et al. 13018* (USM); Oxapampa, Cordillera Yanachaga, Chacos, ridge south of antenna, 12 Km SE of Oxapampa, 10°39'02" S 075°17'40"W, 2700–2800 m, 1 Jul 2008, *Pruski et al. 4375* (K, USM).—SAN MARTÍN: Mariscal Cáceres, ca. 7°S 77°W, cerca campo La Playa, 2600 m, 30 Jul 1985, *Young 1384* (HUT, USM).

4. PSEUDOGNAPHALIUM GAUDICHAUDIANUM (DC.) Anderb., *Opera Bot.* 104: 147. 1991. *Gnaphalium gaudichaudianum* DC., *Prodr.* 6: 226. 1838. *Gnaphalium cheiranthifolium* Lam. var. *gaudichaudianum* (DC.) Baker, *Fl. Bras.* 6(3): 122. 1882. TYPE: BRAZIL. Rio de Janeiro, without locality, year 1834, C. *Gaudichaud 673* (lectotype designated here: G-DC 00469573!; isolectotypes: GH 00008358!, R not seen).

Gnaphalium peruvianum Spreng., *Syst. Veg.* (ed. 16) 3: 473. 1826, nov. nom. pro *Gnaphalium asperum* Pers., *Syn. Pl.* 2: 420. 1807, hom. illeg., non *G. asperum* Thunb. [= *Anaxetum asperum* (Thunb.) DC.] 1800. TYPE: 'Hab. in Peruvia (Herb. Juss.)' (P 04234062!), syn. nov.

Gnaphalium gaudichaudianum DC. var. *subrufescens* DC., *Prodr.* 6: 226. 1838. *Gnaphalium cheiranthifolium* Lam. var. *subrufescens* (DC.) Baker, *Fl. Bras.* 6(3): 122. 1882. TYPE: BRAZIL. Rio Grande, year 1833, C. *Gaudichaud 983* (lectotype designated here: P 00704551!).

Gnaphalium mendocinum Phil., *Anales Univ. Chile* 36: 184. 1870. *Pseudognaphalium mendocinum* (Phil.) Deble & Marchiori, *Balduinia* 9: 15. 2006. TYPE: [ARGENTINA] Mendoza, 1868/69, R. A. *Philippi s.n.* (lectotype designated by Freire et al. 2014b: SGO 44959!; isolectotypes: CORD 00004576!, GOET 001567!, LP 010291!, NY 00169510! ex W, SGO 64434).

Gnaphalium imbaburense Hieron., *Bot. Jahrb. Syst.* 21(4): 347. 1895. TYPE: ECUADOR. "crescit prope Loma de Canaballa, prov. Imbabura locis aridis formationis Cangahua, alt. s. m. 2,100-2,300 m, ubi floret mense Januario et Februario", A. *Stuebel 149* (B† photo F0BN015102!), syn. nov.

Gnaphalium sodiroi Hieron., *Bot. Jahrb. Syst.* 29(1): 30. 1900. TYPE: ECUADOR. Crescit in frut. interand. prp Quito, A. *Sodiro s.n.* (B† photo F0BN015118!; lectotype designated here: NY 00169519!; probable isolectotype: P 00704540!-[Quito] Monte Panecillo), syn. nov.

Gnaphalium jelskii Hieron., *Bot. Jahrb. Syst.* 36(5): 483. 1905. TYPE: PERU. [Cajamarca] Cutervo, Apr 1878, C. *von Jelski 707* (lectotype designated here: US 00129541!, photo F0BN015104!), syn. nov.

Gnaphalium cabreræ S.E.Freire, *Fl. Fanerog. Argent.* 14, Errata et Corrigenda 4. 1999, nov. nom. pro *Gnaphalium philippii* Cabrera, *Revista Mus. La Plata, Secc. Bot.* 4: 164. 1941, hom. illeg., non *G. philippii* Gandoger, 1918. *Gnaphalium fastigiatum* Phil., *Anales Univ. Chile* 90: 15. 1895, hom. illeg., non Thunb., 1800 [= *Metalasia fastigiata* (Thunb.) D. Don], nec Schrank, 1824 [= *Helichrysum felinum* Less.]. *Gnaphalium cabreræ* S.E.Freire, *Monogr. Syst. Bot. Missouri Bot. Gard.* 74(2): 1245. 1999, nom. inval. *Pseudognaphalium cabreræ* (S.E.Freire) Deble, *Balduinia* 6: 29. 2006, comb. inval. *Pseudognaphalium fastigiatum* N.Bayón, *Bol. Soc. Argent. Bot.* 48 (3–4): 599. 2013, nom. illeg.

Pseudognaphalium cabreræ (S.E.Freire) S.E.Freire, N. Bayón, C. Baeza, Giuliano & C. Monti, *Gayana Bot.* 71(1): 76. 2014a. TYPE: CHILE. Santiago: Quinta Normal, Mar 1878, R. A. *Philippi s.n.* (holotype: SGO 64449!; isotype: LP 001914!), syn. nov.

Pseudognaphalium austrobrasilicum Deble & Marchiori, *Balduinia* 6: 4. 2006. TYPE: BRAZIL. Rio Grande do Sul: São Sepé, BR 392, p. Santa Maria, após o viaduto da BR 290, em campo, na beira da estrada, 2 Oct 2004, L. P. *Deble & A. S. de Oliveira 5000* (holotype: SI 000944!; isotypes: CTES 0013935!, LP 002305!).

Iconography: Freire et al. 2014a, Fig. 6: 77 (as *Pseudognaphalium cabreræ*).

Annual to perennial herbs, 30–80(100) cm, stem usually solitary, erect, unbranched or branched at the distal part, uniformly leafy, lanuginose to whitish-woolly. Stem leaves 30–70 × 1–8 mm, linear, margins flat, slightly revolute, apex long attenuate, acute, base slightly broadened, subamplexicaule, decurrent, basal leaves linear to linear-oblongate, 35–80 × 1–8 mm, discolorous, with adaxial surface glabrous or glandulose-lanuginose and abaxial surface densely white-tomentose, with long eglandular eseptate, 3–4-cellular trichomes, and few short glandular trichomes hidden under wool. Capitula numerous in clusters arranged in corymbs; involucre broadly campanulate, 3–5 × 3–6 mm; phyllaries 3–4-seriate, lamina straw-coloured to brownish, hyaline and shiny, outer phyllaries 3–3.2 × 1.5–1.6 mm, ovate-elliptic, acute to subobtuse, inner phyllaries 3–4 × 0.5–1 mm, oblong to oblong-obovate, acute to obtuse. Pistillate florets 50–88(120, 198); corollas filiform, 2.3–2.5(–3.2) mm. Bisexual florets 4–7(11–14); corollas tubular, 2.2–2.5 mm. Achenes 0.5–0.7 mm, glabrous, epidermis papillose; pappus bristles 2.3–2.8 mm, whitish to brownish. Figure 4C–D.

Vernacular Names—'Bálsamo alemán,' 'caá guazú,' 'marcela,' 'marcelita,' 'vira-vira'i' (Freire 1998; Freire et al. 2006).

Distribution, Habitat, and Phenology—Argentina, Bolivia, southern Brazil, Chile, Colombia, Ecuador, Paraguay, Peru (Amazonas, Ancash, Arequipa, Ayacucho, Cajamarca, Cusco, Huancavelica, Huánuco, Junín, Lambayeque, La Libertad, Lima, Moquegua, Piura, Puno, San Martín, and Tacna), Venezuela, and Uruguay. It was collected in arid steppes, semi-arid shrublands with bunch grasses, shrubby pastures and slopes, desert regions dominated by *Opuntia* Mill., in sylvis subandinis, and forming clumps from stout root in old field. In Argentina, southern Brazil, Paraguay, and Uruguay *Pseudognaphalium gaudichaudianum* is present from sea level to 2000 m, reaching 2500–4700 m in Bolivia, Colombia, Ecuador, and Peru (Fig. 2D). Flowering throughout the year.

Relationships—*Pseudognaphalium gaudichaudianum* is very similar to *P. dysodes*, since both have lanuginose stems, discolorous, linear-oblong leaves which are long-attenuate at the apex, and involucre 4 mm high. *Pseudognaphalium gaudichaudianum* differs because it has leaves 1–8 mm wide (vs. 10–25 mm wide in *P. dysodes*).

Notes—According to the protologue, *Gnaphalium gaudichaudianum* DC. was based on the specimen 'circa Rio de Janeiro legit cl. Gaudichaud.' We found at G-DC the collection *Gaudichaud 673*, G-DC 00469573, which is in accordance with the protologue (although no collection number is mentioned there). Since this specimen is kept at G-DC where the original

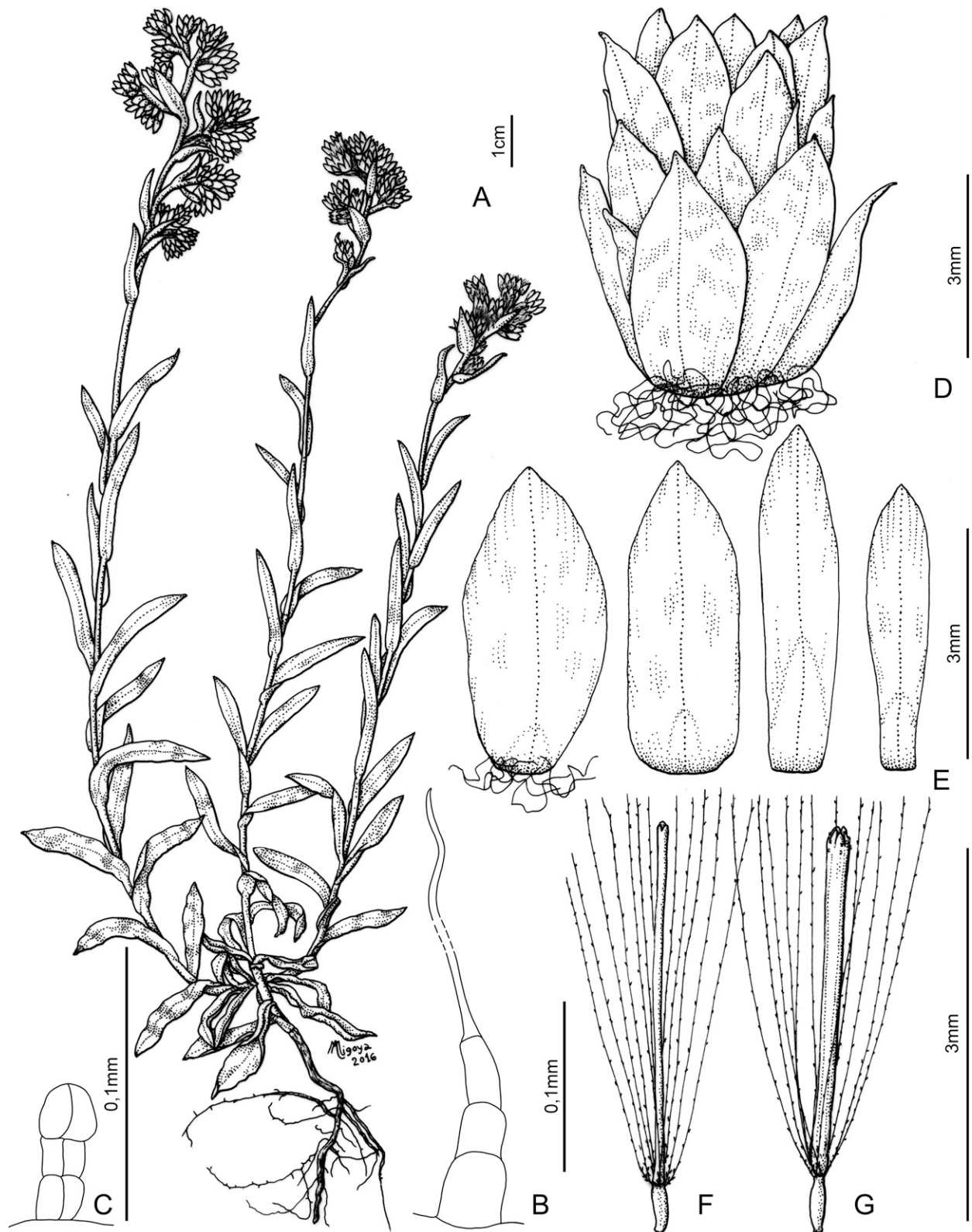


FIG. 6. *Pseudognaphalium lanuginosum*. A. Habit. B–C. Foliar trichomes. D. Capitulum. E. Phyllaries. F. Pistillate floret. G. Bisexual floret (A, D–G from Sodiro 137; B–C. Sodiro 136).

herbarium of de Candolle is kept, it is here selected as the lectotype of *G. gaudichaudianum*. The protologue of *Gnaphalium gaudichaudianum* var. *subrufescens* cited two syntypes: 'in Brasilia prov. Rio-Grande (h. imp. Bras. n. 983 et 985!

[Gaudichaud]) An forte spec. propr. (v.s. in h. Mus. Reg. Par.)' We located at P both collections, *Gaudichaud* 983 and 985 (P 00704551, P 00704550, respectively) which are in accordance with the protologue. Deble and Marchiori (2006) cited the

collection Gaudichaud 983, P 00704551, as holotype of *Gnaphalium gaudichaudianum* var. *subrufescens*. Since following ICN Art. 9.9 (McNeill et al. 2012) Deble and Marchiori's paper can not be considered an effective lectotypification, we hereby

designate the specimen Gaudichaud 983 kept at P (P 00704551) as the lectotype of *Gnaphalium gaudichaudianum* var. *subrufescens*. The protologue of *Gnaphalium sodiroi* cited 'Crescit in altiplanitie prope Quito (S. n. 21/5)'. We located two

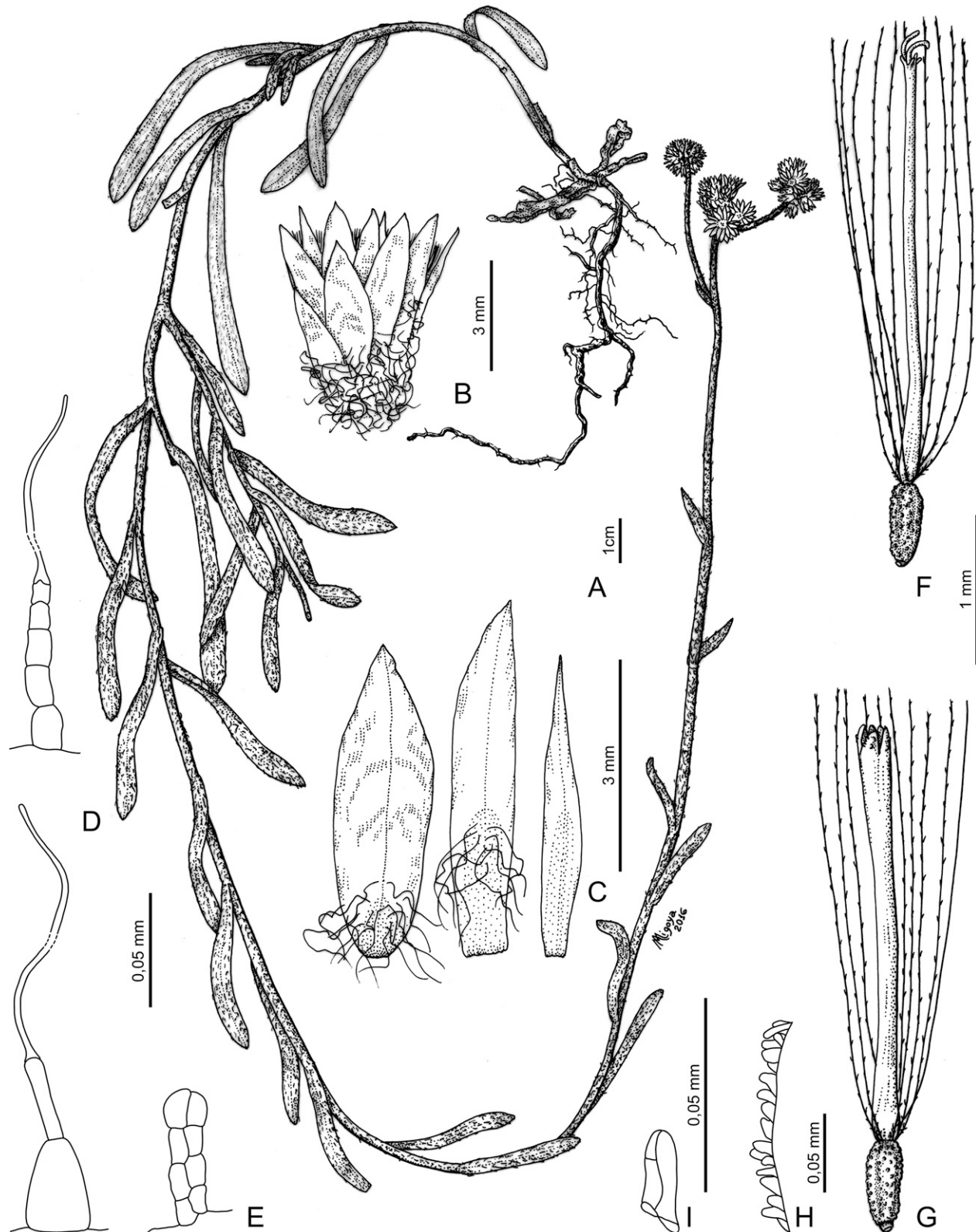


FIG. 7. *Pseudognaphalium luteoalbum*. A. Habit. B. Capitulum. C. Phyllaries. D–E. Foliar trichomes. F. Pistillate floret. G. Bisexual floret. H. Section showing papillate achene epidermis. I. Achene twin hair. (A–H from Rose 18828; I from Rose 19011).

specimens, P 00704540 ('Ecuador, Monte Panecillo') and NY 00169519 ('Crescit in frut. interand. prp Quito'), respectively. The specimen NY 00169519 which is in accordance with locality of the protologue is selected as lectotype of *G. sodiroi*. The protologue of *Gnaphalium jelskii* cited three syntypes: 'Peruvia: crescit prope Cutervo (J. n. 707 et 710, m. Aprili 1878; n. 711, m. Aprili 1879, forma ramosa anomala monstrosa).' We located the collection Jelski 707 at US, US 00129541, which is in accordance with the protologue and is selected as lectotype of *G. jelskii*. *Pseudognaphalium cabreræ*, *Gnaphalium imbaburense*, *G. jelskii*, *G. peruvianum*, and *G. sodiroi* are proposed as new synonyms of *Pseudognaphalium gaudichaudianum* because there is no diagnostic character that differentiates the formers from the latter. All have linear leaves that are discolorous and attenuate at the apex and capitula arranged in corymbs.

Additional Specimens Examined—**Peru**.—**AMAZONAS**: Luya, Hacienda Shafii, Oct 1943, *Cavasco* 13402 (USM).—**ANCASH**: Huaylas, Pamparomas, Pampap, 2900 m, 8 May 1994, *Albán* 8399 (USM); Pamparomas, Ullpan, 2300 m, *Albán* 8441 (USM); Huaylas, Pueblo libre, Cerro Yanaico, 2350–2800 m, 16 May 1999, *Cano et al.* 9010 (USM); Huaylas, Pueblo libre, por la cumbre (divisoria con Yungay) entre Nuna Riqoq y altura de la Hoyada, 3100–3400 m, 17 May 2000, *Cano et al.* 10341 (MO, USM); Huaraz, ca. 35 Km W of Huaraz at the pass over Cordillera Negra, ca. 4150 m, 29 Jan 1983, *Dillon et al.* 3161 (USM); Road from Yungay to Yauya, vicinity of Lagunas Llanganuco, 9°2'S 77°35'W, 3500–3800 m, 10 Jul 1982, *Gentry et al.* 37405 (USM); Huaraz, along Peru highway # 3 ca. 4 Km N of Monterrey, ca. 8400 ft, 10 Jan 1982, *King & Collins* 9021 (K, MO); Yungay, Reusho, 3000 m, 20 Feb 1983, *La Torre* 401 (USM); Bolognesi, debajo de Raquia (Ruta Pativilca-Huaraz), 1900m, 31 Oct 1984, *Sagástegui et al.* 12296 (HUT, NY); Huaylas, 1 Km below Manto Mina, ca. 3 Km from Catac-Chavin road (77°15'W 9°42'S), 4300 m, 4 Jul 1985, *Smith & Buddensiek* 11001 (USM); Huari, Huascarán National Park, 5 Km below Cahuish Tunnel, 09°41'S 77°14'W, 4250–4350 m, 10 Jul 1985, *Smith & Buddensiek* 11104 (MO); Huaylas, Huascarán National Park, Quebrada Santa Cruz, 08°55'S 77°38'W, ca. 4100 m, 16 Jan 1985, *Smith et al.* 9280 (USM); Yungay, Huascarán National Park, Quebrada Ranicuray 77°34'W 8°59'S, 4100–4200 m, 18 Apr 1985, *Smith et al.* 10426 (USM); Huari, 14.8 Km NE of Tunel Cahuish alon road Between Catac and Chavin de Huanter, 3000–4000 m, 31 Dec 1982, *Stevens* 21963 (USM).—**AREQUIPA**: Caravelí, Lomas de Arequipa, 150–200 m, without date, *Dillon* 3790 (USM).—**AYACUCHO**: Lucanas, Reserva Nacional Pampas Galeras, ca. 4100 m, 21 Apr 2012, *Morales et al.* 4065 (USM); La Mar, alrededores de Chiquintirca, Anco, 3120 m, 27 Mar 2005, *Roque* 4529 (USM). **Cajamarca**: Jaén, Sallique, Lanchal Tambillo, 05°40'53"S 79°16'21"W, 1 Jul 1998, *Campos et al.* 5167 (MO); Cajamarca, ca. 27 Km NNW of Cajamarca on road to Hualgayoc, Pampa de Cerro Negro, ± 3600 m, 16 Jun 1983, *Dillon & Molau* 3017 (USM); Cajamarca, dry N-facing slopes, ± 2980 m, 12 Jun 1983, *Dillon et al.* 2901 (USM); Chota, Querocoto, Hacienda la Granja, 1 Dec 2012, *González et al.* 2067 (USM); Cutervo, alrededores de Muñuño, ca. 2500 m, 18 Mar 1978, *Llatas* 98 (HUT); Cutervo, La Pucarilla (Sócota-San Andrés), ca. 2450 m, 14 Nov 1986, *Mostacero et al.* 1637 (HUT); Contumazá, 2600 m, 27 Jul 1973, *Sagástegui* 7726 (HUT); Contumazá, arriba de Lledén, 2500–3000 m, 28 Jun 1983, *Sagástegui et al.* 10834 (HUT); Celendín, Jalca de Kumulca, 3350 m, 17 Aug 1984, *Sagástegui et al.* 12038 (HUT, NY); Cajamarca, La Encañada, El Usnio, a 3 Km al E de la carretera Cajamarca-Celendín, sobre el tramo entre La Encañada y el desvío a Michiquillay, ca. 3120 m, 6 Apr 1982, *Sánchez et al.* 2776 (USM); San Ignacio, San José de Lourdes, Selva Andina, ca. 2000 m, 15 Mar 2001, *Vicuña* 98 (USM).—**CUSCO**: Paucartambo, Acjanaco, Parque Nacional del Manu, 3430–3450 m, 29 Apr 1990, *Cano* 3235 (USM); Paucartambo, Tres Cruces, 3600 m, 5 May 1990, *Cano* 3468 (USM); Paucartambo, Jesús María, 3500–3600 m, 14 Jul 1990, *Cano* 3678 (USM); Paucartambo, Teleban, 3600–3700 m, 16 Jul 1990, *Cano* 3828 (USM); Paucartambo, Cerro Trigo Montón, Parque Nacional Manu, 3550–3650 m, 21 Mar 1992, *Cano & Aguilar* 5192 (USM); Urubamba, Intipata, Santuario Histórico de Machu Picchu, ca. 3250 m, 9 Feb 1990, *Cano & Young* 2791 (USM); Urubamba, Quebrada above Poipoj waterfall, ca. 13°23'S 72°3'W, 3450–3550 m, 14 Jan 1982, *Davis et al.* 1474 (USM); Urubamba, around community of Tauca, ca. 13°25'S 72°0'W, 4050 m, 14 Jan 1982, *Davis et al.* 1575 (USM); Urubamba, camino a Puyupatamarca, ca. 3290 m, Aug 1941, *Dreyfus* 12831 (USM); Urubamba, Chincheros, along brook below Chinchero ruins, Place called Titiqaqa Wayk'o, approx. 13°24'S 72°3'W, 3750 m, 3 Feb 1982, *King et al.* 120 (GH, USM); Quispicanchi, above Quincemil on

the Río Marcapato, ca. 3480 m, 19 Jan 1973, *Madison* 1031 (GH).—**HUANCAVELICA**: Tayacaja, Hacienda Alalay, entre Mariscal Cáceres y Pampa, ca. 3600 m, 9 Apr 1953, *Tovar* 1305 (USM).—**HUANUCO**: Huánuco, Carpish, cumbres entre Huánuco y Tingo María, 2700–2900 m, 3 Oct 195, *Ferreyra* 8154 (USM); Huánuco, Carpish, 2650 m, 19-VII-1980, *Huapalla* 3151 (USM); Huánuco, Callaucas, ca. 3200 m, 8 Nov 1980, *Huapalla* 3907 (USM); Pachitea, Ramos curva, 2850 m, 27 Jul 1980, *Loarte* 3453 (USM); north of Huánuco: along road, summit of Carpish, 16 Jun 1960, *Mathias & Taylor* 4016 (MO); Road from Huánuco to Tingo María, north of Carpish Pass, 48.6 km NE of Huánuco, 2490 m, 6 Dec 1981, *Plotoman & Rury* 11133 (USM); Huánuco, Chinchao, San Pedro de Carpish, arriba del túnel, ca. 2770 m, 19 May 2002, *Salinas* 272 (USM); Lauricocha, subida a la Laguna Tactapata, quebrada, 4000 m, 8 Dec 2003, *Salvador et al.* 636 (USM); Lauricocha, Río Antacallanca, entre laguna Tinquicocha y Chuspi, San Miguel de Cauri, 4250 m, 5 Dec 2004, *Salvador et al.* 895a (USM).—**JUNIN**: Tarma, Chuquishunca, 2 Km arriba de Huacapistana, 2000–2400 m, 24 Jan 1964, *Ferreyra* 458 (USM); Tarma, Huacapistana, 1800 m, 21 Sep 1995, *Ferreyra* 11242 (USM); Huancayo, Torre arriba de Huancayo, ca. 3600 m, 27 Apr 1958, *Tovar* 2785 (USM); Huancayo, without date, *Tovar* 8020 (USM). **Lambayeque**: Chiclayo, Cerro Reque, ca. 540 m, 8 Aug 1978, *Llatas* 313 (HUT); Ñaupe, 200–250 m, Jun 1984, *Torres Arce s.n.* (USM 132774).—**LA LIBERTAD**: Santiago de Chuco, Santuario Nacional Calipuy, y alrededores, 4100–4500 m, 24 May 2010, *González & Navarro* 1284 (USM); Pataz, entre Retamas y La Paccha, 3740 m, 26 May 1961, *López & Sagástegui* 3596 (HUT); Santiago de Chuco, Santuario Nacional Calipuy, 3686–4361 m, 13 Apr 2012, *Morales et al.* 3722 (USM); Otuzco, Cerro Ragash, ca. 3200 m, 23 May 1984, *Sagástegui et al.* 11595 (HUT); Trujillo-Huamachuco road, 10–15 Km before Shorey (78°22'W 7°59'S), ca. 3300 m, 13 Feb 1983, *Smith & Vásquez* 3271 (USM).—**LIMA**: Huarochiri, Chumpicocha, 4600 m, 28 May 1953, *Cerrate* 1999 (USM); Huarochiri, Saraico, cerro encima del Molino Huarochiri, 3650 m, 6 May 1953, *Cerrate* 1695 & *Tovar* 1474 (USM); Chicre, cerro al N de Huarochiri, 3960–4240 m, 10 May 1953, *Cerrate* 1811 & *Tovar* 1589 (USM); Huarochiri, Langa, Kolpayunco, 3670 m, 5 Apr 1968, *Cerrate et al.* 4461 (USM); Langa, Cochahu, 3500, 13 Apr 1968, *Cerrate et al.* 4755 (USM); Canta, Ijadero, 3700 m, Jul 1963, *Meza* 108 (USM); Huaral, Chancay, Nov 1939, *Ridoutt* 12208 (USM).—**MOQUEGUA**: Mariscal Nieto, Torata, ca. 3330 m, 5–12 Sep 1997, *Albán & Malca* 10280 (USM); Ubinas, 3800 m, 16 Feb 2004, *Blanchard et al. s.n.* (USM 187742); General Sánchez Cerro, Ubinas, 3350 m, 21 Jan 2004, *Blanchard et al. s.n.* (USM 187744).—**PIURA**: Huancabamba, Sondor, Huaricanche 1985 m, 21 Jul 1975, *Sagástegui et al.* 8181 (HUT); Mitopampa, 2650 m, 22 Jun 1975, *Sagástegui et al.* 8242 (HUT).—**PUNO**: Araranca, 4100–4300 m, 21 Apr 1925, *Pennell* 13472 (S).—**SAN MARTÍN**: Mariscal Cáceres, rocky river near La Playa camp, ca. 2600, 30 Jul 1985, *Young* 1376 (HUT, USM).—**TACNA**: Tarata, Cordillera del Barroso, 4200–4580 m, 26 Mar 1998, *Cano* 8171 (USM).

5. *PSEUDOGNAPHALIUM LACTEUM* (Meyen & Walp.) Anderb., *Opera Bot.* 104: 147. 1991. *Gnaphalium lacteum* Meyen & Walp., Nov. Actorum Acad. Caes. Leop.-Carol. Nat. Cur. 19 (Suppl. 1): 276. 1843. TYPE: [PERU]. 'Peruvia: in planitie circa Tacoram, alt. 14–17000 ped. (v.s.)' *F. Meyen s.n.* (lectotype designated by Freire et al. 2014a: GH 00008360! fragment ex B, B† photo F0BN015105!).

Gnaphalium badium Wedd., *Chlor. Andina* 1(4–6): 145. 1856. *Pseudognaphalium badium* (Wedd.) Anderb., *Opera Bot.* 104: 147. 1991. TYPE: BOLIVIA. Oruro. Prov. Carangas, sin localidad consignada, *A. D. d'Orbigny* 1366 (lectotype designated by Freire et al. 2014b: P 00704558!; isolectotype: LP 001898! fragment).

Gnaphalium frigidum Wedd., *Chlor. Andina* 1(4–6): 147. 1856. *Pseudognaphalium frigidum* (Wedd.) Anderb., *Opera Bot.* 104: 147. 1991. TYPE: BOLIVIA. Lagunas de Potosí, *A. D. d'Orbigny* 1372 (lectotype designated by Cabrera 1978: P 00704549!).

Gnaphalium argyrolepis Phil., *Anales Mus. Nac.*, Santiago de Chile 8: 46. 1891. TYPE: CHILE. Usmagama, 15 Mar 1885, *C. Rahmer s.n.* (lectotype designated by Freire et al. 2014a: SGO 64432!).

Iconography: Freire et al. 2014a, Fig. 10: 88.

Dwarf perennial herbs, multi-stemmed, stems prostrate, 2–8(–12) cm long, branched, whitish-woolly. Leaves approximate, 10–15(–20) × 2–3(–5) mm, obovate, margins flat, apex rounded, base attenuate, concolorous, densely woolly on both surfaces, with long eglandular, eseptate, 4-cellular trichomes, and few biseriolate glandular trichomes hidden under wool. Capitula few, in clusters arranged in corymbs or panicles; involucre broadly campanulate, 4.5–5 × 5 mm; phyllaries 4-seriate, lamina usually opaque milky-white, rounded, outer phyllaries ca. 4 × 2–2.7 mm, broadly elliptic, inner phyllaries 4–4.6 × 0.7–1 mm, oblong-lanceolate. Pistillate florets 42–59(–126); corollas yellow, filiform, 2.5–3.8 mm long. Bisexual florets 8–20; corollas yellow, tubular, 2.5–3.7 mm long. Achenes 0.4–1 mm long, glabrous, epidermis smooth or slightly papillose; pappus bristles 3–3.2 mm long.

Distribution, Habitat, and Phenology—Argentina, Bolivia, northern Chile, Ecuador, and Peru (Ancash, Arequipa, Ayacucho, Huancavelica, Huánuco, Lima, Puno, Tacna, and according to Dillon and Sagástegui-Alva (1991), also in Junín). *Pseudognaphalium lacteum* prefers sandy and rocky soils in wetlands (*bofedales*) between (2500) 3500 and 4600 m (Fig. 2E). Flowering from September to May.

Relationships—*Pseudognaphalium lacteum* can be differentiated from the rest of species because of its dwarf habit, with prostrate branched stems, and milky-white or white-brownish phyllaries. It seems to be related to *P. aldunateoides* (J. Rémy) C. Monti et al. from Argentina and Chile, since both share small habit and concolorous leaves, although they differ in many other characters (erect plants and short pilose achenes in *P. aldunateoides*, vs. prostrate plants and glabrous achenes in *P. lacteum*).

Additional Specimens Examined—Peru.—ANCASH: Huaylas, Pamparomas, Carhuacocha, ca. 4350 m, 16 May 1992, *Albán 6711* (USM); Pueblo Libre, 4000–4200 m, 16 May 2000, *Cano et al. 10166* (USM); Bolognesi, Huancar, Chiquián, ca. 3840 m, 15 Jun 1949, *Cerrate 219* (USM); Bolognesi, Punta de Cushish, entre Chiquián y la Pampa de Lampas, ca. 4300 m, 2 May 1956, *Cerrate 2698* (USM); Bolognesi, ca. Acas, ca. 3700 m, 13 Jun 1979, *Cerrate & Albán 7350* (USM); Santa, Jalca de Lampanín (Jimbe), ca. 3500 m, 2 May 1987, *Mostacero et al. 1865* (HUT).—AREQUIPA: Arequipa, southern slopes of Chachani Mountain north of Arequipa, on high pampa, ca. 3600 m, Mar 1920, *Mr. & Mrs. Hinkley 3* (GH); Arequipa, Pócsi, ca. 3500 m, 4 May 2001, *Ihne Umire 5* (USM); Arequipa, Pampa Culanayoc-Pócsi, 16°31'16"S 71°24'16"W, ca. 3040 m, 10 Mar 2012, *Montesinos 3487* (USM); Arequipa, ca. 30 Km E of Arequipa on Puno road, 11 Apr 1973, *Richardson 2121* (NY).—AYACUCHO: Lucanas, carretera a Putajasa, 14°08'15"9"S, 74°11'18"4"W, 3800–3900 m, 24 Feb 2002, *Cano et al. 11928* (USM); Lucanas, Pampa Galeras, ca. 4100 m, 6 Apr 1970, *Tovar 6685* (USM); Lucanas, Pampa Galeras, 4100 m, 7 Apr 1979, *Tovar 6724* (USM).—HUANCAVELICA: Huancavelica, Occopampa, entre Laria y Tambopata a 25 Km de Conaica, 3900–4000 m, 26 Mar 1952, *Tovar 846* (USM); Castrovirreina, Choclococha, ca. 4700 m, 3 May 1958, *Tovar 2868* (USM).—HUANUCO: Dos de Mayo, Valle de Huallanca, ca. 4400 m, 23 Mar 1983, *Tovar et al. 9910* (USM).—LIMA: Huarochiri, Piño, cerro al N de Huarochiri, ca. 4240 m, 10 May 1953, *Cerrate 1801 & Tovar 1579* (USM); Huarochiri, Wankalasila, Mariatana, ca. 3800 m, 4 Apr 1968, *Cerrate et al. 4433* (USM); Canta, Ijadero, ca. 3600 m, 27 Aug 1963, *Meza 211* (USM); Canta, Lachaqui, humedales de Quinán Laguna, ca. 4200 m, 18 May 2002, *Vilcapoma 5815* (USM).—PUNO: Huancané, Conima, Cerro Calvario, ca. 3900 m, 6 Mar 1948, *Aguilar 443* (USM).—TACNA: Tarata, Cordillera del Barroso, 3800–4100 m, 26 Mar 1998, *La Torre 2084* (USM); Tacna, Palca, Comunidad de Vilavilani, 80°28'61"N 41°35'92"E, ca. 4145 m, 13 Apr 2004, *Salinas & Frisancho 870* (USM).

6. PSEUDOGNAPHALIUM LANUGINOSUM (Kunth) Anderb., *Opera Bot.* 104: 147. 1991. *Gnaphalium lanuginosum* Kunth, *Nov. Gen. Sp. Pl.* (Humb., Bonpl. & Kunth) (folio ed.) 4: 65. 1818. TYPE: PERU. [Dpto. Piura]. Prov. Ayavaca, A. J. A. *Bonpland & F. W. H. A. Humboldt s.n.* (P 00322312!).

Gnaphalium helichrysoides Wedd., *Chlor. Andina* 1(4–6): 146. 1856. TYPE: PERU. Dpto. Cusco, C. *Gay s.n.* (lectotype designated here: P 00704554!; isolectotype: P 00704555!), *syn. nov.*

Gnaphalium melanosphaeroides Wedd., *Chlor. Andina* 1(4–6): 148. 1856. *Pseudognaphalium melanosphaeroides* (Wedd.) Anderb., *Opera Bot.* 104: 147. 1991. TYPE: PERU. [Carabaya] Macusani in rupibus, Jun 1854, W. *Lechler 1838* (lectotype designated by Freire et al. 2014b: P 00704528!; isolectotypes: K 000500338!, LP 001931! ex P), *syn. nov.*

Perennial herbs, 19–20 cm tall, multi-stemmed, stems erect or ascending, unbrached, more rarely branched at the distal part, whitish-lanuginose. Stem leaves 20–25 × 2–5 mm, linear or linear-oblong, margins flat, apex acute, base clasping and shortly decurrent, basal leaves commonly approximate, linear-obovate, apex obtuse; concolorous, whitish-lanuginose on both surfaces, with long eglandular, eseptate, 4-cellular, and few short biseriolate glandular trichomes hidden under wool. Capitula numerous in dense terminal clusters, sometimes arranged in corymbs; involucre campanulate, 5–6 × 3–5 mm; phyllaries 3–4-seriate, lamina yellowish or light brown to whitish, hyaline and shiny, outer phyllaries ca. 4 × 2 mm, ovate-elliptic, apex acute, inner phyllaries 3.5 × 0.7 mm, linear-lanceolate, apex subobtusate. Pistillate florets (30–)60–65(–79); corollas yellow, filiform, ca. 2.7 mm long. Bisexual florets (6–)9–30; corollas yellow, tubular, ca. 2.7 mm long. Achenes 0.8 mm long, glabrous, epidermis smooth; pappus bristles ca. 3 mm long. Figure 6.

Distribution, Habitat, and Phenology—*Pseudognaphalium lanuginosum* ranges in the northwestern Argentina, Bolivia, Colombia, Ecuador, Peru (Ancash, Arequipa, Ayacucho, Cajamarca, Cusco, Junín, and La Libertad), and Venezuela. It was found in woods of *Polylepis* Ruiz & Pav., between 2650 and 3800 m, and in the páramo at 3500 m (Fig. 2F). Flowering from February to November.

Relationships—The habit of *Pseudognaphalium lanuginosum* is very similar to *P. meridanum* from the Páramos of Colombia and Venezuela. Both species present multistemmed plants, each stem with simple, concolorous and lanuginose leaves, capitula in clusters which are gathered in corymbiform cymes, and involucre 4–7 mm high. *Pseudognaphalium lanuginosum* differs because it has brown, dark brown, or whitish phyllaries (vs. pink or reddish-brown in *P. meridanum*).

Notes—Weddell mentioned two syntypes in the protologue of *Gnaphalium helichrysoides*: 'Hab. Pérou: Cordillères du département de Cuzco! (Gay)' and 'Bolivie: province de Carangas! (d'Orbigny n. 1377)'. Both syntypes were located: *Gay s.n.* in P (P 00704554, P 00704555) and *d'Orbigny n. 1377* also in P (P 00704556). There is a better correspondence between the specimen *Gay s.n.* and the protologue, (inner phyllaries with white blades). Of the two sheets, P 00704554 is selected as the lectotype of *Gnaphalium helichrysoides* because it has three plants (instead of two in the sheet P 00704555). After studying the images of the type material and the protologues, it is considered that *Gnaphalium helichrysoides* is a synonym of *Pseudognaphalium lanuginosum*. Both species have subcaespitose plants, laxly lanuginose, with linear-oblong caulinar leaves and capitula in terminal clusters. *Pseudognaphalium melanosphaeroides* is here proposed as a synonym of *P. lanuginosum*, as there are no characters to differentiate them. Both species are plants with numerous erect or ascending stems, linear laxly tomentose leaves, and capitula in dense terminal

clusters. *Pseudognaphalium melanosphaeroides* (Freire et al. 2014b) was referred as a synonym of *P. viravira*. However, the former has laxly tomentose plants and the latter densely whitish-woolly ones.

Additional Specimens Examined—Peru.—ANCASH: Huaylas, Pueblo Libre, altura de Huasta Cruz y Punta 'Chancay', 4000–4200 m, 16 May 2000, *Cano et al.* 10172 (USM); Huari, Yanacancha, Km 112, carretera al campamento minero Antamina 09°36'44.8"S 77°01'33", 0"W, 4500–4600 m, 12 May 2003, *Cano et al.* 13175 (USM); Bolognesi, Huasta, Pie de Yacutincock, 3700–3800 m, 22 May 1962, *Cerrate* 3917 (USM); Bolognesi, Pacacuna, valle de Chilcas, ca. 3600 m, 28 Apr 1978, *Cerrate* 7094 (USM); Bolognesi, falda del cerro Rauracoto Acas, ca. 3750 m, 14 Jun 1979, *Cerrate* & *Fernández* 7487 (USM); Huaraz, National Park, Quebrada Shallap, 09°30'S 77°24'W, 3700–4000 m, 22 May 1985, *Valencia & González* 10741 (USM).—AREQUIPA: Caravelí, Lomas de Atiquipa, 16 Nov 1983, *Carrillo & Chanco* 1207 (USM).—AYACUCHO: Huanca-Sancos, Sacsamarca al Sur-Este de Huanca Sancos, 13°57'51.2"S 74°18'45.1" W, 3500–3600 m, 25 Feb 2002, *Cano et al.* 12050 (USM).—CAJAMARCA: Cajamarca, carretera a Celendín Km 20, ca. 3400 m, 12 Jan 1979, *Müller & Gutte* 9117 (USM).—CUSCO: La Convención, Santa Teresa, grazed slopes in the central Phacchaq valley on East side of the river Yanama, 13°15'43.7"S 72°50'18", 6"W, ca. 4236 m, 3 May 2012, *Sylvester* 1536 (USM); La Convención, Santa Teresa, grazed slopes at the topmost Eastern portion of the Phacchaq valley, 8 Km North of Yanama, 03°15'26.6"S 72°50'20.5"W, ca. 4326 m, 2 Jun 2013, *Sylvester* 2179 (USM).—JUNÍN: Jauja, entre Jauja y Matahuasi, 3200–3300 m, 29 Jan 1950, *Ferreira* 12901 (USM); Junín, Ondores, 4150 m, 19 Feb 1976, *Pettersson* 129 (USM).—LA LIBERTAD: Santiago de Chuco, Quiruvilca (Campamento minero Cayacuyán), 3700–4000 m, 27 Jun 2003, *Cano et al.* 12944 (USM); Santiago de Chuco, alrededores de Laguna El Toro, Jalca de Quiruvilca, ca. 4100 m, 5 Aug 1959, *Sagástegui & Bernal* 3018 (HUT). Without locality and department: 'Peru', 1838–42, Herbarium of the U.S. South Pacific Exploring Expedition under the command of *Capt. Wilkes s.n.* (GH 00282509, GH 00282510).

7. PSEUDOGNAPHALIUM LUTEALBUM (L.) Hilliard & B.L. Burt, Bot. J. Linn. Soc. 82: 206. 1981. *Gnaphalium lutealbum* L., Sp. Pl. 2: 851. 1753. *Helichrysum lutealbum* (L.) Rchb., Handb. Gewächsk., ed. 2, 2(2): 1460. 1829. *Filaginella lutealba* (L.) Opiz, Seznam: 44. 1852. *Gnaphalium lutealbum* L. var. *incanum* A. Rich. ex Endl., Prodr. Fl. Norfolkicae: 50. 1833, nom. illeg. pro *Gnaphalium lutealbum* L. *Dasyanthus conglobatus* Bubani, Fl. Pyren. (Bubani) 2: 199. 1899, nom. illeg. pro *Gnaphalium lutealbum* L. *Laphangium lutealbum* (L.) Tzvelev, Byull. Moskovsk. Obshch. Isp. Prir., Otd. Biol. 98(6): 105. 1994 [1993 publ. 1994]. TYPE: EUROPA. 'Habitat in Helvetia, G. Narbonensi, Hispania, Lusitania' (lectotype A. van Royen 900.286–294: L, designated by Hilliard and Burt 1981).

Gnaphalium trifidum Thunb., Prodr. Pl. Cap. 2: 150. 1800. TYPE: SOUTH AFRICA. Cape of Good Hope, *Thunberg s.n.* (UPS 19278!).

Gnaphalium multiceps Wall. ex DC., Prodr. 6: 222. 1838. *Gnaphalium lutealbum* L. var. *multiceps* (Wall. ex DC.) Hook.f., Fl. Brit. India 3: 288. 1881. TYPE: INDIA. Nepal, Mar 1821, N. Wallich 2949–59A, (lectotype designated here: K 001118249!; isolectotypes: BM 000521869!, probable E 00531206!).

Gnaphalium luteofuscum Webb, Niger Fl. [W. J. Hooker]: 143. 1849. SYNTYPES: 'Hab. In petrosis supra medium Montis Verede ins. S. Vincentii (Vogel, n. 38. 55. 56. Junio, 1841, sp. florida et fructifera.)' (Vogel 55, 56, K).

Gnaphalium lutealbum L. var. *pallidum* Hook.f., Fl. Brit. India 3: 288. 1881. TYPE: INDIA. 'G. pallidum, Ham. in Wall. Cat. 2953.' (lectotype designated here: K 001118256!; isolectotypes: K 001118255!, K 001118257!).

Gnaphalium lutealbum L. var. *compactum* Kirk, Stud. Fl. New Zealand: 298. 1899. TYPE: [NEW ZEALAND:] 'Lake Lyndon, Enys and Kirk.'

Annual herbs, 15–40(–70) cm tall, multi-stemmed, stems erect to ascending, unbranched, or branched at the distal part, whitish-lanuginose. Stem leaves 10–80 × 2–10 mm, linear or linear-oblong, margins flat, slightly revolute, apex obtuse, base clasping and shortly decurrent, basal leaves commonly approximate, linear-obovate, apex obtuse; concolorous, whitish-lanuginose on both surfaces or adaxial surface arachnoid, with long eglandular, eseptate, 4-cellular, and few short biseriolate glandular trichomes hidden under wool. Capitula numerous in dense terminal clusters, usually arranged in lax corymbs; involucre campanulate, ca. 3 × 2.5–4 mm; phyllaries 3–4-seriate, lamina yellowish or light brown to whitish, hyaline and shiny, outer phyllaries ca. 3 × 1.5 mm, ovate-elliptic, apex obtuse, inner phyllaries 3–3.2 × 0.6–0.9 mm, linear-lanceolate, apex rounded. Pistillate florets 135–180; corollas white-yellowish, purplish at apex, filiform, ca. 2.7 mm long. Bisexual florets 5–15; corollas white-yellowish, purplish at apex, tubular, ca. 2.5 mm long. Achenes 0.5–0.6 mm long, shortly pilose; pappus bristles 2.5–2.6 mm long. Figure 7.

Distribution, Habitat, and Phenology—The Eurasian species *Pseudognaphalium lutealbum* has a cosmopolitan distribution, being adventive in Peru (Arequipa) and Ecuador (Fig. 2G). Flowering from March to August.

Relationships—*Pseudognaphalium lutealbum* differs from its congeners by its annual habit, small capitula, and achenes with twin hairs.

Notes—The synonymy provided here for *Pseudognaphalium lutealbum* is not complete since we only mention the main synonyms of this widespread weed species. According to the protologue, *Gnaphalium lutealbum* L. var. *pallidum* Hook.f., was based on the specimen 'Wall. Cat. 2953.' We have located three sheets from herb. Hookerianum at K: Arval, 13 Febr 1812 (K 001118255–2953 B); Doab, 1825 (K 001118256–2953 C); Simore, Capt. Webb (K 001118257–2953 D), and one probably duplicate from the Wallich Herbarium at B, B-W 15407–01 0 (without the number 2953), which are in accordance with the protologue. We selected the collection 'K 001118256', which presents the most complete plant, as lectotype of *Gnaphalium lutealbum* var. *pallidum*. The protologue of *Gnaphalium multiceps* mentions two syntypes '(Wall. cat. n. 8949. comp. 59) ... in Indiae orient. prov. Nepaleae et Silhet. Gn. affine Don prodr. fl. nep. 173? excl. syn. ... (v. s. comm. ab hon. Cur. merc. Angl. Ind. or.)'. We found these two collections kept at BM [Nepal, 1821, 000521869], [000945883 – as 2949], [C 'var. minor', 000945884]; E [00531206 – as 2949/59], [00531207 – as 2949/59C]; G-DC, [Nepal, 1830, 00469627 – as 59A], [Silhet, 1830, 00469615 – as 59B], [Silhet, 1830, 'var. minor', 00469601 – as 59C]; K [Nepal 1821, 001118249 – as 2949/59A], [Silhet, 001118250 – as 2949/59B], [Silhet, 001118251 – as 2949/59C]. We propose as lectotype of *Gnaphalium multiceps*, the material at K 001118249 – as 2949/59A where the original herbarium of Wallich is kept, and which presents the most complete plant. The original diagnosis reads '8949' instead '2949' (specimens at BM, E, K). It is probable that this was a printing error.

Additional Specimens Examined—Peru.—AREQUIPA: Prov. Arequipa, vicinity of Arequipa, 28 Aug 1914, Mr. & Mrs. Rose 18828, 19011 (NY).

8. PSEUDOGNAPHALIUM PSILOPHYLLUM (Meyen & Walpers) Anderb., Opera Bot. 104: 147. 1991. *Gnaphalium psilophyllum* Meyen & Walpers, Nova Actorum. Acad. Caes. Leop.-Carol. Nat. Cur. 19 (Suppl. 1): 275. 1843. TYPE: CHILE. Valparaíso: Prov. Marga-Marga, Limache, 9 Nov 1927,

900 m, *A. Garaventa 1151* (neotype: CONC 89685!, designated by Freire et al. 2014a).

Gnaphalium glandulosum Klatt, *Linnaea* 42(2): 129. 1878. *Pseudognaphalium glandulosum* (Klatt) Anderb., *Opera Bot.* 104: 147. 1991. TYPE: CHILE. Parinacota: Tacora, *F. J. F. Meyen s.n.* (lectotype designated by Freire et al. 2014a: GH 00008359! fragment ex Herb. Klatt, Bt photo FOBN15099!).

Iconography: Freire et al. 2014a, Fig. 13: 93.

Perennial herbs, (5–)10–85 cm tall, multistemmed, rarely solitary, erect or ascending, usually branched at the distal part, arachnoid-glandular. Caulinar leaves (7–)10–65 × 1–6 mm, stem leaves linear, margins flat and usually revolute, apex long-attenuate, acute, base not broad, shortly decurrent; basal leaves 85–90 × 4–8 mm, linear-obovate; concolorous, glandular on both surfaces, sometimes arachnoid on the abaxial surface, with long (short) biseriate glandular trichomes and few long eglandular, eseptate 3–6-cellular trichomes. Capitula numerous in clusters arranged in corymbs or panicles. Involucre broadly campanulate, 3–5 × 3–5 mm. Phyllaries 3–4-seriate, lamina straw-yellow to brown, hyaline and shiny, apex semiobtusate; outer phyllaries 4.5–5 × 1.8–2.6 mm, ovate, apex subobtusate; inner phyllaries 3.7–4.5 × 0.6–1.7 mm, oblong-obovate, apex acute to subobtusate. Pistillate florets (46–)82–143, corolla yellow, filiform, 2.5–3 mm long. Bisexual florets 5–14, corolla yellow, tubular, 3–3.2 mm long. Achenes 0.5–1 mm long, glabrous, epidermis smooth to papillose. Pappus bristles 2.5–3.4 mm long.

Distribution, Habitat, and Phenology—*Pseudognaphalium psilophyllum* was known from Argentina, Bolivia, and Chile (Cabrera 1978; Dillon and Sagástegui-Alva 1991; Freire et al. 2014a, b) and now after study of additional material at USM, this species is reported from Peru (Ancash, Junín, La Libertad, Lima, Moquegua, Puno, and Tacna). It was found between 800 and 4600 m (Fig. 2H). Flowering from October to May.

Relationships—*Pseudognaphalium psilophyllum* is similar to *P. munoziae* N. Bayón et al. which is endemic to northern Chile. Both taxa have glandular or arachnoid-glandular plants, with linear concolorous leaves, and involucre 4–6 mm tall. *Pseudognaphalium psilophyllum* is distinguished by its similar basal and distal leaves (vs. conspicuously rosulate basal leaves and shorter distal leaves in *P. munoziae*), capitula being arranged in corymbs or corymbose-paniculate (vs. in narrow panicles in *P. munoziae*) and usually brown (vs. milky-white in *P. munoziae*) inner phyllaries.

Additional Specimens Examined—PERU.—ANCASH: Huaylas, Pune, ca. 3200 m, 27 Nov 1991, *Albán 6577* (USM); Corongo, Tarica, Cusca, 2400–2600 m, 23 May 2000, *Cano et al. 10643* (USM); Bolognesi, Cerro Rauracoto al E de Acas, ca. 3700 m, 13 Jun 1979, *Cerrate 7356* (USM); Yungay, Huascarán National Park, Llanganuco sector, María Josefa Trail, 09°05'S 77°41'W, 3580–3850 m, 29, 30 Dec 1984, *Smith & Goodwin 8842* (MO, USM).—JUNÍN: Huancayo, Cerros al E de Huancayo, 3500–3700 m, 20 Apr 1961, *Tovar 3250* (USM); Yauli, Pochacayo huari, ca. 3600 m, 24 May 1979, *Tovar et al. 7836* (USM).—LA LIBERTAD: Santiago de Chuco, Quiruvilca, El Saucó, ca. 3605 m, 16 Mar 2013, *González et al. 2295* (USM).—LIMA: Huarochiri, Huachupampa, ca. 3400 m, 28 Aug, without year, *Albán & Yarupaitán 8100* (USM); Yauyos, Laras, Palca, ca. 4200 m, 4 Nov 1992, *Beltrán 420* (USM); Canta, Llullún (12 Km arriba de Canta), ca. 4100 m, 9, 27 Aug 1963, *Meza 210* (USM); Canta, Mishquipuquio-Canta, 10 Aug 1949, *Sánchez 45* (USM); Huarochiri, San Juan de Iris, ca. 3700 m, 18 Aug 1993, *Yarupaitán & Albán 1060* (USM).—MOQUEGUA: Moquegua, Cocotea, ca. 3420 m, 5 Sep 1977, *Albán & Malca 10094* (USM); General Sánchez Cerro, Ubinas, Tassa, ca. 4150 m, 14 Jul 2006, *Montesinos 1172* (USM).—PUNO: Puno, Amantani, ca. 3900 m, 16 Mar 1948, *Aguilar 438* (USM); Azángaro, Isla Arapa, 23 Feb 1948, *Aguilar s.n.* (USM 35364).—TACNA: Tarata, Poma, carretera Tarata-Puno, 3400–3800 m, 25 Mar 1998, *Cano 8072* (USM); Tarata,

Cordillera del Barroso, 4000–4430 m, 29 Mar 1998, *Cano 8252* (USM); Tarata, ca. 4050 m, 2 Apr 1998, *Cano 8367* (USM); Tarata, camino a Caro, margen derecha de río Chacavira, 3070–3480 m, 5 Dec 1997, *La Torre 1852, 1885* (USM); Candarave, Volcán Yucamaní, 3100–3400 m, 9 Dec 1997, *La Torre 1949* (USM); Tarata, Cerros al SE de la cordillera del Barroso, 4000–4270 m, 28 Mar 1998, *La Torre 2183* (USM); Tacna, Palca, Comunidad de Vilavilani, ca. 4145 m, 13 Apr 2004, *Salinas & Frisancho 878* (USM); Tacna, Quebrada del río Ushusuma, ca. 3675 m, 15 Apr 2004, *Salinas & Frisancho 902* (USM).

9. *PSEUDOGNAPHALIUM VIRAVIRA* (Molina) Anderb., *Opera Bot.* 104: 148. 1991. *Gnaphalium viravira* Molina, *Sag. Stor. Nat. Chili*: 149, 354. 1782. TYPE: CHILE. Valparaíso 'La Vinna de la mar', Sep 1830, *C. L. G. Bertero 1823* (lectotype designated by Freire et al. 2014a: CONC!; isolectotype: NY 00169526!, G-DC 00469576!).

Gnaphalium montevidense Spreng., *Syst. Veg.* 3: 475. 1823. *Pseudognaphalium montevidense* (Spreng.) Anderb., *Opera Bot.* 104: 147. 1991. TYPE: URUGUAY. Montevideo, *Sello s.n.*, Herb. Sprengel 785 (holotype: P 00704564!; isotype: LP 001932!, fragment ex P).

Gnaphalium polium Wedd., *Chlor. Andina* 1: 147. 1856. TYPE: PERU. Cusco: Oct 1839–Feb 1840, *C. Gay 1709* (P 00704532!), syn. nov.

Gnaphalium coquimbense Phil., *Linnaea* 29: 5. 1858. *Pseudognaphalium coquimbense* (Phil.) Anderb., *Opera Bot.* 104: 147. 1991. TYPE: CHILE. Coquimbo: La Serena, Sep 1837, *C. Gay 678* (SGO 64422!).

Gnaphalium pratense Phil., *Linnaea* 33: 166. 1864. *Pseudognaphalium pratense* (Phil.) Anderb., *Opera Bot.* 104: 147. 1991. TYPE: CHILE. Valdivia: Ranco, Jan 1860, *R. A. Philippi s.n.* (lectotype designated by Cabrera 1971: SGO 71286!).

Gnaphalium illapelinum Phil., *Linnaea* 33(2): 164. 1864. *Pseudognaphalium illapelinum* (Phil.) Anderb., *Opera Bot.* 104: 147. 1991. TYPE: CHILE. Coquimbo: Illapel, Dec 1862, *L. Landbeck s.n.* (lectotype designated by Freire et al. 2014a: SGO 64423!; isolectotypes: LP 001923!, SGO 44966!).

Gnaphalium andicola Phil., *Anales Univ. Chile* 90: 17. 1895. *Pseudognaphalium andicola* (Phil.) C. Monti, N. Bayón & S. E. Freire, *J. Bot. Res. Inst. Texas* 7(1): 196. 2013. TYPE: CHILE. Santiago: Las Condes, *L. Navarro s.n.* (lectotype designated by Monti et al. 2013: SGO 64481!).

Gnaphalium longifolium Phil., *Anales Univ. Chile* 90: 13. 1895. TYPE: CHILE. Valdivia: San Juan, Feb 1882, *Philippi s.n.* (holotype: SGO 64446!; isotype: LP 001930!).

Gnaphalium subnudum Phil., *Anales Univ. Chile* 90: 15. 1895. TYPE: CHILE. 'Habitat in andibus sed quo loco?' without coll. *s.n.* (lectotype designated by Freire et al. 2014a: SGO 64429!).

Gnaphalium versatile Rusby, *Mem. Torrey Bot. Club* 6(1): 62. 1896. TYPE: [BOLIVIA] Bolivian Plateau, 1891, *M. Bang 1035* (lectotype designated by Freire et al. 2014b: NY 00169524!; isolectotypes: E 00433302!, GH 00008365!, K 000500335!, NY 00169523!, US 00129564!).

Iconography: Freire et al. 2014a, Fig. 16: 99.

Perennial herbs, 5–40(–60) cm tall, multi-stemmed, stems erect or ascending, unbranched, more rarely branched at the distal part, whitish-woolly. Stem leaves (5–)13–50(–60) × 1–5(–10) mm, linear or linear-ovate to linear-oblong, margins flat or occasionally undulate, apex acute to attenuate, base

clasping and short-decurrent; basal leaves commonly approximate, 23–50 × 3–6(–10) mm, linear-obovate, apex obtuse, base long-attenuate; concolorous, densely whitish-woolly on both surfaces, with long esepate, eglandular, 3–6-cellular and very few short biseriate glandular trichomes hidden under wool. Capitula numerous in dense terminal clusters, sometimes arranged in corymbs; involucre campanulate, 3–5 × 3–5 mm; phyllaries 3–4-seriate, lamina yellowish or light brown to whitish, hyaline and shiny, outer phyllaries 2.8–4.2 × 1.4–2 mm, ovate, apex obtuse to rounded, inner phyllaries 3–4.3 × 1–1.1 mm, linear-elliptic, apex subobtuse. Pistillate florets (46–92)115–130; corollas yellow, filiform, 2–4 mm long. Bisexual florets 5–22; corollas yellow, tubular, 2.7–3.7 mm long. Achenes 0.4–0.8 mm long, glabrous with smooth or papillose epidermis or pilose with short oblong twin hairs, sometimes with papillose epidermis and few short oblong twin hairs; pappus bristles 2.2–4 mm long.

Vernacular Name—‘Nido de diuca,’ ‘vira-vira’ (Freire et al. 2014a).

Distribution, Habitat, and Phenology—Argentina, Bolivia, Chile, Peru (Ancash, Arequipa, Ayacucho, Cajamarca, Huánuco, Huancavelica, Junín, Lima, Moquegua, Puno, and Tacana; Dillon and Hensold (1993) also report Cusco and La Libertad), and Uruguay, growing on dry, sandy soils or in forests in shady places. *Pseudognaphalium viravira* was found from sea level to 4000 m reaching 4900 in Peru (Fig. 2I). Flowering from August to March.

Relationships—*Pseudognaphalium viravira* is closely related to *P. lanuginosum*. Both species are multistemmed plants with unbranched stems, and capitula in dense terminal clusters. Prior to this treatment, we determined specimens of *P. lanuginosum* as *P. viravira* (Freire et al. 2014a, b). However, *Pseudognaphalium viravira* can be distinguished by its densely woolly plants (vs. lanuginose plants in *P. lanuginosum*).

Notes—*Gnaphalium polium* is proposed here as a new synonym of *Pseudognaphalium viravira* because there is no diagnostic character that differentiates the former from the latter. Both are multi-stemmed plants, densely white-woolly with unbranched stems, linear leaves, and capitula in dense terminal clusters.

Additional Specimens Examined—Peru.—ANCASH: Huaylas, Riurín y zonas aledañas, Taqtza Pampa, Huachoc, Hirca, 4200–4350 m, 18–19 May 1999, *Cano et al.* 9108, 9197 (USM); Huaylas, Pamparomas, Quebrada Cachicorral, 09°10'54.6"S 77°51'47.5"W, 3900–4400 m, 12 Oct 1999, *Cano et al.* 9811 (USM); Huayras, Laguna de Parón, 3860–4000 m, 15 Oct 1999, *Cano et al.* 10035 (USM); Huaylas, 4400–4600 m, 18–19 May 2000, *Cano et al.* 10387 (USM); Huaylas, abajo del abra Tres Cruces, 3900–4000 m, 21 May 2000, *Cano et al.* 10581 (USM); Huaylas, Pueblo Libre, cumbre de Huashta Cruz, 4250–4300 m, 26 May 2001, *Cano et al.* 11253 (USM); Huaylas, Pueblo Libre, debajo de Huashta Cruz, 3200–3600 m, 26 May 2001, *Cano et al.* 11309 (USM); Recuay, carretera a Aija, vertiente occidental de la Cordillera Negra, 4100–4150 m, 29 May 2001, *Cano et al.* 11572 (USM); Recuay, Huancapeti, en la carretera Recuay-Aija, 09°44'56.8"S 77°01'08.6"W, 4500–4650 m, 25 Mar 2002, *Cano et al.* 12113 (USM); Bolognesi, entre Llamac y Jahuacocha, ca. 4900 m, 29 May 1954, *Cerrate* 2334 (USM); Bolognesi, Condorcocha, Huasta, ca. 4200 m, 22 Apr 1956, *Cerrate* 2561 (USM); Recuay, Km 125 on road from Patvilca to Recuay, ± 3870 m, 27 Jan 1983, *Dillon et al.* 3110 (HUT); Huaraz, Cerro San Cristobal (N. E. de Huaraz), ca. 3800 m, 8 Jul 1977, *Eoangelista s.n.* (HUT 14912); Huaylas, Pueblo Libre, Cumbre de Huashta Cruz, 3600–4050 m, 13 Apr 2001, *La Torre et al.* 2868 (USM); Huari, Huascarán National Park, 1 Km below Manto Mina, ca. 3 Km from Catac-Chavin road, 09°42'S 77°15'W, ca. 4300 m, 4 Jul 1985, *Smith & Buddensiek* 11003 (USM); Yungay, Huascarán National Park, Lianganuco sector, Quebrada Demanda, Chacaraju base camp, 09°01'S 77°36'W, ca. 4400 m, 12 Apr 1985, *Smith & Cautivo* 10261 (USM); Recuay, Huascarán National Park, Río Pachacoto drainage between mineral springs and Pumashimi, 09°53'S 77°17'W, 4200–4300 m, 16 Mar 1986, *Smith & Torres* 11800 (USM); Carhuaz, Huascarán National Park, Quebrada

Ishinca, valley bottoms, 09°23'S 77°26'W, 4250–4100 m, 14 Feb 1985, *Smith et al.* 9555 (HUT, USM); Huaraz, Huascarán National Park, Quebrada Shallap, 09°29'S 77°22'W, 3690–4100 m, 20 Feb 1985, *Smith et al.* 9646 (USM); Huaylas, Huaylas, Huascarán National Park, Aquispuquio area of ruins, 08°50'S 77°58'W, 3800–3900 m, 7 Apr 1986, *Smith et al.* 11952 (USM).—AREQUIPA: Arequipa, Miraflores-Chiguata, ca. 3800 m, 27 Mar 1999, *Cáceres et al.* 197 (HUT).—AYACUCHO: La Mar, Laguna Oscococha, 1 Km al NE de la laguna, Anco, 3800–3845 m, 28 Mar 2005, *Roque* 4572 (USM).—CAJAMARCA: Cerro Yanhahuanga 6°51'13"S 78°36'41"W, ca. 3900 m, 17 Jun 2009, *Aedo* 16543 (USM); Hualgayoc, Hualgayoc, south side of the hill at left side from the road to the mine, ca. 3800 m, 11 May 1999, *Binder & Binder* 1999/168 (HUT); Contumazá, Guzmango, La Erilla, ca. 3050 m, 19 Apr 1967, *Sagástegui et al.* 6456 (HUT).—HUANUCO: Huaylas, Pachitea, Tambillo, ca. 2500 m, 22 Oct 1980, *Jump* 3922 (USM).—HUANCVELICA: Huancavelica, Orcon, arriba de Conaica, 3550–3580 m, 9 Mar 1951, *Tovar* 83 (USM); Huancavelica, Caniorcocha, a 3 Km SE de Conaica, 3560–3590 m, 10 Mar 1951, *Tovar* 98 (USM); Huancavelica, Tansiri cerca a Manta, 4400–4500 m, 31 Mar 1953, *Tovar* 1159 (USM); Castrovirreina, Choclococha, 4500–4600 m, 2 May 1958, *Tovar* 2823, 2827 (USM); Huancavelica, Patacancha, Conaica, 4000–4100 m, 8 Apr 1961, *Tovar* 3141 (USM).—JUNIN: Yauli, Valle del río Tingo por el camino a Tarma, 3900–4000 m, 12 Feb 1955, *Amstutz s.n.* (USM 75279); Huancayo, cerros al E. de Huancayo, 3900–4000 m, 2 May 1954, *Tovar* 2174 (USM).—LIMA: Huarochiri, alrededores de Olleros, ca. 2770 m, 3 Apr 1968, *Cerrate et al.* 4353 (USM); Yauyos, ca. 4150 m, 4 Sep 2008, *Delgado & Collado* 3722 (USM); Yauyos, antes del tragadero, ca. 4150 m, 4 Sep 2008, *Delgado & Collado* 3754 (USM).—MOQUEGUA: General Sánchez Cerro, Ubinas, ca. 3360 m, 24 Jan 2004, *Blanchard et al. s.n.* (USM 187725); General Sánchez Cerro, rocky slope by the road between Arapa and Antajahua, 2.5 Km SW of locality Yungar, ca. 3590 m, 19 Mar 2009, *Montesinos* 2098 (USM).—PUNO: Azángaro, Tequena, 20 Km, N Arapa, 21 Feb 1948, *Aguilar* 417 (USM); Carabaya, Quelcaya, 4800–5200 m, 14 Feb 2009, *Mondragon & Postigo* 54 (USM); Chucuito, límites entre las comunidades Condor Ancocahua, Ingenio y Ancomarcas, 4172–4302 m, 2 Mar 2010, *Múñez* 2010–5 (USM). Tacna: Tarata, Ticaco, 3600–4000 m, 31 Mar 1998, *Cano* 8355 (USM).

Name of Dubious Identity—*Pseudognaphalium antennarioides* (DC.) Anderb., *Opera Bot.* 104: 147. 1991, nom. illeg. *Gnaphalium antennarioides* DC., *Prodr.* 6: 224. 1838, nov. nom. pro *Helichrysum gnaphalioides* Kunth, *Nov. Gen. Sp. Pl.* (Humb., Bonpl. & Kunth) (folio ed.) 4: 68, t. 330. 1818. *Antennaria monoica* Wedd., *Chlor. Andina* 1: 150. 1856, nom. illeg. pro *Helichrysum gnaphalioides* Kunth. *Leontopodium gnaphalioides* (Kunth) Hieron., *Bot. Jahrb. Syst.* 29(1): 29. 1900. *Gnaphalium gnaphalioides* (Kunth) Beauverd, *Bull. Soc. Bot. Genève ser. II*, 1: 369. 1909, hom. illeg., non *G. gnaphalioides* (Less.) Kuntze, 1898 [= *Berroa gnaphalioides* (Less.) Beauverd]. *Antennaria gnaphalioides* (Kunth) Standl. ex R.Knuth, *Repert. Spec. Nov. Regni Veg. Beih.* 43: 709. 1928. TYPE: PERU. Dpto. Piura. Prov. Ayabaca, 2730 m, A. J. A. Bonpland & F. W. H. A. Humboldt s.n. (P 00322319!).

The name *Gnaphalium antennarioides* was mentioned by Dillon and Sagástegui-Alva (1991) in Flora of Peru. We were unable to study in detail the type specimen kept at P and we have seen no materials from Peru. However, we found collections from Colombia and Ecuador at S which seem to correspond to *Pseudognaphalium antennarioides* according to the protologue (i.e. 'Folia ... lanceolata-lineararia ... Flores terminales ...') and the original illustration [Nov. Gen. Sp. Pl. (Humb., Bonpl. & Kunth) (folio ed.) 4, t. 330. 1818], but they lack diagnostic floral characters of *Pseudognaphalium*. For this reason, until the type of Bonpland & Humboldt's name can be examined or materials can be provided, the identity of *P. antennarioides* remains uncertain.

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APPENDIX 1. Index to numbered collections examined. The numbers in parentheses refer to the corresponding species in the Taxonomic Treatment.

Aedo 16543 (9); *Aguilar* 417 (9), 438 (8), 443 (5), s.n. in 1948 (8); *Albán* 6577 (8), 6711 (5), 8399, 8441 (4); *Albán & Malca* 10094 (8), 10280 (4); *Albán & Yarupaitán* 8100 (8); *Amstutz* s.n. in 1955 (9); *Angulo* 1769 (3). *Beltrán* 420 (8); *Bertero* 1823 (9) type of *Gnaphalium viravira*; *Binder & Binder* 1999/101 (1), 1999/168 (9); *Blanchard* et al. s.n. in 24 Jan 2004 (9), s.n. in 1 Apr 2004 (1), s.n. in 21 Jan 2004, in 16 Feb 2004 (4). *Cáceres* et al. 197 (9), 1155 (1); *Campos* et al. 5167 (4); *Cano* 3235, 3468, 3678, 3828 (4), 8072 (8), 8171 (4), 8252 (8), 8355 (9), 8367 (8); *Cano & Aguilar* 5192 (4); *Cano & Young* 2791 (4); *Cano* et al. 9010 (4), 9108, 9197, 9811, 10035 (9), 10166 (5), 10172 (6), 10341 (4), 10387, 10581 (9), 10643 (8), 11253, 11309 (9), 11403 (1), 11572 (9), 11928 (5), 12050 (6), 12113 (9), 12944, 13175 (6); *Cardich* 219 (1); *Carrillo & Chanco* 1207 (6); *Cavasco* 13402 (4); *Cerrate* 178 (1), 219 (5), 655 (1), 1105 (2), 1999 (4), 2334, 2561 (9), 2698 (5), 3917 (6), 7092 (2), 7094 (6), 7356 (8), 7491 (2); *Cerrate & Albán* 7350 (5); *Cerrate & Fernández* 7487 (6); *Cerrate* 1695 & *Tovar* 1474 (4), *Cerrate* 1801 & *Tovar* 1579 (5), *Cerrate* 1811 & *Tovar* 1589 (4), *Cerrate* 1892 & *Tovar* 1669 (2); *Cerrate* et al. 4353 (9), 4433 (5), 4461, 4755 (4); *Croat* 57870, 57886 (3). *Davis* et al. 1474, 1575 (4); *Deble & Oliveira* 5000 (4) type of *Pseudognaphalium austrobrasilicum*; *Delgado & Collado* 3722, 3754 (9); *Dillon* 3790 (4); *Dillon & Molau* 3017 (4); *Dillon* et al. 2901 (4), 3110 (9), 3161 (4); *Dombey* s.n. (2), type of *Gnaphalium dombeyanum*; *d'Orbigny* 1366 (5) type of *Gnaphalium badium*; *Doster* 98/134, 98/135 (1); *Dreyfus* 12831 (4). *Espinoza Rimari* 49, 52 (2); *Evangelista* s.n. in 1977 (9). *Ferreira* 458 (4), 6317 (2), 8154 (4), 8774 (2), 11242 (4), 11306 (3), 12901 (6), 20955 (2); *Ferreira* 5730 & *Cerrate* 178 (3). *Garaventa* 1151 (8) type of *Gnaphalium psilophyllum*; *García Llatas* 7821 (3); *Gay* 678 (9) type of *Gnaphalium coquimbense*; *Gentry* et al. 37405 (4); *González Jimenes* 14 (1); *González & Navarro* 1284 (4); *González* et al. 2067 (4), 2295 (8). *Hinkley* 3 (5); *Huapalla* 001443 (2), 3151, 3907 (4). *Ihue Umire* 5 (5). *J. O. P.* s.n. in 1948 (1); *Jump* 3922 (9). *King & Collins* 9021 (4); *King* et al. 120 (4). *Landbeck* s.n. in Dec 1862 (9) type of *Gnaphalium illapelinum*; *La Torre* 401 (4), 1852, 1885, 1949 (8), 2084 (5), 2183 (8), 2868 (9); *Lechler* 1838 (6) type of *Gnaphalium melanosphaeroides*; *León* 927 (3); *Llatas* 98, 313 (4); *Llatas Quiroz* et al. 3674, 3727, 9629 (2); *Loarte* 3453 (4); *López & Sagástegui* 3596 (4); *López* et al. 8996, 9031 (3). *Madison* 1031 (4); *Mathias & Taylor* 4016 (4); *Meza* 108 (4), 210 (8), 211 (5); *Mondragon & Postigo* 54 (9); *Monteagudo* et al. 13018 (3); *Montesinos* 1172 (8), 2098 (9), 3487 (5); *Morales* et al. 3722, 4065 (4); *Mostacero* 3735 (2); *Mostacero* et al. 1637 (4), 1865 (5), 2917 (1), 2971 (3); *Müller & Gutte* 9117 (6). *Navarro* s.n. (9) type of *Gnaphalium andicola*. *Pennell* 13472 (4); *Pettersson* 129 (6); *Plovman & Rury* 11133 (4); *Pruski* et al. 4375 (3); *Philippi* s.n. in Jan 1860 (9) type of *Gnaphalium pratense*, s.n. in 1868/69 (4) type of *Gnaphalium mendocinum*, s.n. in Mar 1878 (4) type of *Gnaphalium fastigiatum*, s.n. in Feb 1882 (9) type of *Gnaphalium longifolium*, s.n. in Jan 1893 (1) type of *Gnaphalium acutifolium*. *Rahmer* s.n. in Mar 1885 (5) type of *Gnaphalium argyrolepis*; *Ramírez* 2010-5 (9), 2010-91 (1); *Richardson* 2121 (5); *Ridoutt* 12208 (4); *Rodríguez* et al. 2865 (3); *Roque* 4529 (4), 4572 (9); *Rose* 18828, 19011 (7). *Sagástegui* 7726 (4), 9696 (1); *Sagástegui & Bernal* 3018 (6); *Sagástegui* et al. 6456 (9), 8181, 8242 (4), 10153 (3), 10834 (4), 11516 (3), 11595, 12038, 12296 (4); *Salinas* 272 (4); *Salinas & Frisnacho* 870 (5), 878, 902 (8); *Salvador* et al. 636, 895a (4); *Sánchez* 45 (8); *Sánchez* et al. 2776 (4); *Santa Cruz* 1999 (3); *Smith & Buddenslek* 10934 (2), 11001 (4), 11003 (9), 11104 (4); *Smith & Cautivo* 10261 (9); *Smith & Goodwin* 8842 (8); *Smith & Torres* 11800 (9); *Smith & Vásquez* 3271 (4); *Smith* et al. 9280 (4), 9555, 9646 (9), 10426 (4), 11952 (9); *Stevens* 21963 (4);

Sylvester 1536, 2179 (6). *Torres Arce* s.n. in 1984 (4); *Tovar* 83, 98 (9), 641 (2), 846 (5), 1159 (9), 1305 (4), 2174 (9), 2785 (4), 2823, 2827 (9), 2868 (5), 3141 (9), 3250 (8), 6685, 6724 (5), 7068 (2), 8020 (4); *Tovar* et al. 7836 (8), 9910 (5). *Valencia & González* 10741 (6); *Vilcapoma* 5815 (5); *Vilcapoma & Enciso* 7979 (1); *Vicuña* 98 (4); *Volkman* s.n. (1) type of *Gnaphalium araucanum*. *Wilkes* s.n. in 1838-42 (6). *Yarupaitán & Albán* 1060 (8); *Young* 1376 (4), 1384 (3).

APPENDIX 2. List of synonyms of *Pseudognaphalium*. The numbers in parentheses refer to the corresponding species in the Taxonomic Treatment.

Dasyanthus conglobatus Bubani (7).

Filaginella luteoalba (L.) Opiz (7).

Gnaphalium acutifolium Phil. (1); *G. andicola* Phil. (9); *G. araucanum* Phil. (1); *G. argyrolepis* Phil. (5); *G. asperum* Pers. (4); *G. badium* Wedd. (9); *G. cabreræ* S. E. Freire (4); *G. cheiranthifolium* Lam. (1); *G. cheiranthifolium* Lam. f. *citrinum* (Hook. & Arn.) Kuntze (1); *G. cheiranthifolium* Lam. var. *gaudichaudianum* (DC.) Baker (4); *G. cheiranthifolium* Lam. var. *multiflorum* J. Koster (1); *G. cheiranthifolium* Lam. var. *paniculatum* (Bertero ex Colla) Skottsb. (1); *G. cheiranthifolium* Lam. var. *riedelianum* (Klatt) Baker (1); *G. cheiranthifolium* Lam. var. *subrufescens* (DC.) Baker (4); *G. citrinum* Hook. & Arn. (1); *G. coquimbense* Phil. (9); *G. dombeyanum* DC. (2); *G. dysodes* Spreng. (2); *G. ecuadorensis* Hieron. (1); *G. ecuadorensis* Hieron. var. *boliviense* Cuatrec. (1); *G. elegans* Kunth (3); *G. erectum* Vell. (1); *G. fastigiatum* Phil. (4); *G. frigidum* Wedd. (5); *G. gaudichaudianum* DC. (4); *G. gaudichaudianum* DC. var. *subrufescens* DC. (4); *G. glandulosum* Klatt (7); *G. graveolens* Kunth (2); *G. helichrysoides* Wedd. (6); *G. humillimum* Spreng. (2); *G. illapelinum* Phil. (9); *G. imbaburensis* Hieron. (4); *G. jelskii* Hieron. (4); *G. lacteum* Meyen & Walp. (5); *G. lanuginosum* Kunth (6); *G. longifolium* Phil. (9); *G. luteoalbum* L. (7); *G. luteoalbum* L. var. *compactum* Kirk (7); *G. luteoalbum* L. var. *incanum* A. Rich. (7); *G. luteoalbum* L. var. *multiceps* (Wall. ex DC.) L.f. (7); *G. luteoalbum* L. var. *pallidum* Hook.f. (7); *G. luteofuscum* Webb (7); *G. melanosphaeroides* Wedd. (6); *G. mendocinum* Phil. (4); *G. montevidense* Spreng. (9); *G. multiceps* Wall. ex DC. (7); *G. nanum* Kunth (2); *G. paniculatum* Bertero ex Colla (1); *G. pellitum* Kunth (1); *G. peruvianum* Spreng. (4); *G. philippii* Cabrera (4); *G. poeppigianum* DC. (3); *G. polium* Wedd. (9); *G. pratense* Phil. (9); *G. psilophyllum* Meyen & Walpers (8); *G. pusillum* Thunb. (2); *G. riedelianum* Klatt (1); *G. sodiroi* Hieron. (4); *G. subnudum* Phil. (9); *G. trifidum* Thunb. (7); *G. valdivianum* Phil. (1); *G. versatile* Rusby (9); *G. viravira* Molina (9).

Helichrysum luteoalbum (L.) Rchb. (7).

Laphangium luteoalbum (L.) Tzvelev (7).

Pseudognaphalium andicola (Phil.) C. Monti, N. Bayón & S. E. Freire (9); *P. austrobrasilicum* Deble & Marchiori (4); *P. badium* (Wedd.) Anderb. (5); *P. cabreræ* (S. E. Freire) Deble & Marchiori (4); *P. cabreræ* (S. E. Freire) S. E. Freire, N. Bayón, C. Baeza, Giuliano & C. Monti (4); *P. coquimbense* (Phil.) Anderb. (9); *P. dombeyanum* (DC.) Anderb. (2); *P. fastigiatum* N. Bayón (4); *P. frigidum* (Wedd.) Anderb. (5); *P. glandulosum* (Klatt) Anderb. (8); *P. graveolens* Anderb. (2); *P. illapelinum* (Phil.) Anderb. (9); *P. melanosphaeroides* (Wedd.) Anderb. (6); *P. mendocinum* (Phil.) Deble & Marchiori (4); *P. montevidense* (Spreng.) Anderb. (9); *P. pellitum* (Kunth) Anderb. (1); *P. pratense* (Phil.) Anderb. (9).