

**NEW SPECIES OF AMERICAN *PSEUDOGNAPHALIUM*
(ASTERACEAE: GNAPHALIEAE). III. COSTA RICA AND PANAMA**

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ABSTRACT

Three new species of *Pseudognaphalium* are described from Costa Rica and Panama — ***Pseudognaphalium irazu* Nesom, sp. nov.** (slopes of Volcán Irazu, Costa Rica), ***Pseudognaphalium pruskii* Nesom, sp. nov.** (Costa Rica and adjacent Panama), and ***Pseudognaphalium varablanca* Nesom, sp. nov.** (mostly the vicinity of San José, Costa Rica). Three other species of *Pseudognaphalium* occur in Rica and Panama — *P. attenuatum*, *P. elegans*, and the endemic *P. rhodarum*. A key to the six species is provided, with a distribution map and photographs of representative herbarium collections for the endemics.

Six species of *Pseudognaphalium* are known to occur in Costa Rica and Panama, three of them formally described and named here for the first time. *Pseudognaphalium attenuatum* is at the southernmost point in its distribution in northwestern Panama, ranging northward through Central America and into much of Mexico and also into the Caribbean islands (Nesom 2024). The distribution of *P. elegans* extends from northern Peru northward through Central Mexico into southeastern Mexico — it also occurs in the Caribbean islands. *Pseudognaphalium rhodarum* is endemic to Costa Rica and Panama (Map 4).

KEY TO *PSEUDOGNAPHALIUM* SPECIES OF COSTA RICA AND PANAMA

1. Leaves stipitate-glandular adaxially.
 2. Stems 75–200 cm tall; leaves (2–)4–8 cm long, (8–)10–20 mm wide, persistently white-tomentose abaxially; involucre 5–6 mm high ***Pseudognaphalium elegans***
 2. Stems 15–50 cm tall; leaves 2–4 cm long, 2–6 mm wide, tawny-tomentose or green abaxially; involucre 3.5–5 mm high.
 3. Involucres rosy; leaves tawny-tomentose and eglandular abaxially; pistillate florets 21–34, bisexual florets 4–7 ***Pseudognaphalium rhodarum***
 3. Involucres tawny; leaves green and stipitate-glandular abaxially; pistillate florets 60–99, bisexual florets 6–10 ***Pseudognaphalium irazu***
1. Leaves eglandular adaxially.
 4. Leaf base sessile, not at all clasping or decurrent, adaxial surface glabrous ***Pseudognaphalium attenuatum***
 4. Leaf base subclasping, often amplexate, adaxial surface glabrous or tomentose.
 5. Leaves concolor to weakly bicolor, adaxially tomentose but glabrescent, 2–8 cm long, 2–4 mm wide, densely crowded on stems, internodes 1–4 mm long; stems branching only near the heads (or sometimes also at the very base), producing an inflorescence of 1–few densely compact clusters ***Pseudognaphalium pruskii***
 5. Leaves distinctly bicolor, adaxially glabrous, (2–)5–10 cm long, 3.5–5 mm wide, prominently spaced on stems, internodes 1–2 cm long; stems branching from midstem or below, producing a paniculiform inflorescence ***Pseudognaphalium varablanca***

1. PSEUDOGNAPHALIUM PRUSKII Nesom, **sp. nov.** **TYPE: COSTA RICA.** Prov. Cartago, Volcán Irazú, open paramo within main crater, just below summit rim, loose volcanic soil, 3400 m, 8 Sep 2004, *Pruski et al.* 3852 (holotype: MO). Figures 2-9, Map 1.

Gnaphalium roseum var. *hololeucum* Benth. in Örsted, Vidensk. Meddel. Dansk Naturhist. Foren. Kjøbenhavn 1852: 105. 1853. **TYPE: COSTA RICA.** In Monte Irasu, 11,000 ft, 1 Jan 1848, A.S. Örsted 10577 (holotype: K as taxon number 274; isotypes: C-2 sheets as Örsted 10577, F).

The title of the protologue manuscript (Örsted 1853) notes that the "names and descriptions" are by G. Bentham.

Freire et al. (2022) designated a lectotype — Örsted 10577 (C-10007412) and isolectotypes (C, F), but Bentham studied only the K sheet and only the K sheet has Bentham's handwriting. The K label has no Örsted number but the plant is the same morphology as those at C as Örsted 10577. The date on the K label and on K sheets of the two other *Gnaphalium roseum* varieties is 1851, probably the date Kew received the materials from Örsted. One of the C labels has 1 January 1848.

Gnaphalium roseum var. *angustifolium* Benth. in Örsted, Vidensk. Meddel. Dansk Naturhist. Foren. Kjøbenhavn 1852: 105. 1853. **TYPE: COSTA RICA.** In Monte Irasu, 11,000 ft, 1 Jan 1848, A.S. Örsted 10578 (holotype: K as taxon number 275; isotypes: C-2 sheets as Örsted 10578).

Freire et al. (2022) designated a lectotype — Örsted 10578 (C 10007410) and isolectotype (C 10007411). The holotype is at K.

Gnaphalium roseum var. *sordescens* Benth. (Örsted 10576 from Cartago, Costa Rica — C, UC, and probably K 500350, K 500352, K 500353) is *Pseudognaphalium attenuatum*. Freire et al. (2022) placed vars. *hololeucum*, *angustifolium*, and *sordescens* as synonyms of *P. roseum* (Kunth) Anderb.

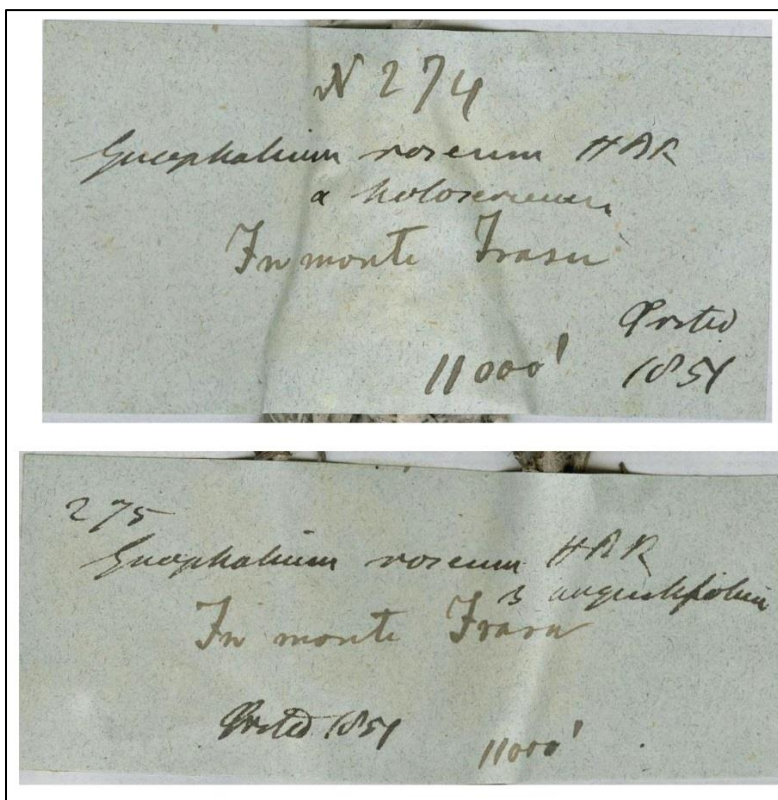


Figure 1. Labels for holotype specimens at K. Top: *Gnaphalium roseum* var. *hololeucum* Benth. Bottom: *Gnaphalium roseum* var. *angustifolium* Benth. "1851" probably is the date Kew received the materials — the label for C 10.578 shows 1 Jan 1848 as the collection date.

Similar to *Pseudognaphalium attenuatum* in its eglandular stems and leaves and narrow, bicolor leaves but distinct in its leaves with subclasping base (vs. sessile, not subclasping) and adaxial surface densely tomentose but glabrescent and becoming glabrate (vs. glabrous and shiny).

Short-lived perennial herbs, taprooted. **Stems** 20–120 cm tall, lightly but persistently tomentose, eglandular, simple or sometimes branched at the base. **Leaves** linear to narrowly oblanceolate or narrowly lanceolate, mostly 1.5–4(–5.5) cm long, 2–4(–5) mm wide, margins straight, sometimes narrowly revolute, apex acute, base subclasping, not ampliate, abaxial surface persistently gray-tomentose, adaxial commonly densely tomentose but glabrescent and becoming glabrate, the leaf then bicolor, eglandular. **Heads** in densely compact clusters at the stem tip; phyllaries in 3–4 series, ovate to oblong-ovate, hyaline-tawny, apex acute, inner 4–4.5 mm long. **Pistillate florets** (22- in *Rodríguez 3132*) 31–52; bisexual florets 5–6. **Achene surfaces** smooth, longitudinally ridged.

Flowering June–March or probably all year. Paramo, wet meadows, potreros, oak forest, shaded banks, roadsides; 1800–3400 meters.

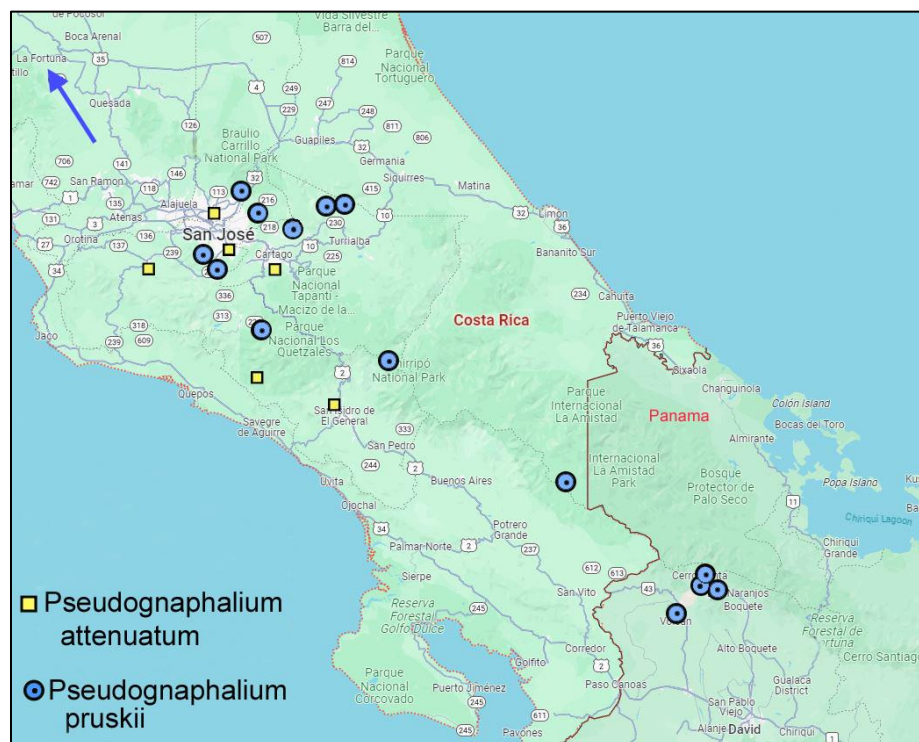
Pseudognaphalium pruskii is named for John Pruski (Research Botanist at the Missouri Botanical Garden), prolific and insightful student of Asteraceae and author of the Asteraceae volume for the Flora Mesoamericana (Pruski 2018), which includes 1072 species in 282 genera. John recognized the identity of these plants with Bentham's *Gnaphalium roseum* var. *hololeucum*, recording *Pruski 3852* (here the holotype of *P. pruskii*) as "Pseudognaphalium sp. A."

Additional collections. COSTA RICA. [Cartago], upper slopes of Volcan Irazú, 26 Sep 1959, *Bell 16905* (US); Cartago, Cima del Cerro Sabila, ca. KM 86, Ruta 2, rocky, 3420 m, 25 May 1983, *Chaverri 1325* (US); Cartago, carratera cerca del Volcán Irazú, 3100 m, 4 Apr 1952, *Córdoba 121* (IND); San José, Cerro Chirripó, forest just below the paramo with many dead trees and ericaceous shrubs, 3200 m, 5 Apr 1969, *Davidse 1575* (US); San José–Cartago, Cordillera de Talamanca, Cerro Cuericí, Parque Nacional Chirripó, continental divide, 300–3394 m, rock outcrop in humus, 17 Sep 1983, *Davidse 24777* (US); San José, direct line from Hotel La Georgine to Cerro Frio of the Cerro Buenavista complex (Cerro de la Muerte), area with TV and radio towers, 3100–3400 m, 20 Sep 1983, *Davidse 24967* (US, USF, VDB); Puntarenas–Limón border, Cerro Bekom on the continental divide, 11 km SW of the peak of Cerro Kámuk, burned area along trail along ridge in low oak forest, 2600 m, 28 Mar 1984, *Davidse 26198* (MO, US); Limón, Cordillera de Talamanca, Kámuk massif, paramo NE of the main Kámuk peak, 3000–3300 m, 17–18 Sep 1984, *Davidse 29337* (US); Volcán Irazú, no other data, *Niederlein s.n.* (US); Cartago, Volcán de Turrialba, 3300 m, Jan 1899, *Pittier 7502* (US); Cartago, región supérieure au Volcán de Turrialba, 2500–3300 m, 7 Jan 1899, *Pittier 13243* (US); Cartago, Volcán Irazú, open paramo within main crater, just below summit rim, loose volcanic soil, 3400 m, 8 Sep 2004, *Pruski 3852* (US); Volcán Irazú, 4–5 Aug 1920, *Rowlee & Stork 903* (US); slopes behind crater of Volcán Irazú (off roadside just outside of crater), 9 Jul 1955, *Schubert 826* (US); San José, Cerro de Piedra Blanca, above Escazú, brushy slope, 31 Jan 1924, *Standley 32565* (US), *Standley 32602* (US), and *Standley 32607* (US); San José, between Aserrí and Tarbaca, shaded bank, 1600–1900 m, 12 Feb 1924, *Standley 34046* (US) and *34047* (US); Cartago, S slope of Volcán de Turrialba, near the Finca del Volcán de Turrialba, ca. 2000–2400 m, in potrero, 22 Feb 1924, *Standley 35334* (US) and *Standley 35078* (US); San José, Las Nubes, wet forest, ca. 1500–1900 m, 20–22 Mar 1924, *Standley 38474* (US) and *Standley 38690* (US); San José, vicinity of Santa María de Dota, oak forest, 1500–1800 m, 14–26 Dec 1925, *Standley 41618* (US); San José, near Quebradillas ca. 7 km N of Santa María de Dota, oak forest, ca. 1800 m, 24 Dec 1925, *Standley 42874* (US); Heredia, Yerba Buena, NE of San Isidro, wet thicket, ca. 2000 m, 22 and 28 Feb 1926, *Standley 50084* (US); San José. Cordillera de Talamanca, Panamerican Hwy, montane wet zone, roadbank, 3100 m, 15 Sep 1961, *Weber 6249* (GH). **PANAMA.** Chiriquí, El Barú, just below summit, ca. 3000 m, 20 Mar 1977, *D'Arcy 11033b* (US); 11 km directly WNW of Boquete, W slope of Volcán de Chiriquí (Barú), ridges looking down on Potrero Mulato, elfin forest, 3000 m, 20 Nov 1975, *Davidse & D'Arcy 10255* (US); Volcán de Chiriquí, Potrero Mulato, 10,400 ft, 18 Jul 1938, *Davidson 1039*

(US); lava fields near town of Volcan, ca. 4600 ft, 10 Dec 1966, *Duke 9198* (US); Chiriquí, near Cerro Punta, area surrounding town of Guadeloupe, 6000-6500 ft, 25 Dec 1977, *Folsom & Channell 7168* (GA); Chiriquí, 10 km NW of Boquete on road towards Parque Nacional Volcán Barú, tropical montane rain forest, roadside, 17 Mar 1996, *Grant 96-02375* (US); ca. 2 mi W of Cerro Punta, disturbed habitat, on bank, 18 Jan 1968, *McDaniel 10087* (NY, as "*Gnaphalium oxyphyllum*"); summit of Chiriquí Volcano, 3374 m, 12 Mar 1911, *Maxon 5357* (US); carr. hacia la cima del Volcán Barú, 29 Dec 1996, *Montenegro 1611* (US); Bajo Grande, ca. 3 km E of town of "Cerro Puente" [Cerro Punta], pastured recently cleared from lower montane wet forest, 23 Feb 1974, *Nee 9950* (NY, as "*Gnaphalium domingense*"); upper belt of Chiriquí Volcano, N slope, 3000-3374 m, 10-13 Mar 1911, *Pittier 3093* (US); Guanacaste, Cantón de Liberia, P.N. Guanacaste, Cuenca del Tempisque, Estacion [Biol.] Cacao, Sendero a Maritza, hierba postrada, abundante a orilla de camino en potrero, 1100 m, 19 Mar 1998, *A. Rodríguez 3132* (MO); Volcán de Chiriquí, Apr 1899, *Sapper s.n.* (US); Loma Larga to summit, Volcán de Chiriquí, ca. 2500-3380 m, 4-6 Jul 1938, *Woodson 1054* (US); camino de acceso al Parque Nacional Volcán Barú, 3200 m, 25 Jun 1991, *Vega 159* (US).

Many of these collections have been identified as *Pseudognaphalium attenuatum* and the two species apparently grow in close association — both species are on the same sheet of *Standley 34047*. *Pseudognaphalium attenuatum* in Costa Rica and Panama has been collected at elevations of 900-1800 meters in fields, open hills, roadsides, and plantations (see Map 1).

Some collections of *Pseudognaphalium pruskii* have previously been identified as *P. rhodarum*, presumably because involucres in *P. pruski* sometimes are rosy or pinkish (e.g. *Davidse 24777*, *24967*, and *29337*, *Davidson 1039*, *Maxon 5357*, *Pittier 3093*, *Vega 159*, and *Woodson 1054*; and also the type collection of *Gnaphalium roseum* var. *angustifolium*). These collections were made in the close vicinity of plants of typical *P. rhodarum* (at Volcán de Chiriquí = Volcán Barú in Panama and Cerro Kámuk, Cerro de la Muerte, and the Chirripó area in Costa Rica) and the similarity in color perhaps reflects gene flow.



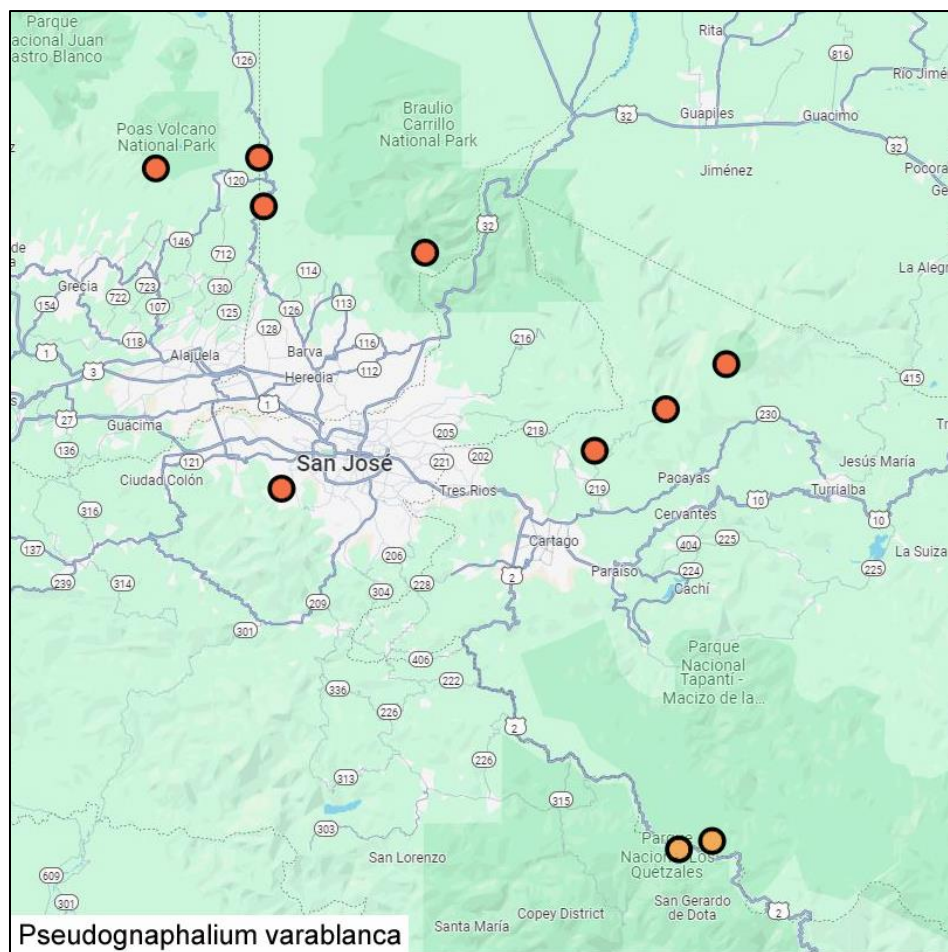
Map 1. Distribution of *Pseudognaphalium pruskii* and *P. attenuatum* (only for Costa Rica). Arrow points to an apparently disjunct locality for *P. pruskii* in Guanacaste Province, Costa Rica.

2. PSEUDOGNAPHALIUM VARABLANCA Nesom, **sp. nov.** **TYPE: COSTA RICA.** Prov. Alajuela/Heredia, Vara Blanca de Sarapiquí, N slope of Central Cordillera, between Poás and Barba volcanoes, exposed bank, 1830 m, annual herb, 15 to 1.5 m high, Jan 1938, A.F. Skutch 3445 (holotype: US). Figures 10-14, Map 2.

Distinct in its narrow, subclasping and short-decurrent, bicolor leaves, glabrous adaxially and eglandular, widely spaced and only slightly reduced in size above midstem.

Annual herbs, taprooted. **Stems** 20–150 cm tall, lightly but persistently grayish-tomentose, glabrescent, eglandular, branching at the base and commonly at many nodes above midstem. **Leaves** narrowly lanceolate to narrowly oblanceolate, mostly 3–12 cm long, 3–7 mm wide, base subclasping, often distinctly ampliate, not decurrent or decurrent 1–2 mm, apex attenuate-acute, margins straight, strongly bicolor, adaxially glabrous and shiny, abaxially persistently tawny-gray-tomentose. **Heads** in a relatively diffuse, paniculiform array; phyllaries in 3–4 series, narrowly ovate to ovate, apex acute, inner 3.5–4 mm long, tawny-white, hyaline. **Pistillate florets** 30–50; bisexual florets 5–10. **Achene surfaces** smooth, longitudinally ridged.

Flowering December-July. Cloud forest, elfin forest, wet potreros, roadside banks; 1200-2500 meters.



Map 2. Distribution of *Pseudognaphalium varablanca*. Costa Rica. Lighter symbols to the southeast are variants noted in the text. The apparently disjunct collection from just south of Fortuna Lake in Panama, as cited and illustrated here, is not mapped — the identity of the Panama plants with those of Costa Rica needs to be confirmed.

Additional collections. **COSTA RICA.** Alajuela, near the "Savana Grande: just inside the entrance to the reserve on Volcan Poás, cloud forest, 1800 m, occasional on steep hillsides, Jan 1980, *Funk 3016* (US); Cartago, Canton Oreamuno, 5.5 km SW of the 30 KM marker on Rte 8 from the summit of Volcán Irazú, wet elfin forest, 29 Dec 1992, *Grant 92-02261* (US); along the cart-road from Vara Blanca (between Poás and Barba volcanoes) to La Concordia, shrubby roadside bank, 1600-1950 m, 23 Jul 1923, *Maxon and Harvey 8390* (US); [Cartago], region supérieure au Volcán de Turrialba, 2500-3300 m, 7 Jan 1899, *Pittier 13243* (US); Heredia, Cerro de Zurqui, NE of San Isidro, wet potrero, 2000-2400 m, 3 Mar 1926, *Standley & Valerio 50540* (US). **PANAMA.** Chiriquí, between Los Planes de Hornito and Fortuna Lake, trail to Zarzo, 08° 41' N, 82° 13' W, 1200 m, 17 Mar 1985, *Hampshire & Whitefoord 712* (GA, Figure 13).

Unusual variants

Two collections similar in morphology and made in close proximity (Map 2) are regarded here as unusual variants of *Pseudognaphalium varablanca* — they apparently are in easily accessible localities and need to be investigated in more detail. Prov. Cartago: Ca. 20 km WNW of San Isidro del General on Hwy 2, steep rock hillsides line the road, secondary growth, predominantly *Alnus*, 1850 m, 6 Jan 1980, *Funk 3034* (US); Prov. San José: near Cerro La Vueltas, ca. 10 km N of San Geraldo along Inter-American Hwy at KM 69, ca. 2500 m, 12 Jan 1991, *Grant 91-01374* (US, Figure 12). These plants are similar to *P. pruskii* in their short internodes, narrow leaves with subclasping base but, like *P. varablanca*, have leaves completely glabrous adaxially a more highly branched inflorescence, and a mixture of broader and narrower leaves.

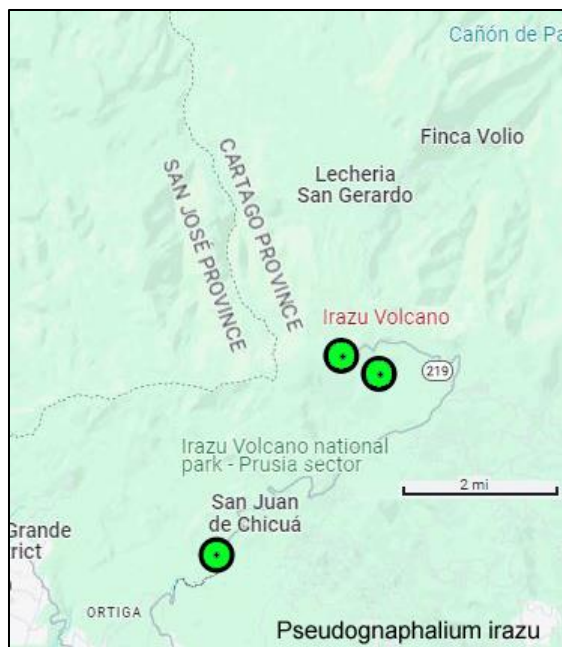
3. PSEUDOGNAPHALIUM IRAZU Nesom, **sp. nov.** **TYPE: COSTA RICA.** Prov. Cartago, Volcán Irazú, in the oak forest on the upper slopes, 18 Aug 1925, *C.W. Dodge 3137* (holotype: US; isotype: GH). Figures 15-21, Map 3.

Distinct in its green, stipitate-glandular stems and leaves, closely spaced, clasping, non-decurrent leaves, heads with a relatively large number of florets, and tawny-hyaline phyllaries. Similar to the Mexican *Pseudognaphalium oxyphyllum* (DC.) Kirpichn. in its sharp pointed, auriculate-clasping leaves and glandular vestiture (stems and leaves) but distinct in its heads in dense clusters at the stem tips (vs. a corymboid array) and greater number of florets (pistillate 20-45, bisexual 3-5).

Short-lived perennial herbs, taprooted, resinous and aromatic. **Stems** 30–50 cm tall, branching at the base and then only near the heads, greenish and stipitate-glandular, without eglandular hairs. **Leaves** narrowly lanceolate to narrowly oblong-lanceolate, mostly 2–4 cm long, 2–6 mm wide, margins straight or wavy, not revolute, apex acute, base clasping and often slightly ampliate, not decurrent, concolor, both sides green and stipitate-glandular. **Heads** in a compact cluster at stem tips; phyllaries in 3–4 series, tawny, hyaline, ovate, apex acute to obtuse, inner 4.5-5 mm long. **Pistillate florets** 60–99; bisexual florets 5–10. **Achene surfaces** smooth, longitudinally ridged.

Flowering June-November. Oak forest, subparamo; 2800-3200 meters.

Additional collections. **COSTA RICA.** Cartago, Volcán Irazú, subparamo bushes, 3200-3300 m, white-green herb, sticky, 5 Nov 1961, *Cuatrecasas & León 26532* (F, US); Cartago, Chicué, Volcán Irazú, 3000 m, 26 Jun 1949, *León 810* (US) — San Juan de Chicué is a small town on Hwy 219, at about 7900 feet elevation, on the southwest side of Volcán Irazú, about 14 kilometers by road from the peak.



Map 3. Distribution of *Pseudognaphalium irazu*. Costa Rica.

- 4. PSEUDOGNAPHALIUM RHODARUM** (Blake) Anderb., Opera Bot. 104: 148. 1991. *Gnaphalium rhodarum* S.F. Blake, J. Wash. Acad. Sci. 17: 61. 1927. **TYPE: COSTA RICA.** Prov. San Jose, Cerro de las Vueltas, paramo, 2700-3000 m, 29 Dec-1 Jan 1926, *P.C. Standley & J. Valerio 43623* (holotype: US). Figures 22-27, Map 4.

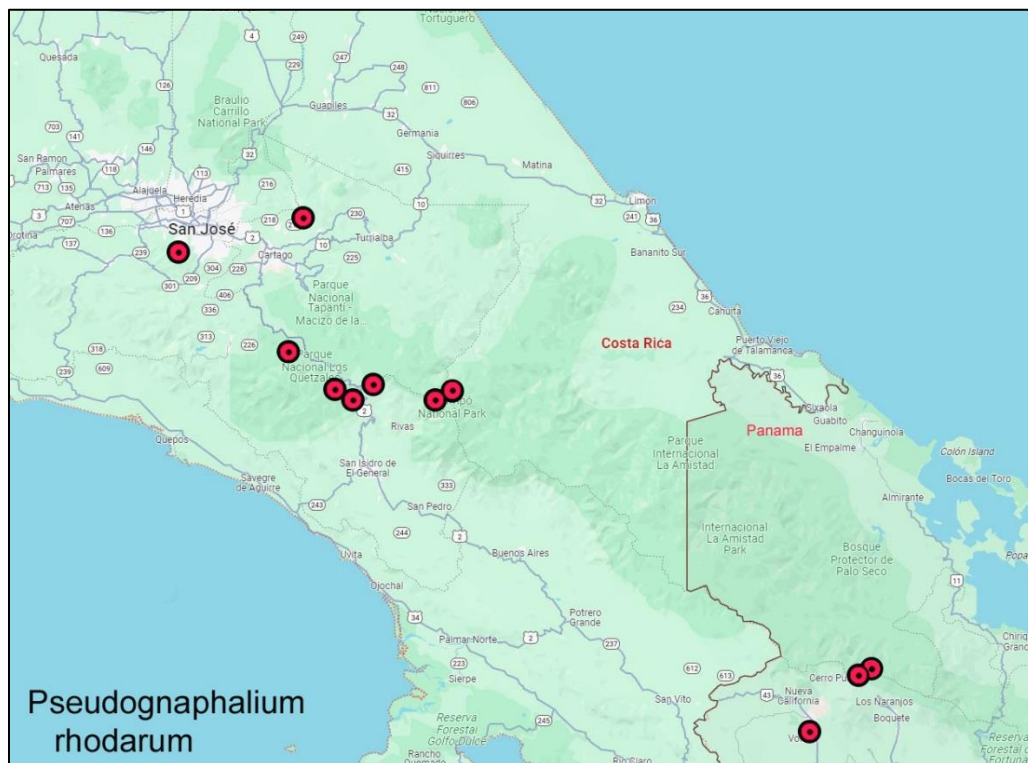
Short-lived perennial herbs, taprooted. **Stems** 15–50 cm tall, branching at the base and then near the heads, lightly tawny-tomentose, quickly glabrescent, eglandular. **Leaves** asdfas narrowly lanceolate to oblong-ob lanceolate, mostly 2–4 cm long, 2–6 mm wide, margins straight or slightly wavy, not revolute, apex acute, base subclasping and often slightly ampliate, not decurrent, bicolor, persistently tawny-tomentose and eglandular abaxially, greenish to green and stipitate-glandular adaxially. **Heads** in a compact corymboid cluster at stem tips; phyllaries in 3–4 series, ovate to narrowly ovate, hyaline, rosy, inner 3.5–4 mm long, apex acute to obtuse. **Pistillate florets** 21–34; bisexual florets 4–7. **Achene surfaces** smooth, longitudinally ridged.

Flowering September-January. Paramo, open forest, often rocky; 2700-3400 meters.

Recognized by its short stature, subclasping, non-decurrent, bicolor, stipitate-glandular leaves (adaxially) and small, few-flowered heads with rosy involucre.

Representative collections. Costa Rica. Parque Nacional Chirripó, Cuenca Térraba-Sierpe, monte sin Fe, 3200 m, 28 Jul 2000, *Alfaro 3344* (BRIT); Cordillera de Talamanca, vicinity of Cerro de la Muerte, 10,000-11,000 ft, 25 Nov 1949, *Allen 5408* (US); Cerro de Talamanca, Macizo del Buena Vista, páramos, 3300-3400 m, 8 Nov 1961, *Cuatrecasas & Leon 26550* (F, US); San Jose, direct line from Hotel La Georgina to Cerro Frio of the Cerro Buena Vista complex (Cerro de la Muerte), area with TV and radio towers, paramo, 3100-3400 m, 20 Sep 1983, *Davidse 24967* (US); en talud rocoso, KM 92, 3400 m, 27 Nov 1964, *Jiménez 2657* (US); Cerro de la Muerte, 10,900 ft, 7 Nov 1959, *Krauss 420* (US); Cordillera de Talamanca, Cerro de Asuncion, secondary subalpine paramo, 3200 m, 15 Jan 1964, *Lems 29* (US); Cerro de la Muerte, 7 Dec 1948, *Leon 1400* (US); haute region du Cerro de Buena Vista, 3100 m, 19 Jan 1891, *Pittier 3433* (US); Cerro de las Vueltas, 3000 m, Jan 1897, *Pittier 10.449* (US); Cerro Buenavista (Cerro de la Muerte), along unpaved road ca. 0.5 km below summit antennas, paramo with large boulders, 3400 m, 9 Sep 2004,

Pruski 3860 (LSU); Parque Nacional Chirripó, páramo near Albergues de los Crestones, along Rio Talari near trail to Valle de los Conejos, 3400 m, 14 Sep 2004, *Pruski et al. 3905* (BRIT); Parque Nacional Chirripó, Cuenca Térraba-Sierpe, alrededores de la Estación principal, bosque de paramo, 3400 m, 17 Nov 2000, *Rodríguez 6415* (BRIT); Cerro de las Vueltas, 2700-3000 m, 29 Dec-1 Jan 1926, *Standley & Valerio 43961* (US); 29.5 mi N of San Isidro del General on Rte 2 (CA-1), highest point on road crossing the Sierra de Talamanca, montane cloud forest, 3170 m, 11 Nov 1976, *Stuessy & Gardner 4549* (OBI); ca. 40 km SW of Cartago near Cerro Las Vueltas, shrub paramo, 3300 m, 12 Aug 1967, *Taylor 4338* (BRIT); Talamanca Range, forest adjacent to road construction, Pan American Hwy, 3000 m, 8 Aug 1972, *Taylor 11772* (BRIT); Talamanca Range, Cerro de la Muerte, high point along Pan American Hwy, 3400 m, Aug 1972, *Taylor 11733* (BRIT); S to SW of Cerro Chirripó, around refugio, Valle de los Conejos, rain paramo, 3350-3600 m, 10 Dec 1966, *Weston 3646* (US).



Map 4. Distribution of *Pseudognaphalium rhodarum*. Costa Rica and Panama.

ACKNOWLEDGEMENTS

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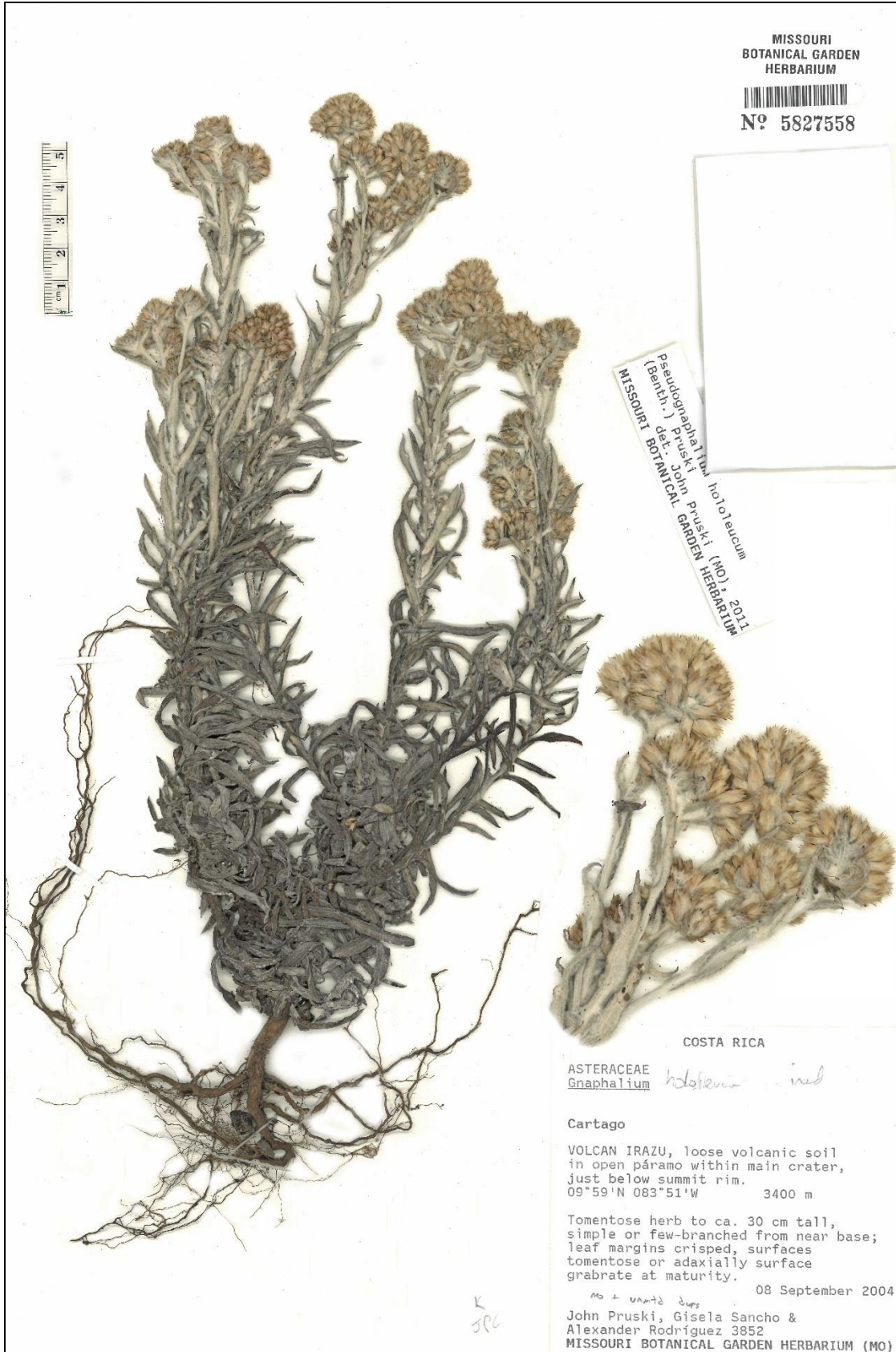


Figure 2. *Pseudognaphalium pruskii*. Costa Rica, Pruski 3852 (MO), holotype.



Figure 3. *Pseudognaphalium pruskii*. Costa Rica, Orsted 10577 (F), isotype of *Gnaphalium roseum* var. *hololeucum*.



Figure 4. *Pseudognaphalium pruskii*. Costa Rica, Schubert 826 (US).



Figure 5. *Pseudognaphalium pruskii*. Costa Rica, Guanacaste Province, Rodríguez 3132 (MO). The low habit and smaller heads suggest a need for further study.



Figure 6. *Pseudognaphalium pruskii*. Costa Rica, Standley 35078 (US).



Figure 7. *Pseudognaphalium pruskii*. Panama, Vega et al. 159 (US).



Figure 8. *Pseudognaphalium pruskii*. Panama, Maxon 5357 (US).



Figure 9. *Pseudognaphalium pruskii*. Panama, Pittier 3093 (US).



Figure 10. *Pseudognaphalium varablanca*. Costa Rica, Skutch 3445 (US), holotype.

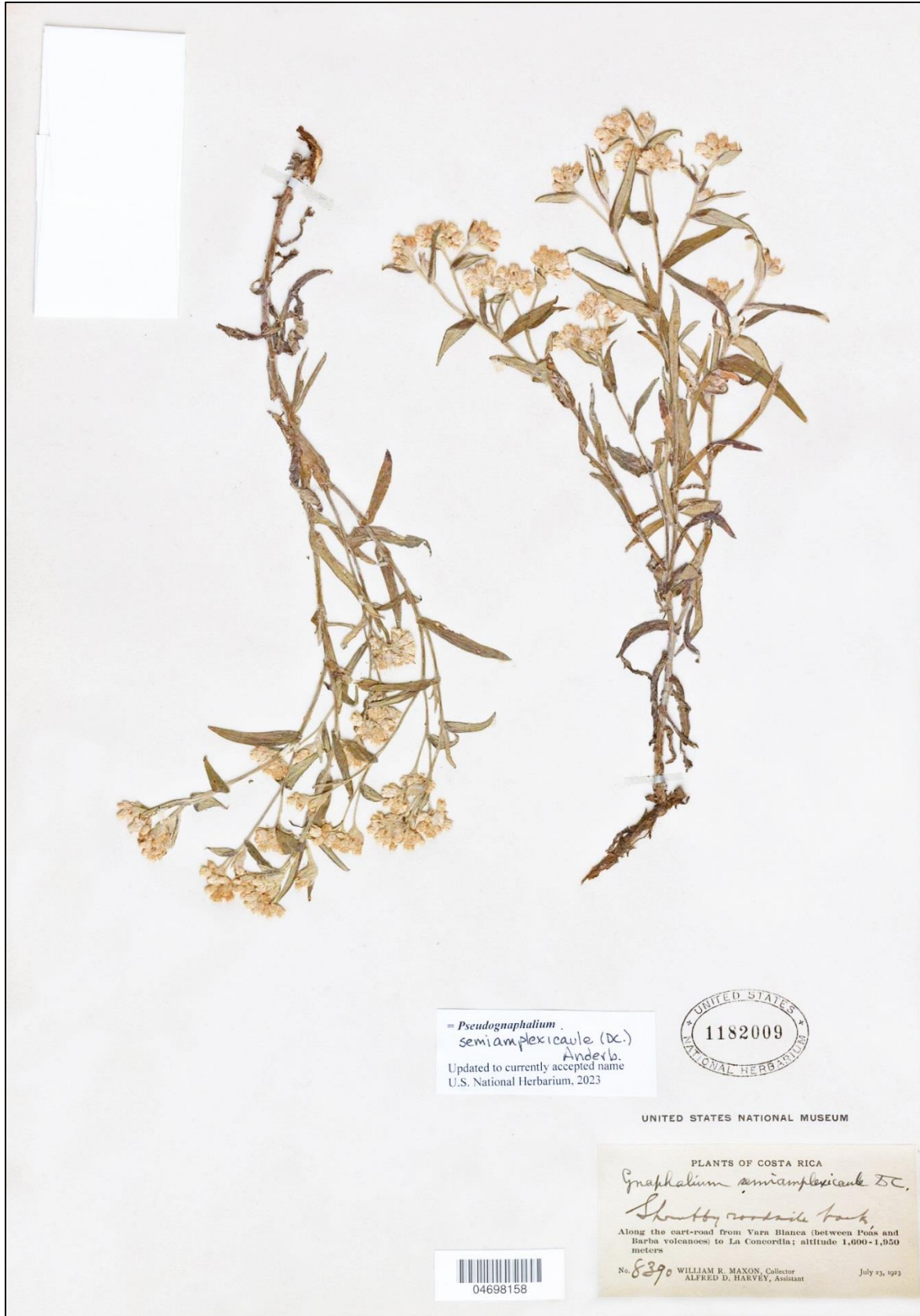


Figure 11. *Pseudognaphalium varablanca*. Costa Rica, Maxon & Harvey 8390 (US).



Figure 12. *Pseudognaphalium varablanca*. Costa Rica, Maxon & Harvey 8390 (US).



Figure 13. *Pseudognaphalium* aff. *varablanca*. Costa Rica, Grant 91-01374 (US).



Figure 14. *Pseudognaphalium* aff. *varablanca*. Panama, Hampshire & Whitefoord 712 (GA).



Figure 15. *Pseudognaphalium irazu*. Costa Rica, Dodge 3437 (US), holotype.



Figure 16. *Pseudognaphalium irazu*. Detail from the holotype, Figure 1.



Figure 17. *Pseudognaphalium irazu*. Detail from the holotype, Figure 1.



Figure 18. *Pseudognaphalium irazu*. Costa Rica, León 1624 (US).



Figure 19. *Pseudognaphalium irazu*. Details from León 1624 (US), Figure 0.



Figure 20. *Pseudognaphalium irazu*. Costa Rica, Cuatrecasas & León 26532 (F).



Figure 21. *Pseudognaphalium irazu*. Costa Rica, Cuatrecasas & León 26532 (US).



Figure 22. *Pseudognaphalium rhodarum*. Costa Rica, Standley & Valero 43623 (US). Holotype.



Figure 23. *Pseudognaphalium rhodarum*. Costa Rica. Detail of holotype (Figure 0).



Figure 24. *Pseudognaphalium rhodarum*. Costa Rica, Pruski 3905 (US).

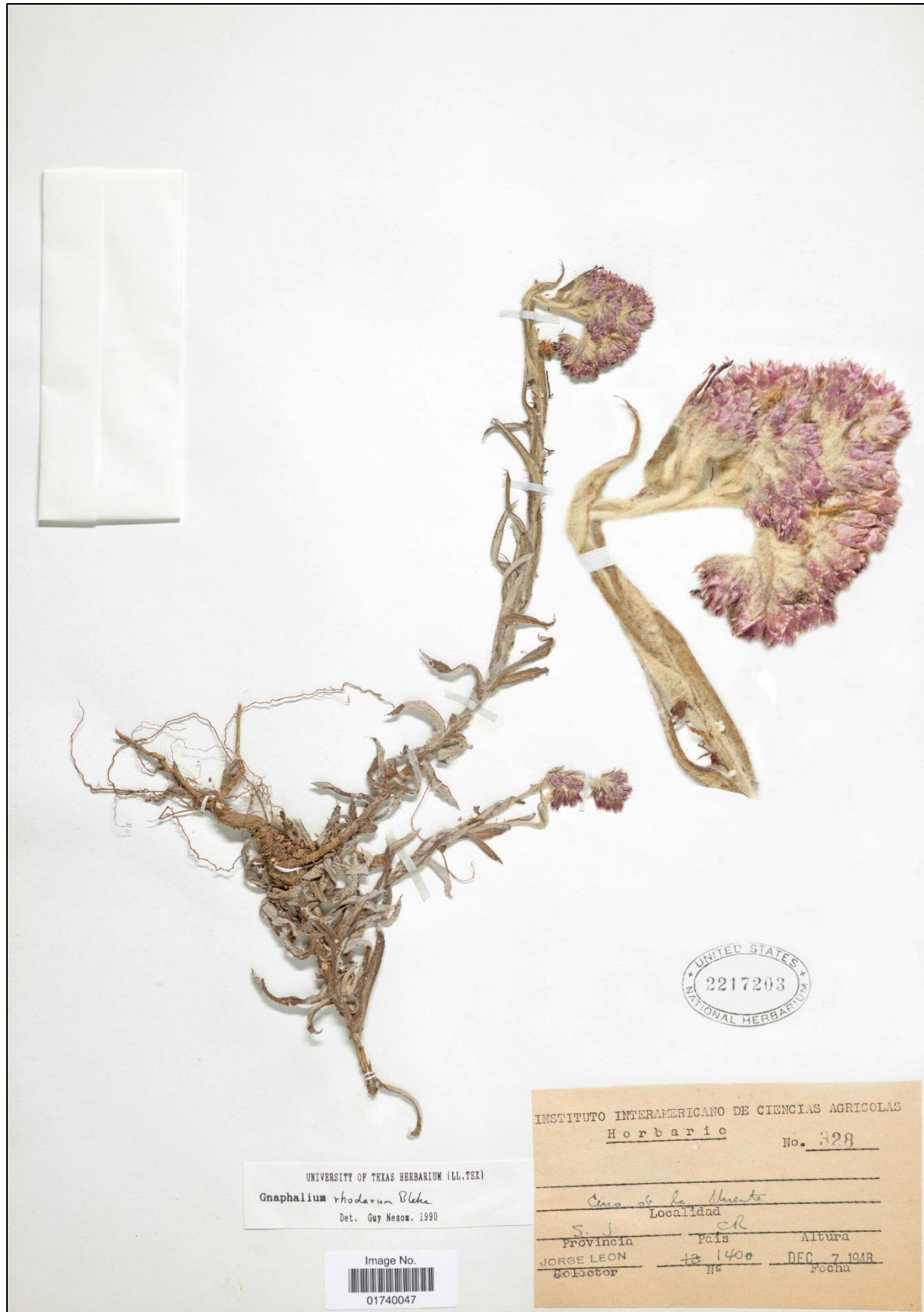


Figure 25. *Pseudognaphalium rhodarum*. Costa Rica, León 328 (US).



Figure 26. *Pseudognaphalium rhodarum*. Costa Rica, Cuatrecasas 26550 (US).



Figure 27. *Pseudognaphalium rhodarum*. Costa Rica, Davidse 24967 (VDB).