

**TAXONOMIC NOTES ON *PSEUDOGNAPHALIUM LIEBMANNII*
(ASTERACEAE: GNAPHALIEAE)**

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ABSTRACT

Pseudognaphalium liebmannii occurs across the mountains of the trans-Mexican Volcanic Belt from Veracruz to Edo. Mexico, Morelos, and perhaps northeastern Michoacan and then disjunct to Colima-Jalisco. Plants about 800 kilometers disjunct on stratovolcanoes in Guatemala are morphologically inseparable from the Mexican ones and justifiably identified as *P. liebmannii*.

Pseudognaphalium liebmannii (Sch.Bip. ex Klatt) Anderb. occurs across the mountains of the trans-Mexican Volcanic Belt, from the peaks of Citlatépetl-Orizaba-Perote along the Veracruz-Puebla border to Tlaxcala (Malinche), Edo. Mexico (Ixtaccihuatl-Popocatépetl, Nevado de Toluca), Morelos (Tepoztlán), and then disjunct to the Nevado de Colima in Colima-Jalisco (Map 2) (McVaugh 1984; Espinosa 2001; Villarreal y Estrada 2021). Populations from northeastern Michoacan are noted below. The species also occurs on stratovolcanoes in Guatemala (Map 3) about 800 kilometers disjunct from the nearest Mexican populations (Map 1) (Pruski 2018). In agreement with Pruski (2018), *P. liebmannii* does not occur in Costa Rica.

Gnaphalium vulcanicum var. *monticola* McVaugh (type from the Sierra de Manantlán in Jalisco) [= *Gnaphalium liebmannii* var. *monticola* (McVaugh) Nash] has been treated as *Pseudognaphalium monticola* (McVaugh) Villarreal, Estrada, & Encina (Villarreal-Q. et al. 2020) — it differs from typical *P. liebmannii* in a number of features. All collections of *P. monticola* at MEXU are from central Mexico (to northeastern and central Michoacan, none from Jalisco) and are of plants distinct from those of Sierra Manantlán — *P. monticola* appears to be a narrow endemic (Nesom in prep.). In the same study, Villarreal et al. treated *Gnaphalium oxyphyllum* var. *nataliae* F.J. Espinosa (the type from Edo. México) as *Pseudognaphalium nataliae* (Espinosa) Villarreal, Estrada, & Encina (2020) — it also is similar to *P. liebmannii* but differs in lower elevation habitats, much taller and strictly erect stature, long-decurrent, discolor leaves with long, acute-attenuate apices, and smaller heads with fewer florets. Both segregate species have vestiture characteristic and tawny involucre of typical *P. liebmannii*, presumably the reason they might be considered as closely related.

PSEUDOGNAPHALIUM LIEBMANNII (Sch.Bip. ex Klatt) Anderb., Opera Bot. 104: 147. 1991.
Gnaphalium liebmannii Sch.Bip. ex Klatt, Leopoldina 23: 89. 1887. **TYPE: MEXICO.**
[Veracruz]. Pico de Orizaba, 10,000 ft, *F.M. Liebmann 310* (holotype: C; isotype: GH-fragment of C). Figure 1.

Gnaphalium vulcanicum I.M. Johnst., Contr. Gray Herb. 68: 100. 1923. **TYPE: MEXICO.**
[Veracruz]. Citlaltépetl, near timber line, Sep 1907, *C.A. Purpus 2782* (holotype: GH; isotype: US). Figure 2.

Some early collections were annotated as *Gnaphalium "popocatepecianum* Sch.Bip." but the name apparently was not validly published.

Perennial herbs, short-lived from a thickened taproot, often with creeping, rhizome-like caudex branches. **Stems** 10-40 cm tall, often several from the base but otherwise not much-branched, erect to decumbent-ascending, densely leafy at the base and more loosely at the upper part, glandular-

tomentose like the leaves. **Leaves:** basal usually persistent but often mostly withered by flowering; cauline linear to linear-lanceolate, 2–6(–8) cm long, 2–7(–12) mm wide, even-sized, subclasping, sometimes slightly ampliate, not decurrent, concolor, loosely but densely tomentose (the epidermis not obscured) on both surfaces with cobwebby hairs and thicker, erect to spreading, viscid trichomes sometimes with a glandular tip. **Heads** usually in a single, dense, terminal cluster. **Phyllaries** in 4–5 series, elliptic-lanceolate, tawny-hyaline and shiny, minutely (lens) red-dotted, inner 6–8 mm long. **Pistillate florets** 65–100(–130). **Bisexual florets** 11–20(–28); corollas 3–3.8 mm long. **Achenes** 0.7–1 mm long, glabrous, surface papillate (overlapping epidermal cells), sometimes obscurely so. Figures 1–15.

Mexico — flowering July–September; sandy soil, rocky habitats, pine pine woods; (2800, Tepoztlán) 3050–4150 (4600, Orizaba) meters. **Guatemala** — flowering July–August (November); open gravelly soil, meadows, fir woods; 3300–4200 meters.

Collections from an area of high elevation in northeastern Michoacan (Mpios. Anganguueo and Contepec), at 2050–3150 meters, are cited by Freire et al. (2022) as *Pseudognaphalium liebmannii*, but I have seen these plants only as images. **Mpio. Anganguueo**, Llano de las Papas, comunidad de Los Remedios, 19° 39' 40.6" N, 100° 16' 4.8" W, 3146 m, pastizal, 13 Aug 2014, *Álvarez 13179* (MEXU); **Mpio. Contepec**, 3 km del camino de Santa María de los Ángeles a Solís, 19° 58' 26" N, 100° 07' 41" W, 3050 m, 25 Sep. 2004, *Martínez et al. 1067* (MEXU); **Mpio. Contepec**, Cerro Altamirano, 19° 58' 36" N, 100° 08' 15" W, 3130 m, 29 Oct. 2005, *Salinas & Martínez 539* (MEXU).

Collections cited by Freire et al. from southeastern Chiapas (SE summit of Volcán Tacaná, *Breedlove 29338*, MEXU) and San Luis Potosí (Guadalcázar, *Torres & Monteros 15954*, MEXU) are species other than *P. liebmannii* (Nesom in prep.).

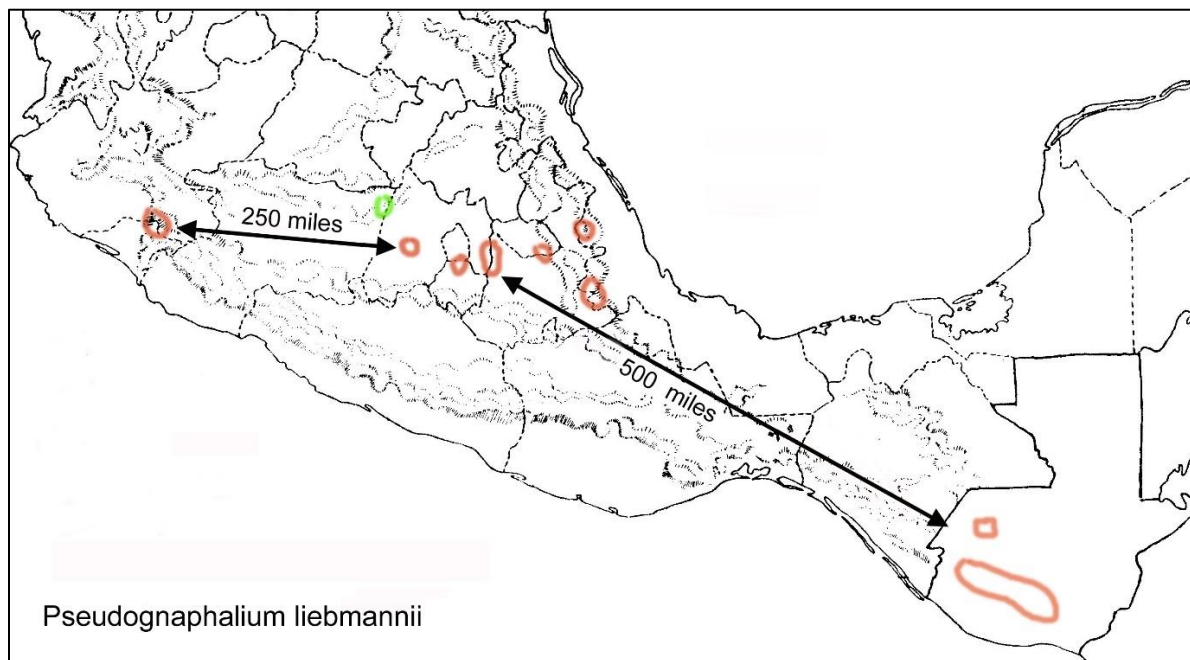
Collections from GUATEMALA. Sacatepéquez, Volcán de Agua, summit of S rim of crater, 3760 m, open gravelly soil, 31 Jul 1959, *Beaman 2910* (US); Huehuetenango, Sierra de los Cuchumatanes, Chemal at KM 315.8 on Ruta Nacional 9N, 3310 m, local disturbed area in grassy meadow, 4 Aug 1959, *Beaman 3091* (US); San Marcos, Volcán Tajumulco, near bottom of the large crater, 4135 m, sandy soil, 9 Aug 1959, *Beaman 3139* (US); Chimaltenango, Volcán Acatenango, summit of peak, 3970 m, volcanically heated bank in sandy soil, 16 Aug 1959, *Beaman 3276* (US); Solola, Volcán Atitlán, near summit of mtn, 3535 m, open sandy-gravelly soil, 10 Aug 1960, *Beaman 4063* (US); Quezaltenango, Volcán Santa María, near summit of mtn, 3770 m, open somewhat weedy and disturbed meadow above timberline, 12 Aug 1960, *Beaman 4121* (US); San Marcos, Tajumulco, Volcán Tajumulco, en la cima, ascendiendo desde la cumbre de Tuichán, 4200 m, 10 Nov 1998, *CDC-Flora 1470* (MEXU); Huehuetenango, Todos Santos Cuchumatán, Puerto del Cielo, 3370 m, bosque de *Abies guatemalensis*, 17 Sep 2006, *Cerén 155* (MEXU); Huehuetenango, Todos Santos Cuchumatán, 3500 m, 28 Aug 1997, *Hernandez & Véliz 97.6092* (MEXU-3 sheets); Sacatepéquez, Volcán de Agua, 3700 m, 24 Aug 2000, *Véliz 10372* (MEXU); Huehuetenango, Mpio. Chiantla, Chancol, 3300 m, 28 Aug 2000, *Véliz MV 10047* (MEXU). Map 3.

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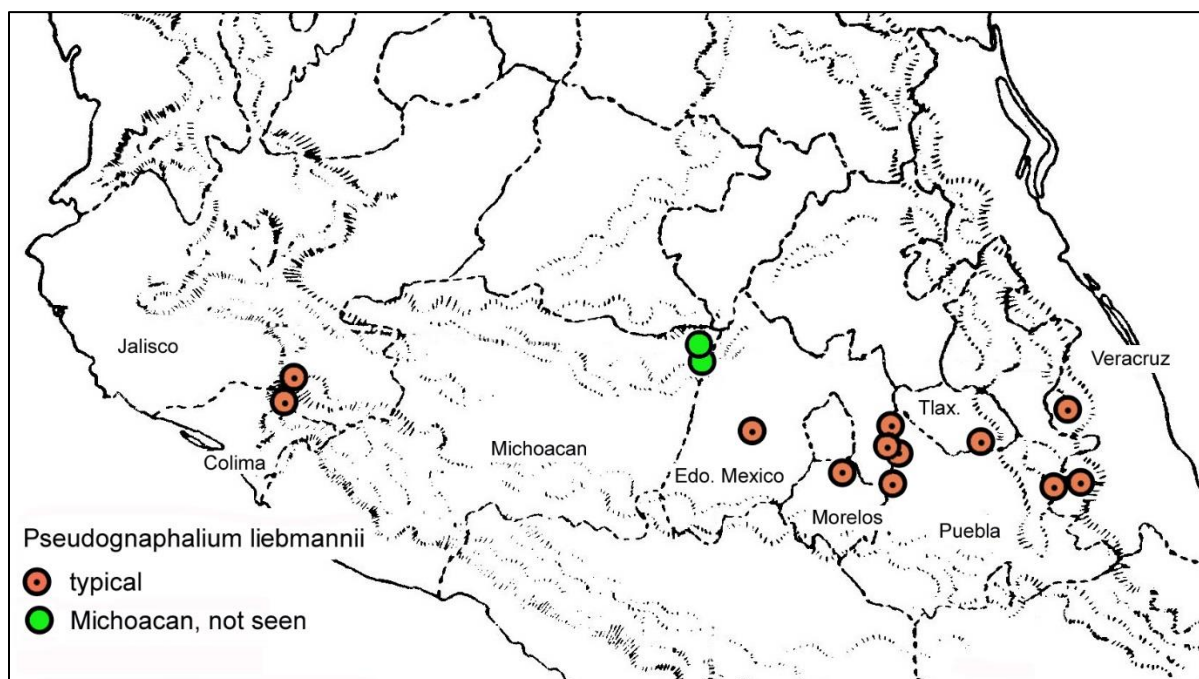
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Villarreal-Quintanilla, J.A., A.E. Estrada-Castillón, y J.A. Encina-Domínguez. 2020. Two taxonomic rank changes in *Pseudognaphalium* (Gnaphalieae, Asteraceae) of Mexico. *Acta Bot. Mex.* 127: e1582.

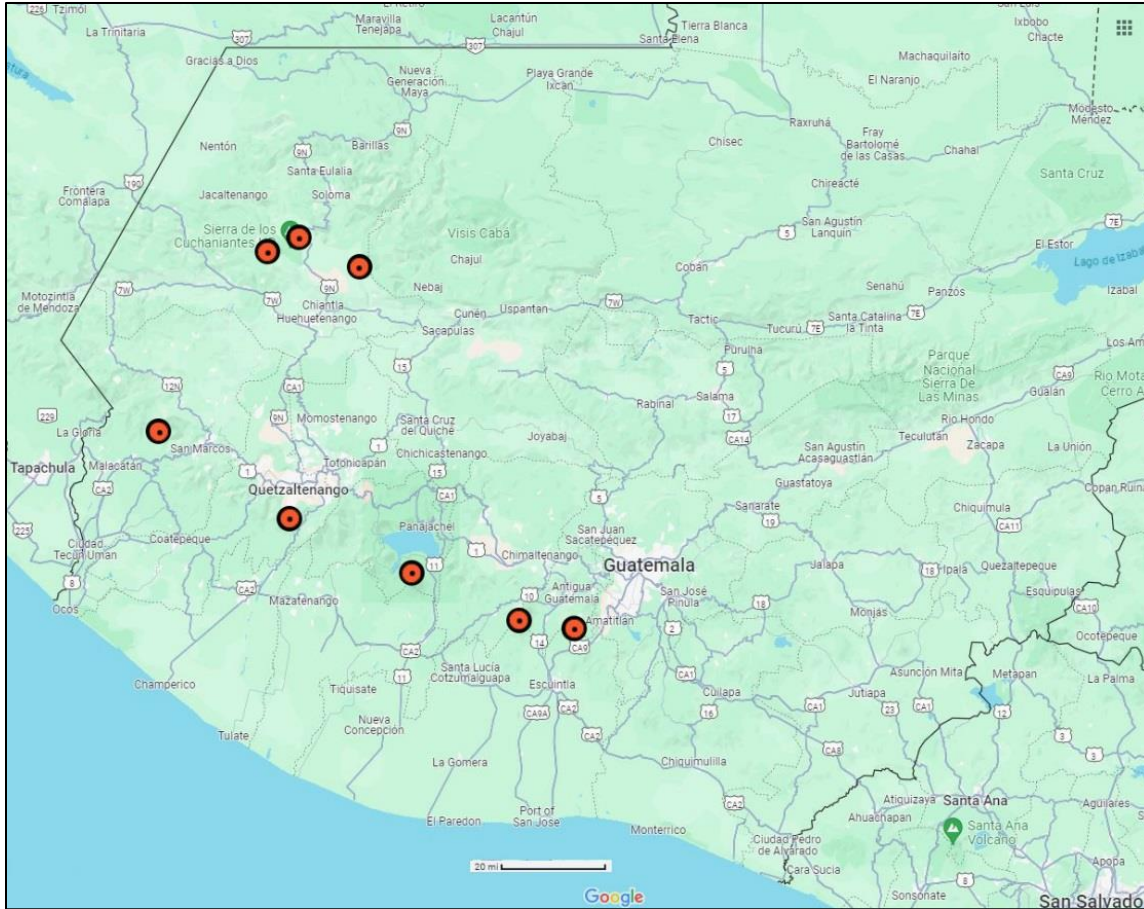
Villarreal Q., J.A. y E. Estrada C. 2021. Asteraceae Tribu Gnaphalieae. *Flora of Veracruz, Fasc. 189.* Instituto de Ecología, A.C., Xalapa, Veracruz.



Map 1. Geographic distribution of *Pseudognaphalium liebmannii*, showing disjunctions.



Map 2. Distribution of *Pseudognaphalium liebmannii* in Mexico. Green symbols in Michoacan are from Mpio. Angangueo and Mpio. Contepec, seen as images in this study, cited in the text.



Map 3. Distribution of *Pseudognaphalium liebmannii* in Guatemala.



Figure 1. *Gnaphalium liebmannii*. Orizaba, Veracruz. Holotype (C).



Figure 2. *Gnaphalium vulcanicum*. Citlaltépetl (Orizaba), Veracruz. Holotype (GH)



Figure 3. *Gnaphalium liebmannii*. Sierra Negra (near Orizaba), Puebla. Balls 4513 (US).

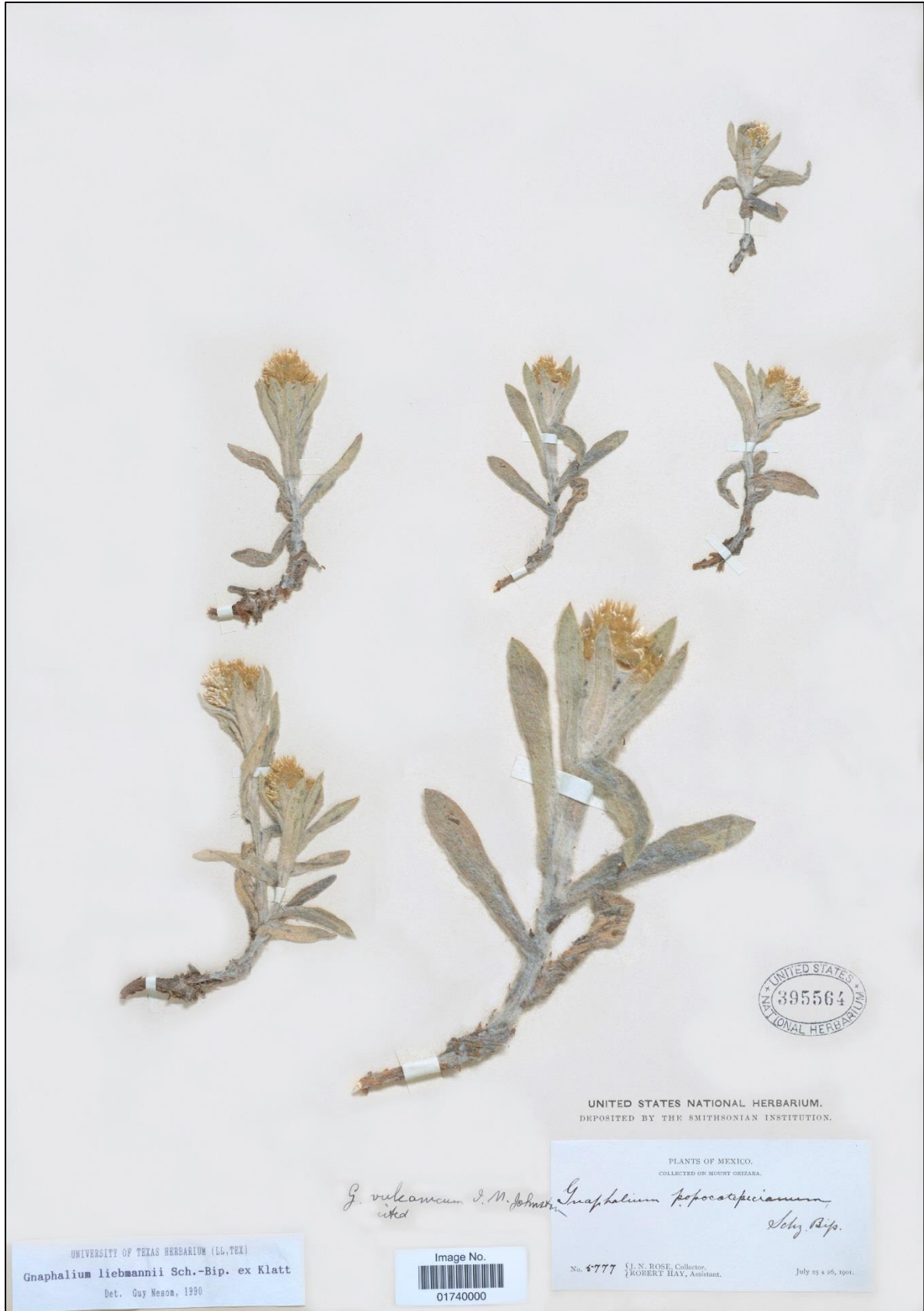


Figure 4. *Gnaphalium liebmannii*. Orizaba, Veracruz. Rose & Hay 5777 (US).



Figure 5. *Gnaphalium liebmannii*. Popocatepetl, Puebla. Beaman 1736 (US).



Figure 6. *Gnaphalium liebmannii*. Popocatepetl, Edo. Mexico. Rose & Hay 6003 (US).



Figure 7. *Gnaphalium liebmannii*. La Cima (SW of D.F.), Edo. Mexico. Degener 26,264 (US).



Figure 8. *Gnaphalium liebmannii*. Nevado de Toluca, Edo. Mexico. *Galbany Casals 2437* (MEXU).



Figure 9. *Gnaphalium liebmannii*. Nevado de Toluca, Edo. Mexico. Detail of Galbany Casals 2437 in Fig. 8.



Figure 10. *Gnaphalium liebmannii*. Mpio. Angangueo, Michoacan. Álvarez 13179 (MEXU).



Figure 11. *Gnaphalium liebmannii*. Mpio. Angangueo, Michoacan. Detail of Álvarez 13179 in Fig. 10.



Figure 12. *Gnaphalium liebmannii*. Nevado de Colima, Colima. Goldsmith 63 (US).



Figure 13. *Gnaphalium liebmannii*. Nevado de Colima, Colima, Jalisco. McVaugh 12905 (US).



Figure 14. *Gnaphalium liebmannii*. Sierra de los Cuchumatanes, Guatemala. Beaman 3091 (US).



Figure 15. *Gnaphalium liebmannii*. Volcán Tajumulco, Guatemala. Beaman 3139 (US).

Oaxaca. Near Reyes, 7500-10,400 ft, 17 Oct 1894, *E.W. Nelson 1745* (US).

"The town of Reyes is situated on the west side of the Sierra de Reyes which borders the valley of Cuicatlan. It is about 10 miles northeast of the town of Cuicatlan, at an altitude of 6,700 feet. The Sierra de Reyes runs in a north and south direction. The slopes both on the east and west are very steep. The divide above Reyes is 9,400 feet altitude. The highest peak of this range is the Volcan Negro [now known as Cerro Volcán Prieto], whose altitude is 10,400 feet" (Coulter & Rose 1895, p. 293).

Coulter, J.M. and J.N. Rose. 1895. Report on Mexican Umbelliferae, mostly from the state of Oaxaca, recently collected by C.G. Pringle and E.W. Nelson. *Contr U.S. Ntl. Herb.* 3: 289–309.

**NEW AND NEWLY RECOGNIZED SPECIES OF *PSEUDOGNAPHALIUM*
(ASTERACEAE: GNAPHALIEAE)
FROM MEXICO**

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ABSTRACT

(a) The type of *Pseudognaphalium monticola* is from the Sierra de Manantlán in Jalisco and the species is interpreted as narrowly endemic there. Plants from central Mexico that have been identified as such are a different species, recognized here as ***Pseudognaphalium tenochtitlanum* Nesom, sp. nov.**

(b) *Gnaphalium crenatum* Greenm. from near Guadalajara, Jalisco, is represented only by 6 plants of the holotype and isotypes. Suggestions that they are related to *Pseudognaphalium stramineum* or intermediate between *P. stramineum* and *P. viscosum* seem accurate, but the plants of Pringle's collection are consistent in morphology and are distinct from both species. They are recognized as ***Pseudo-gnaphalium crenatum* (Greenm.) Nesom, comb. nov.**

(c) *Gnaphalium oaxacanum* and *Gnaphalium oblanceolatum* are distinct entities from Oaxaca and are recognized here as ***Pseudognaphalium oaxacanum* (asdfasd) Nesom, comb. nov.**, and ***Pseudo-gnaphalium oblanceolatum* (Greenm.) Nesom, comb. nov.**

(d) A previously unrecognized species of Oaxaca is described here as ***Pseudognaphalium asdfasdfs* Nesom, sp. nov.**

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***PSEUDOGNAPHALIUM MONTICOLA* (McVaugh) Villarreal, Estrada, & Encina, *Acta Bot. Mex.* 127: 5. 2020. *Gnaphalium vulcanicum* var. *monticola* McVaugh, *Contr. Univ. Michigan Herb.* 9: 466.**

1972. *Gnaphalium liebmannii* Sch.Bip. ex Klatt var. *monticola* (McVaugh) Nash, Fieldiana, Bot. 36: 74. 1974. *Pseudognaphalium liebmannii* (Sch.Bip. ex Klatt) Anderb. var. *monticola* (McVaugh) Hinojosa & Villaseñor, Bot. Sci. 92: 490. 2014. **TYPE: MEXICO. Jalisco.** Sierra de Manantlán, 25–30 km SE of Autlan, pine forest near summits between El Chante & Cuzalapa, 19° 35' N, 104° 8–15' W, 2750 m, 20–21 Mar 1965, *R. McVaugh 23126* (holotype: MICH; isotypes: CAS, ENCB, NY).

Hierbas anuales o bianuales, aromáticas; tallos erectos, de 40-120 cm de alto, solitarios, o varios desde la base, ramificados en la parte superior, pubescencia de tricomas simples, tricomas glandulares mezclados con pubescencia grisácea, araneosa a serícea-araneosa. Hojas discoloras, basales y caulinares sésiles o cortamente pecioladas, ascendentes, casi del mismo tamaño hasta la inflorescencia, limbos lineares, lanceolados a angostamente oblanceolados, de 4-15 cm largo, 0.4-1 cm ancho, margen entero, plano, ocasionalmente revoluto, ápice atenuado a agudo, base ligeramente dilatada en la parte inferior, brevemente auriculada, subamplexicaule, cortamente decurrente, haz verde, abundantes tricomas glandulares, cortos, pubescencia araneosa muy escasa, una sola nervadura, envés blanco-grisáceo, lanoso a lanoso-araneoso. Cabezuelas en pedúnculos de 2-10 mm de largo, en grupos de 5-15, formando corimbos al final de las ramas, ramificaciones tomentosas, brácteas foliáceas, de 7-28 mm de largo; involucros campanulados a subglobosos, de 4-7 mm de largo, 3-4 mm de ancho, brácteas 20-40, en 4-5 series, amarillo-parduzcas, lustrosas, elípticas a lanceoladas, escariosas, glabras o con escasa pubescencia lanosa en la base, ápices agudos a acuminados, enteros; flores del disco blanco-amarillentas, las periféricas 50-70, en 4-5 hileras, corolas de 3-4 mm de largo, lóbulos de 0.1-0.2 mm de largo, las más centrales 10-20, de 4-4.5 mm de largo, lóbulos parduzcos, agudos, de 0.5-0.6 mm de largo. Aquenios pardo-amarillentos, oblongos, ligeramente comprimidos, de 0.6-0.8 mm de largo, glabros, ligeramente papilosos; vilano de 12-15 cerdas, blanco-cremosas, de 4-5 mm de largo.

PSEUDOGNAPHALIUM TENOCHTITLANUM Nesom, sp. nov. TYPE: MEXICO. asdfads

Annual or biennial herbs, 0.3–0.8(–1.5) m, simple or branched at the base, stem erect, glandular or glandular-lanuginose. **Leaves** 4.5–8 × 0.2–0.6 cm, linear-lanceolate, margins flat, slightly revolute, apex acute, **base clasping, decurrent on stem 3–6(–19) mm or not**, discolorous, adaxial surface conspicuously **stipitate-glandular or glandular-lanuginose**, abaxial surface white-woolly, with a mix of long esepstate-glandular, short clavate-glandular, and long stipitate-glandular trichomes. **Capitula** numerous in clusters arranged in corymbs, sometimes subpaniculate; involucre campanulate, 4–6 ×

2.5–5.5 mm; phyllaries 23–53, in 5–6 series, lamina yellow-brownish to straw-colored, shiny, apex conspicuously acute, outer phyllaries 3.5–4.5 mm long, narrowly ovate, inner phyllaries 4.2–6 mm long, obovate, innermost phyllaries 3–4.5 mm long, linear. **Pistillate florets** 40–95(–280). **Bisexual florets** 6–41, corollas 2.5–3.5 mm long. **Achenes** 0.5–0.8 mm long, glabrous, **epidermis smooth**.

Additional collections. MEXICO. Cd. de México. SW de Cd. de México, 2960 m, 9 Aug 2014, *Galbany 2422* (MEXU); Cañada de Contreras, Aug 1952, *Gallegos 407* (MEXU); Ixtapaluca, ladera de San Francisco, 1.5 km SW Estación Experimental Zoquiapan, 3345 m, 25 Aug 2000, *Guízar 5098* (MEXU). **Hidalgo.** Tepeapulco, cerro Xihuingo, 7 Oct 1973, *Rzedowski 12047* (ENCB not seen). **Edo. México.** Amecameca, 2600 m, 20 Aug 1950, *Matuda 19300* (MEXU); Toluca, San Mateo Zacatipar [San Mateo Otzacatipan], 2600 m, *Rivera s.n.* (MEXU). **Michoacán.** Morelia, lado E del cerro El Águila, subiendo por el poblado de San Nicolás Obispo, 2385 m, 19 Jan 2008, *Sánchez 531* (MEXU not seen). **Morelos.** Tepoztlán, Pedregal de “La Pera,” San Juan Tlacotenco, 2535 m, 3 Nov 2010, *Block 396* (MEXU).

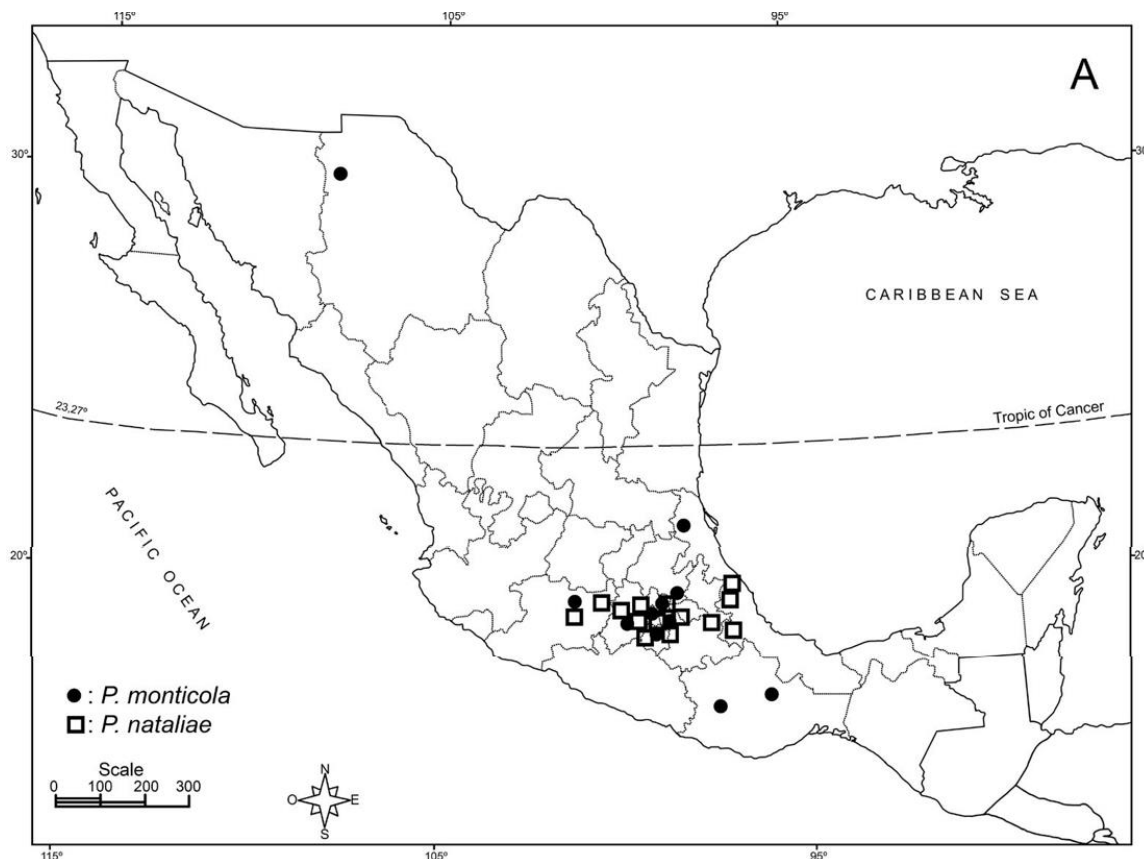
Freire et al. (2022) did not map the locality for the type collection of *Pseudognaphalium monticola*, west of their indicated range. Their cited collections from Chihuahua, Oaxaca, and apparently Veracruz are of different species.

Chihuahua. Near Colonia García, *Townsend & Barber 334* (= *Pseudognaphalium priscum* Nesom).

Oaxaca. Totontepec, *Rivera 988* (MEXU = *Ps. aff. oaxacanum*).

Oaxaca. SE of Tlaxiaco, *Soule & Brunner 2420* (*Ps. adfsasdfad* at TEX, not in MEXU).

Veracruz. Las Vigas, *Ventura 666* (cited as MEXU, but this collections not found anywhere).



Pseudognaphalium nataliae (F.J. Espinosa) Villarreal, Estrada, & Encina, Acta Bot. Mex. 127: 6. 2020. *Gnaphalium oxyphyllum* var. *nataliae* F.J. Espinosa, Bol. Soc. Bot. México 45: 17. 1983. *Pseudognaphalium oxyphyllum* var. *nataliae* (F.J. Espinosa) Hinojosa & Villaseñor, Bot. Sci. 92: 491. 2014. **TYPE: MEXICO. Edo. Mexico.** Mpio. Amecameca, San Pedro Nexcapa, 3000 m, 21 Sep 1979, *F.J. Espinosa 766* (holotype: MEXU; isotypes: ANSM, ENCB).

Perennial herbs, 0.5–1.5 m, several-stemmed from the base, stems erect, winged, uniformly leafy, whitish lanuginose. **Leaves** 5–10 × 0.5–1.1 cm, lanceolate, apex attenuate-acute, margins flat or slightly wavy and revolute, **base (those on proximal 1/3 of stems) strongly decurrent**, extending down beyond the middle of the internode or rounded to obtuse and not decurrent (distal 2/3 of stems), discolorous, **arachnoid and stipitate-glandular above**, lanuginose and stipitate-glandular below, with a mix of long, eseptate-glandular, short clavate-glandular, and long stipitate-glandular trichomes. **Capitula** many in clusters arranged in leafy corymbose panicles; involucre campanulate, 4–5 × 3–4 mm; phyllaries 18 to 21, 4-5-seriate, lamina white to whitish, shiny, outer phyllaries 3.5–4 × ca. 2 mm, ovate, apex subobtuse, inner phyllaries 3.5–4.5 × 1–1.2 mm, elliptic-obovate, apex obtuse, innermost phyllaries 2.5–4 × 0.5–0.8 mm, linear, apex acute. **Pistillate florets** 26–37. **Bisexual florets** (2–)3–5; corollas 2.3–3.5 mm long. Achenes 0.5–0.8 mm, glabrous, **epidermis smooth**; pappus bristles 2.8–3.5 mm.

Recognition. *Pseudognaphalium nataliae* resembles *P. bourgovii* (Fig. 3). Both species have discolorous, strongly decurrent leaves (at least proximally on stems) and white to whitish phyllaries. However, *P. nataliae* mainly differs because it has lanceolate leaves not decurrent distally, stipitate-glandular on adaxial surface (vs. linear-oblong leaves with adaxial surface arachnoid to lanuginose).

Additional specimens examined. MEXICO. **Cd. México.** Tlalpan, Ajusco, carretera Periférico–Ajusco, 10 Aug 1979, *Espinosa 669* (MEXU); Milpa Alta, faldas del volcán Acopixaco, 3200 m, 15 Nov 1992, *Giles 18* (MEXU); Desierto de los Leones, Nov 1937, *Lyonnet 3057* (MEXU); Magdalena Contreras, dínamo Contreras, 2600 m, Oct 1929, *Matuda 18704* (MEXU); Santa Rosa, 2800 m, 5 Nov 1950, *Matuda 18785* (MEXU, NY); Colonia de Vista Alegre, 2600 m, 2 Dec 1951, *Matuda 25802* (MEXU); Milpa Alta, 3000 m, 28 Nov 1976, *Ventura 1066* (MEXU). **Edo. México.** San José del Rincón, 6.2 km de Palo Seco, Ejido La Mesa, 19° 35' 39.5" N, 100° 15' 4.1" W, 3620 m, 24 Nov 2014, *Álvarez et al. 14828* (MEXU); Amecameca, Tlamacas, 3900 m, 2 Dec 1979, *Herrera 112* (MEXU); México, Sierra Las Cruces, 21 Oct 1892, *Pringle 4312* (MEXU not seen); Ixtapaluca, Zoquiapan, 3280 m, 1 Nov 1978, *Rico 23* (MEXU not seen); Jilotzingo, 3 km NW de San Luis Ayucan, carr. a Santa Ana Jilotzingo, 2850 m, 29 Oct 1978, *Rzedowski 35963* (MEXU); Iturbide, alrededores de la presa Iturbide, 3250 m, 21 Nov 1982, *Rzedowski 38024* (MEXU not seen). **Michoacán.** Angangueo, Sierra Chincua, Reserva de la Biosfera Mariposa Monarca, 19° 40' 32" N, 100° 15' 52" W, bosque de *Abies religiosa*, 2910 m, 10 Mar 2001, *Cornejo T. 127* (MEXU); Morelia, W cerro El Águila, ca. 4 km SE de Iratzio, 2800 m, 15 Nov 2010, *Flores 147* (MEXU); Angangueo, El Rosario, 7 km SE de Angangueo, 3050 m, 1 Dec 1984, *Soto 6956* (MEXU). **Morelos.** Huitzilac, Parque Nacional Lagunas de Zempoala, 8 Dec 1983, *Peñaloza 188* (MEXU). **Puebla.** Santa Cruz Texmalahuilla, Pico de Orizaba, 27 Sep 1973, *Rodríguez s.n.* (MEXU not seen). **Veracruz.** Las Vigas, Las Lachas, carretera Perote–Jalapa, 19 Sep 1972, *Boege 2477* (MEXU not seen); Calchualco, 9.5 km by road W of Escola along Coscomatepec–Escola–Jacal road, 15 Nov 1981, *Nee 23167* (XAL not seen); Mariano Escobedo, Agua de San Pablo, 4.5 km de Pilancón, 11 Aug 1988, *Ramírez 103* (XAL not seen); Rafael Ramírez [Las Vigas de Ramírez], Rancho San Isidro El Chico, a 2 km de Los Pescados, 17 Oct 1984, *Tapia 485* (XAL not seen).

5a. Leaves strongly decurrent on stem (wings extending down beyond middle of internode).

6a. Leaves lanceolate, adaxial surface arachnoid and stipitate-glandular 24. *P. nataliae*

- 6b. Leaves linear-oblong, adaxial surface not stipitate-glandular. 5. *P. bourgovii*
 5b. Leaves not to moderately decurrent on stem (wings never extending down beyond middle of internode).

PSEUDOGNAPHALIUM CRENATUM (Greenm.) Nesom, **comb. nov.** *Gnaphalium crenatum* Greenm., Proc. Amer. Acad. Arts 39: 96. 1903. **TYPE: MEXICO. Jalisco.** Near Guadalajara, dry banks, 5000 ft, 15 May 1901, *C.G. Pringle 9524* (holotype: GH; isotypes: CM, MEXU, NY, **TEX**, VT).

Gnaphalium crenatum. Stem herbaceous, erect, 3 to 4 dm. high, branching from the base, leafy throughout, terete, white-tomentose with glandular-hirtellous hairs intermixed: leaves sessile, semiamplexicaul and often somewhat decurrent, spatulate to linear-lanceolate, 2.5 to 5 cm. long, 2 to 5 mm. broad, acute or mucronate-acute, more or less arachnoid and densely glandular-hirtellous above, lanate-tomentose beneath; margins revolute and mostly crenate: inflorescence a terminal corymbose cyme: heads about 5 mm. high, disposed in rather dense glomerules: involucre pale-stramineous, 4-5-seriate; scales of the involucre lanceolate, tomentose at the base and greenish along the median line, the outer acuminate, acute, the inner obtusish. — MEXICO. State of Jalisco: near Guadalajara, *C. G. Pringle*, no. 9524 (hb. Gr.).

The affinity of this species is apparently with *G. gracile*, and *G. stramineum*, HBK.

Freire et al. (2022) placed it as a synonym of *Ps. viscosum*

PSEUDOGNAPHALIUM OBLANCEOLATUM (Greenm.) Nesom, **comb. nov.** *Gnaphalium oblanceolatum* Greenm., Proc. Amer. Acad. Arts 39: 97. 1903. **Lectotype** (Freire et al. 2022): **Mexico. Oaxaca.** Cerro de San Felipe, 1800 m, 1 Sep 1897, C. Conzatti & V. González 696 (GH).

Freire et al. (2022) placed it as a synonym of *Ps. roseum*

Gnaphalium oblanceolatum. Densely white lanate-tomentose throughout: stem erect, 4 to 5 dm. high, ligneous at the base, simple or branched, leafy: leaves sessile by a half-clasping base, oblanceolate, 2 to 7 cm. long, 0.5 to 1.5 cm. broad, entire, white lanate-tomentose on both surfaces or arachnoid above, also bearing on the upper surface crowded crisp hirsutish hairs: inflorescence terminating the stem and branches in a leafy corymbose panicle: heads crowded: involucre about 5 mm. high; scales imbricated, acute, pale yellow.—MEXICO. State of Oaxaca: Cerro de San Felipe, altitude 1800 m., 21 August, and 1st September, 1897, Conzatti & González, nos. 385 and 696 (hb. Gr.).

The species here proposed is described from young flowering specimens. In general appearance it approaches most closely *G. pannosum*, Gray, from which, however, it differs in the more leafy stem and in the oblanceolate leaf-outline.

Oaxaca.

Near Mitla, 15 Jan 1937, *Camp 2443* (US);

Cerro de San Felipe, 1800 m, 21 Aug 1897, *Conzatti & González 385* (GH);

Mpio. Tejalapa, captación de agua El Negro, 17° 01' 25.7" N, 96° 55' 0.7" W, bosque de pino-encino, orilla de arroyo en cascajo negro, 2210 m, 17 Feb 2012, *Cruz C. 995* (MEXU);

Sierra de San Felipe, 7000 ft, 17 Nov 1894, *Pringle 5682* (NMC, US) 52/10

Distr. Tlacolula, 5 km S de Matatlán, Nueve Puntas, Estacion de Microondas, veg. esclerófila, 2 Dec 1980, *Ramamoorthy 1186* (MEXU)

Sierra de San Felipe, 7000-8000 ft, 17 Nov 1894, *Smith 591* (US)

plants to 60-70 cm tall
52/10 -- Pringle 5682 (US)

PSEUDOGNAPHALIUM OAXACANUM ETC.**oaxacanum**

Between Mitla and Cuesta, 30 Jan 1966, *Ernst 2386* (US)

Sierra de San Felipe, 10,000 ft, 25 Sep 1894, *Smith 597* (US)

decurrent

18 mi SW of the city of Oaxaca, 7500-9500 ft, 10-20 Sep 1894, *E.W. Nelson 1330* (US)