

**CIRSIUM GRAHAMII (ASTERACEAE)  
AND A PUTATIVE SISTER SPECIES FROM DURANGO AND NAYARIT,  
CIRSIUM HYGROPODUM, SP. NOV.**

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**ABSTRACT**

Plants from southern Durango, Mexico, have been identified as *Cirsium grahamii* but the latter is a species of Arizona, New Mexico, and northwestern Chihuahua. The Durango plants (extending south to Nayarit) are described here as ***Cirsium hygropodum* Nesom, sp. nov.**, distinct from *C. grahamii*. *Cirsium pringlei* of the eastern Sierra Madre (Coahuila, Nuevo León, Tamaulipas) is similar to *C. grahamii* and apparently closely related — all three species are biennials and produce essentially ebracteate heads, short-spined phyllaries with a broad, raised-glutinous midregion, and dark purple corollas. A distribution map is provided for each of the three and *C. hygropodum* is illustrated and contrasted with *C. grahamii* by representative herbarium collections. A lectotype is designated for *Cirsium grahamii*.

Three allopatric populations systems of North American *Cirsium* appear to form a natural group — plants of each have an annual/biennial duration, purple phyllaries with a thickened-raised-glandular midregion, ciliolate to hispidulous margins, and short-spined apices, and dark purple corollas. *Cirsium pringlei* occurs in the eastern Sierra Madre; *C. grahamii* occurs from southern Arizona and New Mexico into the Sierra Madre of northeastern Chihuahua; the third entity occurs in southern Durango and Nayarit and has previously been identified as *C. grahamii*, but it is here recognized as morphologically distinct and treated as a separate species, *C. hygropodum*. They can be identified using the maps and key presented here.

1. Eastern Sierra Madre; taprooted; stems usually 1–3 branched distally, heads several per primary stem; basal leaves grossly larger than cauline and deeply pinnatisect; leaves clasping-subauriculate, marginal spines 3–7 mm long; adaxial leaf surface with prominent multicellular hairs; corolla tube 8–11 mm long ..... ***Cirsium pringlei***

1. Western Sierra Madre; mostly fibrous-rooted; stems usually unbranched distally, heads 1 per primary stem; basal leaves similar to cauline; leaves not clasping or auriculate, marginal spines mostly 1–4 mm long; adaxial leaf surface without multicellular hairs; corolla tube 11–12 mm long or 13–18 mm long.

2. Stems persistently with multicellular hairs; phyllary lateral areas smooth, margins prominently hirsutulous-ciliolate with needle-sharp hairs 0.1–0.2 mm long; corolla tube 13–18 mm long ..... ***Cirsium grahamii***

2. Stems without multicellular hairs; phyllary lateral areas minutely warty-hispidulous, margins hispidulous-scabrous with tiny hairs continuous from the lateral areas; corolla tube 11–12 mm long ..... ***Cirsium hygropodum***

**1. CIRSIUM GRAHAMII** A. Gray, Smithsonian Contr. Knowl. 5(6) [Plantae Wrightianae]: 102. 1853. *Cirsium undulatum* var. *grahamii* (A. Gray) Petrak, Beih. Bot. Centralbl. (Abt. 2) 27: 247. 1910. **LECTOTYPE** (designated here): **USA. Arizona.** Protologue: "Low grounds, in valleys between the Sonoita and the San Pedro, Sonora," Sep 1851, *C. Wright 1296* (NY 167525; isolectotypes: K, NY). See Figure 1.

On September 14-15, 1851, Wright was between the San Pedro River and Sonoita Creek (fide Johnston 1940: "a stream flowering east from the east side of the Huachuaca Mts in southwestern Cochise County. ... What Wright called the Valley of Sonora is the country west of the San Pedro River and east of the Huachuca and Whetstone mountains. It is all in Arizona and in western Cochise County"). His field number 514 from these two days (from "Valleys of Sonora, in alluvial soil along branches") probably is the type of *Cirsium grahamii* — it was entered in his notes as "Cirsium, 3-5 ft tall, branching near the top." As noted by Johnston, Gray assigned "distribution numbers" to Wright's collections (i.e., *Wright 1296*), disregarding the field numbers as he made Wright's plants into sets.

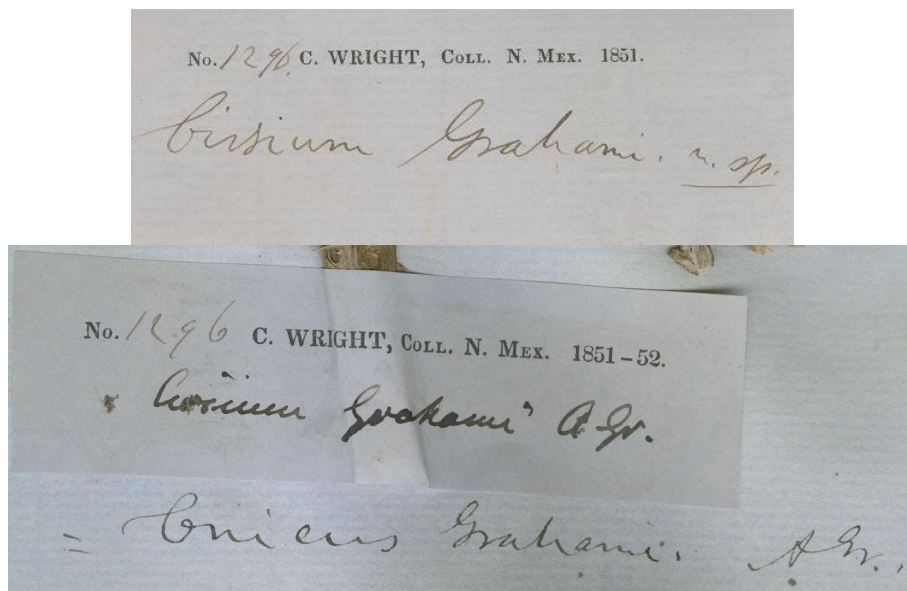


Figure 1. Annotations by Asa Gray on specimens of *Wright 1296*. Top: NY 167525 (lectotype). Bottom: K (isolectotype). Gray perhaps saw the K sheet during his study there in 1868-69, the NY sheet perhaps earlier when was using *Cirsium* (vs. *Cnicus*) as the name at generic rank (as in the protologue).

**Biennial**, usually with a slender taproot and fascicle of thick fibrous roots. **Stems** 0.5–1 m tall, thinly sericeous and glabrescent, persistently sparsely puberulent to short-villous with multicellular hairs. **Leaves**: basal often present at flowering, cauline oblanceolate to oblong-elliptic, 20–30 cm long, entire to sinuate dentate or pinnatifid, marginal spines mostly 1–4 mm, abaxial surface persistently gray-tomentose, sometimes pilose along veins with multicellular hairs, adaxially thinly sericeous and glabrescent, winged-petiolate, not clasping, rarely decurrent 1–3 mm, reduced in size distally and becoming bracteate. **Heads** solitary on leafy or bracteate peduncles 10–30 cm long, ebracteate or sometimes with a few small spiny-margined bracts. **Involucres** 2–4 cm wide (pressed), thinly arachnoid, glabrescent and usually becoming glabrous glabrous. **Phyllaries** tightly appressed, evenly graduate-imbricate, outer lanceolate with an erect to slightly spreading, terminal spine 1.5–2.5 mm, proximally brownish, distally dark purplish, with a narrow, thickened-raised-glutinous midregion, lateral areas smooth, margins prominently hirsutulous-ciliolate with needle-sharp hairs 0.1–0.2 mm long, without marginal spines, inner with flattened, flexuous, attenuate apices. **Corollas** deep purple, 22–30 mm long, tube 13–18 mm, throat 4–5 mm, lobes 5–8 mm; stigmatic branches 4–4.5 mm long. **Chromosome number** not reported.

Arizona, New Mexico (Catron Co.), Chihuahua (reported for Sonora by Keil 2006, perhaps alluding to the type locality, the "Valley of Sonora" in Arizona, see above). Oak, pine, pine-aspen, mixed conifer, wet or moist meadows, seeps, along streams and around springs, canyon bottoms, gravelly slopes; 1400–2650 m. Flowering July-September.

**Additional collections. MEXICO. Chihuahua.** Chuhuichupa, swale, 1 Aug 1936, *LeSueur 1027* (LL, TEX); near Colonia Garcia, 1-20 Aug 1899, *Nelson 6196* (NY, US); S of Colonia Garcia, wet meadow, Meadow Valley, 2300-2400 m, 23 Sep 1934, *Pennell 19113* (NY, US); Mpio. Guerrero, on the Talayotes-Sisoguichic road 10 km NE of San Juanito, in muck and water, 16 Sep 1987, *Spellenberg 9411* (MEXU, NMC, NY, TEX); near Colonia Garcia, 8000 ft, 7 Aug 1899, *Townsend & Barber 234* (MEXU, NY, US-2 sheets). **Sonora.** No collections seen.

Hybridization between *Cirsium grahamii* and *C. parryi* (A. Gray) Petrak has been documented by collections (ASU) by L.R. Landrum from the vicinity of Alpine in Apache Co., Arizona.

**2. CIRSIUM HYGROPODUM Nesom, sp. nov. TYPE: MEXICO. Durango.** [Mpio. Pueblo Nuevo]: Rte 40, 5.5 mi SW of El Salto, wet ground along stream, ca. 8800 ft, common for several miles westward in similar habitats, 8 Aug 1966, *G.B. Ownbey 3923* (holotype: MEXU; isotypes: MSC-2 sheets-see Fig. 11, NY, US-Fig. 10).

**Annual to biennial**, stems "solitary from a short, fibrous-rooted crown" (*Cronquist 9570*), **Stems** 0.6–1 m tall, sparsely sericeous, glabrescent, without multicellular hairs. **Leaves** deeply pinnatifid to narrowly lanceolate and shallowly lobed (basal and proximal), cauline lanceolate, shallowly toothed or lobed, strongly reduced in size distally, not clasping or auriculate, marginal spines mostly 2–3 mm long, abaxial surface persistently densely sericeous, adaxially lightly sericeous, glabrescent to glabrous and green, multicellular hairs absent. **Heads** solitary on bracteate peduncles 8–20 cm long, immediately subtended by prickly bracts. **Involucres** 2–3 cm wide (pressed); phyllaries tightly appressed, evenly graduate-imbricate, outer ovate-lanceolate with an erect to spreading terminal spine 1–2 mm long, purple distally with a narrow, thickened-raised-glutinous midregion, lateral areas minutely warty-hispidulous, margins hispidulous-scabrous with tiny hairs continuous from the lateral areas, without marginal spines, inner narrowly oblong-triangular with a flattened, long-attenuate, and loose apex. **Corollas** dark purple, 21–22 mm long, tube 11–12 mm, throat 4–5 mm, lobes 5–7 mm; stigmatic branches 3–4 mm long. **Chromosome number**,  $2n = 32$  (*Roberts & Keil 10272*).

Durango, Nayarit. Pine and pine-oak, open woods, ravines, moist meadows, along streams, seepy hillsides, marshy areas, roadsides; 2100–2750 m. Flowering (June-)July-October.

**Additional collections. MEXICO. Durango.** Mpio. Durango: Cia. Gan. El Carmen, Km 46 carr. Durango-Mazatlan, 2400 m, bosque aciculifolio, Sep 1998, *Aguirre 303* (MEXU); ca. 50 mi W of Durango, 22 mi NW of Los Coyotes RR station, edge of sloping moist meadow in open pine-oak woodland, 7500 ft, 30 Sep 1962, *Cronquist 9570* (MEXU, NY, TEX); 46 km from Durango on Hwy 40, Rio Mimbres, along stream in canyon, 17 Aug 1975, *Gillett 17037* (MEXU). Mpio. El Salto: 13 km al SW de El Salto, camino a Pueblo Nuevo, bosque de *Pinus*, 2750 m, 11 Oct 1983, *Fernández N. 1899* (MEX); 8 km S de El Salto, bosque de pino-encino, 25 Jul 1981, *González 1755* (MEXU-2 sheets, TEX); alrededores de El Salto, bosque de pino, 2700 m, 4 Oct 1981, *González 2055* (MEXU, TEX); 34 mi W of Cd. Durango on hwy to El Salto, plateau W of Arroyo Mimbres, sparsely wooded grasslands, 2300-2400 m, 8 Aug 1952, *Maysilles 7665* (MEXU); Rte 40, 47 mi E of the Durango border, ca. 11 mi W of El Salto, pine woodland with open marshy areas, 2750 m, 23 Aug 1991, *Soule 2748* (MEXU, MSC, TEX); 4.5 km al SW de El Salto, brecha El Salto-Pueblo Nuevo, bosque de pino-encino, orilla de la carretera, 2100 m, 3 Jul 1982, *Tenorio L. 792* (MEXU-2 sheets, MSC); 27 km al N de Coyotes, brecha a San Miguel de Cruces, 2100 m, bosque de pino-encino, 8 Jul 1984, *Tenorio L. 6343* (MEXU). Mpio. Pueblo Nuevo: 3 km al S de Santa Maria de Ocotán, en ladera, bosque de pino-encino, 17 Oct 1984, *González 1564* (TEX); Tapextle a 18 km de la desv. a La Mina San Luis, 2200 m, bosque de pino-encino, 5 Jul 1982, *Hernández M. 7627* (MEXU); 10 mi SW of La Ciudad along Mexico Rte 40, wooded ravine in oak-pine area, 8200 ft, occasional to locally common on wet seeping hillside, 27 Jun 1974, *Roberts & Keil 10272*, voucher for chromosome count by Keil of  $n=16$  (F). Mpio. Suchil: Reserva de Michilía, potrero San Juan de Michis, bosque de encino-pino, en ladera, 2 Oct 1985,

*Alvarado 135* (TEX). Mpio. Toyaltita: Jacales, 44 km al SW de San Miguel de Cruces, brecha a Toyaltita, bosque de pino-encino, 2100 m, 6 Jul 1984, *Tenorio L. 6235* (MEXU-2 sheets). **Nayarit.** Mpio. Tepic: Near Santa Teresa, 9 Aug 1897, *Rose 2152* (US, Fig. 13).

**3. CIRSIUM PRINGLEI** (S. Wats.) Petrak, Beih. Bot. Centralbl. (Abt. 2): 238. 1910. *Cnicus pringlei* S. Wats., Proc. Amer. Acad. Arts 25: 156. 1890. **TYPE: MEXICO. Nuevo León.** Sierra Madre near Monterrey, 17 Jun 1889, *C.G. Pringle 2507* (holotype: GH; isotypes: AC, BR, CM, COLO, F, GOET, K, MEXU, MO, MSC, NY-2-Fig. 19, P-2, PH, PUL, RSA-2, S, UC, US-2).

**Annual to biennial or short-lived perennial**, taprooted. **Stems** 0.5–1.2 m tall, lightly sericeous and glabrescent, sparsely but persistently coarsely villous with multicellular hairs. **Leaves** permanently white-tomentose adaxially, glabrescent abaxially but with prominent multicellular hairs, cauline pinnatifid to coarsely dentate, mostly 6–15 cm long, 1.5–5 cm wide, gradually reduced in size distally, clasping-subauriculate, not decurrent or rarely slightly so, marginal spines 3–7 mm long. **Heads** on long leafy peduncles, usually 2–3 per stem, without immediately subtending bracts or with a few minute, spiny-margined ones. **Involucres** 2–3.5 cm wide; phyllaries yellow-orange basally, all except the very innermost with a wide, thickened-raised-glutinous, medial band extending over the upper 1/2 and into the terminal spine, margins hispidulous-ciliolate, espinose, outermost with a terminal, spreading or reflexing spine mostly 2.5–3 mm long. **Corollas** dark purple to deep red, 17–22 mm long, tube 8–11 mm long, throat 4.5–6.5 mm long, lobes 3.5–7 mm long; stigmatic branches 2–4 mm long, annulus barely or not at all exerted.

Coahuila, Nuevo León, western Tamaulipas. Pine-fir, pine, pine-oak, oak, pinyon pine-juniper, brushy hillsides, *Yucca* and matorral at lowest altitude; (1000-)2600-3600 m. Flowering June-October(-November).

**Additional collections. Coahuila.** Mpio. Arteaga: Sierra La Marta, 24 Oct 1981, *Dorr et al. 2060* (MEXU, TEX); Sierra La Marta, 24 Oct 1981, *Dorr et al. 2061* (MEXU, TEX); Sierra El Coahuilón, limestone hillside, 2950 m, 25 Aug 1985, *Hinton 18909* (GBH, TEX); Sierra El Coahuilón, oak hillside, 3065 m, 17 Jun 1991, *Hinton 21011* (GBH, TEX); Los Lirios to La Jacinta, roadside in pine woods, 2390 m, 15 Sep 1995, *Hinton 25545* (GBH, TEX); Sierra de los Lirios, La Escondida, 2600 m, 3-23 Jul 1943, *Lyonnet 4104* (MEXU-2 sheets); cima de Sierra la Viga, 3600 m, *Pinus hartwegii* dominante, 24 Oct 1984, *McDonald & Gómez 1166* (TEX); Cerro de la Viga, 4.7 mi SE of Jamé along a private road to the summit, pine-oak woodland, 8800 ft, roadsides, 23 Oct 1982, *Sundberg 1763* (MEXU, TEX); Sierra de la Marta, El Coahuilón, bosque de *Pseudotsuga*, *Pinus*, *Abies*, *Quercus*, 3600 m, 6 Aug 1987, *Villarreal 3864* (MEXU, TEX); Sierra de Arteaga, Las Vigas, Cañon de la Carbonera, bosque de *Pinus*, *Pseudotsuga*, *Abies*, *Quercus*, *Ceanothus*, 2100-2600 m, 15 Sep 1988, *Villarreal 4593* (MEXU, TEX); Sierra de Arteaga, El Morro, limites con Nuevo Leon, bosque de [pine, fir, spruce, oak], 2900 m, 25 Sep 1991, *Villarreal 6280* (TEX); Sierra de Arteaga, Rancho El Tirol, Cañon de Jamé, 12 km NE of Jamé, bosque de *Pinus*, *Arctostaphylos*, *Arbutus*, *Pseudotsuga*, *Quercus*, 2450 m, 24 Jun 1994, *Villarreal 7698* (MEXU); 3 km E de Los Lirios, bosque de *Pseudotsuga*-*Pinus*, 2604-2636 m, 22 Oct 2009, *Villarreal 9468* (MEXU, TEX). Mpio. Saltillo: Sierra Zapalinamé, pine woods, limestone hillside, 3000 m, 27 Jun 1990, *Hinton 20448* (GBH, TEX); El Recreo, S de Saltillo, bosque de pinos, 2200 m, Jul 1942, *Lyonnet 3590* (MEXU). **Nuevo León.** Mpio. Aramberri: Cerro El Viejo, oak and pine woods, 6726 ft, 24 May 1993, *Hinton 22823* (TEX). Mpio. Bustamante: Grutas de Bustamante, ca. 5 km SW de Bustamante, matorral submontano, 700-1040 m, 1 May 1982, *Sánchez S. 196* (MEXU). Mpio. Galeana: Cerro El Potosí, bushy hillside, 21 Jun 1969, *Hinton 17117* (TEX); Cerro El Potosí, mixed forest, 21 Aug 1969, *Hinton 17251* (TEX); Cerro El Gallo, 16 Aug 1987, *Hinton 19171* (TEX); Cerro El Gallo, oak and pine woods, 2540 m, 15 Jun 1991, *Hinton 21031* (GBH, TEX); Agua Blanca to San Miguel, grassy hillside, 28 Aug 1991, *Hinton 21336* (TEX); above Agua Blanca, oak woods, 2270 m, 4 Jul 1992, *Hinton 22282* (GBH); Mimbres to Socorro, meadow, 2625 m, 25 Jul 1995, *Hinton 25401* (GBH, TEX); SW of Laguna de Labradores, pine woods, 2283 m, 11 Oct 2003,

*Hinton 27921* (GBH); Mpio. Galeana, Hwy 57 near Puerto México, roadside, with *Larrea*, *Yucca*, 24 Jun 2004, *Hinton et al. 28287* (TEX); Cerro Potosí, 2.3 mi down from microwave tower along roadside, 2 Aug 1975, *Lewis 172* (LL); Cerro Potosí, 4 mi below microwave station 2 Aug 1975, *Lewis 183* (LL); 15 mi SW of Galeana, Canyon de los Charcos y Mesa de la Camisa, above Alamar, dense wood of lower canyon, 4 Jun 1934, *Mueller 722* (TEX); ca. 15 mi SW of Galeana, ascent to Sierra Infernillo, pinyon belt and pine savannah, 16 Jun 1934, *Mueller 821* (TEX); ca. 5 mi S of Tanquecillos on road between San Rafael Junction and Galeana, area of open pine woods, looking N down into valley of San Pablo, 8563 ft, 27 Aug 1989, *Nesom 7196* (TEX). **Mpio. Monterrey:** Monterrey, 29 Jul 1933, *Mueller 231* (TEX). **Mpio. Santiago:** La Botella, cliffs in mixed forest, 1280 m, 16 Jun 1994, *Hinton 24339* (GBH). **Mpio. General Zaragoza:** Dulces Nombres (2 mi E) and just E of border into Tamaulipas, pine-oak forest, 1850 m, 28 Jun 1948, *Meyer & Rogers 2692* (US-2 sheets, Figs. 18, 19); Puerto Pino, bushy hillside, 2440 m, 18 Jun 1979, *Hinton 17560* (GBH, TEX); trail from Cañada La Tinaja to Rancho La Encantada, oak meadows near La Encantada, 4 Jul 1988, *Patterson 5865* (TEX), *5866* (TEX-2 sheets). **Tamaulipas.** **Mpio. Hidalgo:** Road from Sta. Engracia toward Dulces Nombres, N.L., ca. 11 mi E of Dulces Nombres, 0.3 mi NE of deserted habitation area at Paraje de los Caballos, secondary pine woods with scattered oak and hickory, 1800 m, small population on rock ledges, road cut, and boulders above old road, deeply shaded area, 3 Mar 1995, *Nesom 7865* (MEXU, TEX). **Mpio. Miquihuana:** Between Hermosa and La Honda, 23 Jul 1949, *Stanford et al. 2694* (US).

#### ACKNOWLEDGEMENTS

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#### LITERATURE CITED

- Johnston, I.M. 1940. Field notes of Charles Wright for 1849 and 1851-52, relating to collections from Texas, New Mexico, Arizona, and adjacent Sonora and Chihuahua. A copy with commentary. <<https://www.biodiversitylibrary.org/page/56964336#page/7/mode/1up>>
- Keil, D.J. 2006. *Cirsium*. Pp. 95–164, in *Flora of North America North of Mexico*, Vol. 19. Oxford Univ. Press, New York and Oxford.
- Sivinski, R. 2016. New Mexico Thistle Identification Guide. Native Plant Society of New Mexico. <[https://www.npsnm.org/wp-content/uploads/2016/02/NM\\_Thistles\\_screen\\_or\\_8.5x11\\_2162016.pdf](https://www.npsnm.org/wp-content/uploads/2016/02/NM_Thistles_screen_or_8.5x11_2162016.pdf)>

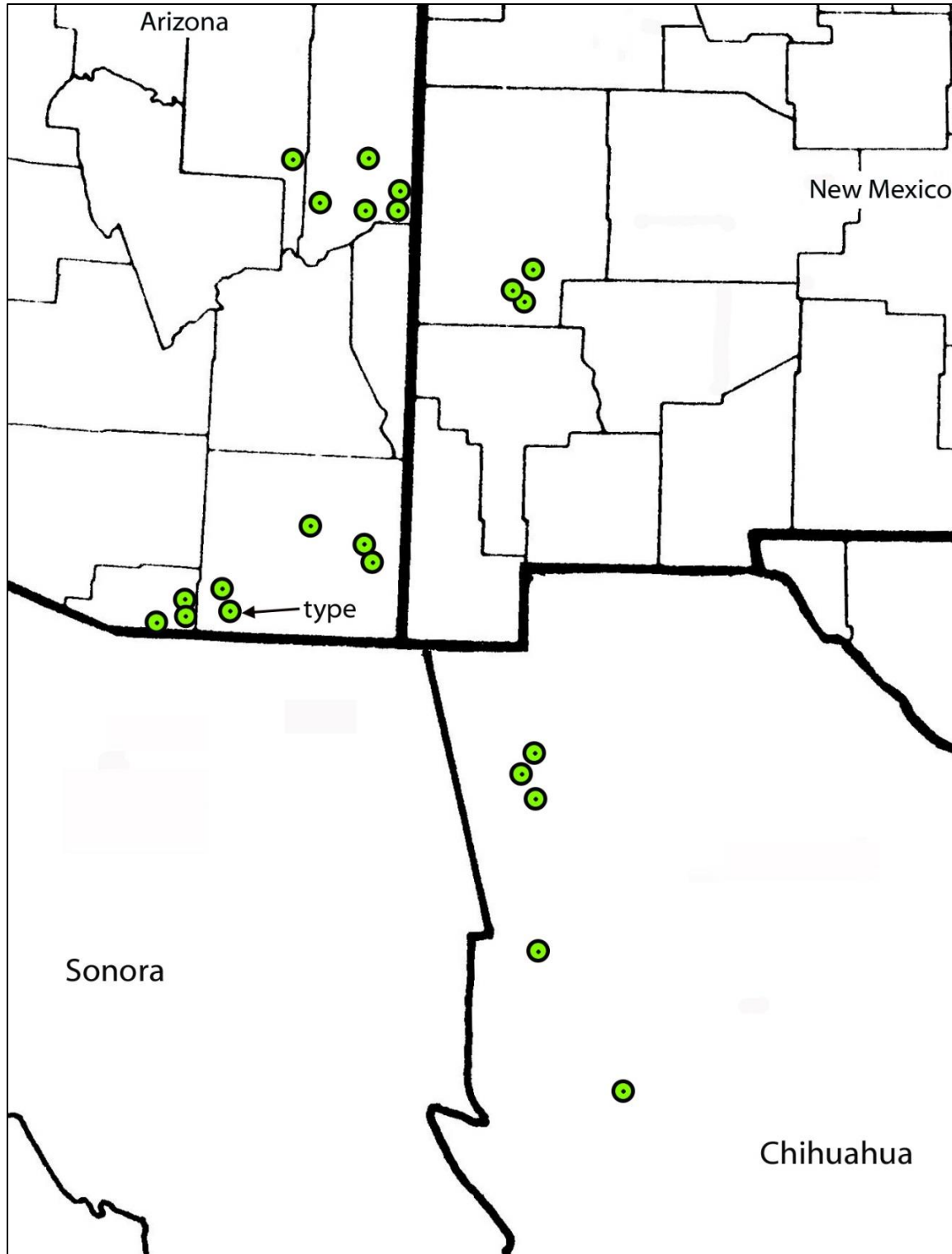


Figure 2. *Cirsium grahamii* — distribution in the USA and Mexico. A collection labeled as from Coconino Co. (Steed 35, OBI) is instead from Apache Co.; a collection labeled as from Greenlee Co. (Licher 4613, ASC) instead is from Apache Co. As noted by Sivinski (2016), *C. grahamii* in New Mexico is known only from localities along the West Fork and Middle Fork of the Gila River in southeastern Catron County. The type of *C. grahamii* is from southwestern Cochise Co., Arizona (see comments in text).

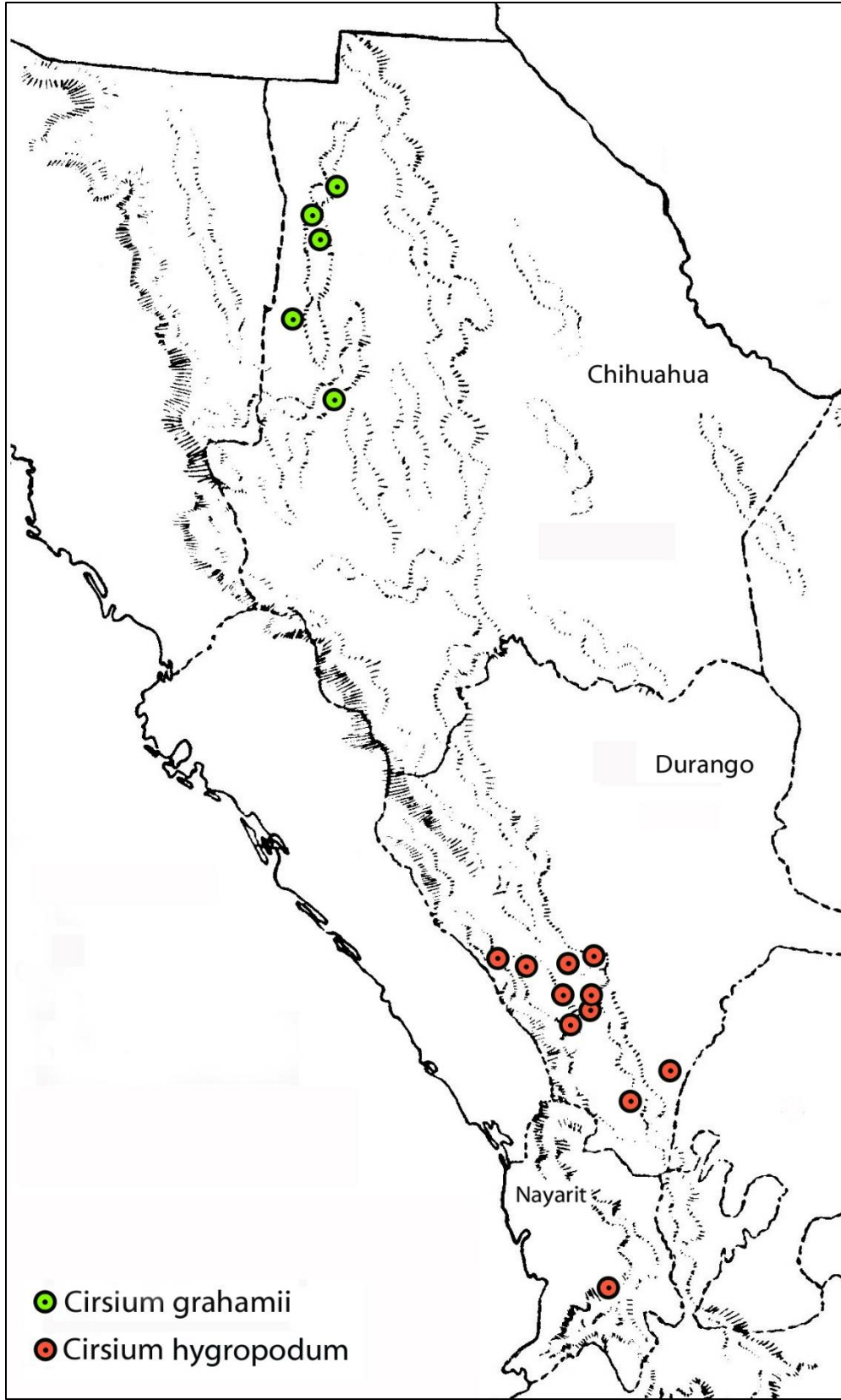


Figure 3. Mexican distribution of *Cirsium grahamii* (Chihuahua, citations in text) and *C. hygropodum* (Durango and Nayarit, citations in text).



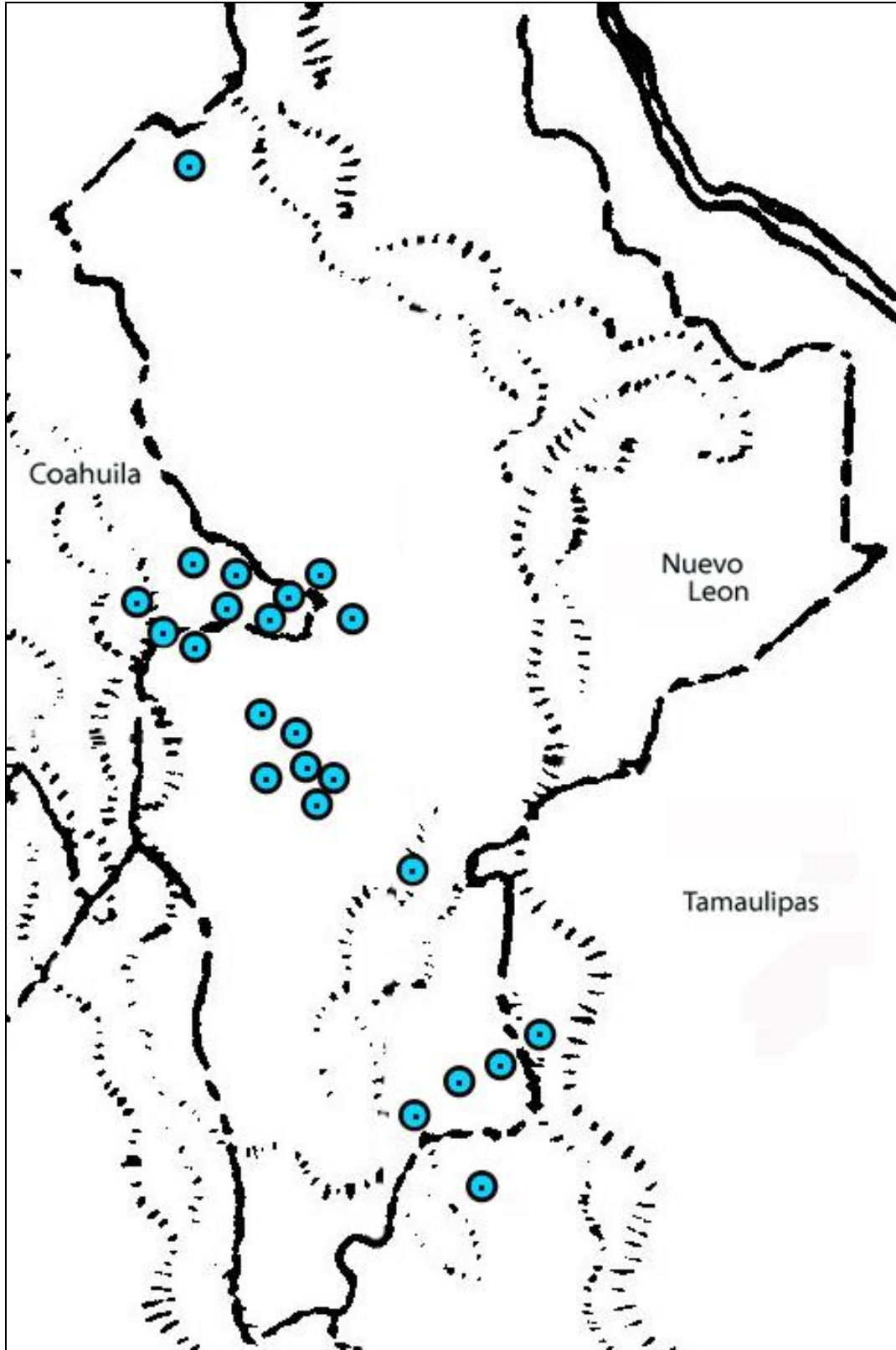


Figure 4. Distribution of *Cirsium pringlei*.





Figure 5. *Cirsium grahamii*, Apache Co., Arizona. Ownbey 1809 (MIN 603385).



Figure 6. *Cirsium grahamii*, Apache Co., Arizona. Ownbey 1809 (MIN 603359).





Figure 7. *Cirsium grahamii*, Catron Co., New Mexico. Metcalfe 678 (RENO).



Figure 8. *Cirsium grahamii*, Chihuahua. Nelson 6196 (US).





Figure 9. *Cirsium grahamii*, Chihuahua. Spellenberg 9411 (NY).



Figure 10. *Cirsium hygropodum*, Durango, isotype. Ownbey 3923 (US).





Figure 11. *Cirsium hygropodum*, Durango, isotype. Ownbey 3923 (MSC).





Figure 12. *Cirsium hygropodum*, Durango. Pennell 18283 (US).



Figure 13. *Cirsium hygropodum*, Nayarit. Rose 2152 (US).





Figure 14. *Cirsium pringlei*, Coahuila. Hinton 20448 (GBH).



Figure 15. *Cirsium pringlei*, Nuevo León. Hinton 17560 (GBH).





Figure 16. *Cirsium pringlei*, Nuevo León. Hinton 22282 (GBH).



Figure 17. *Cirsium pringlei*, Nuevo León. Hinton 27921 (GBH).





Figure 18. *Cirsium pringlei*, Nuevo León. Meyer & Rogers 2692 (US).





Figure 19. *Cirsium pringlei*, Nuevo León. Meyer & Rogers 2692 (US).





Figure 19. *Cirsium pringlei*, Nuevo León. Pringle 2507 (NY isotype).