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TAXONOMIC SUMMARY OF *CIRSIUM* (ASTERACEAE: CARDUEAE) IN MEXICO AND CENTRAL AMERICA

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ABSTRACT

75 species of *Cirsium* are recorded as occurring in Mexico and Central America — of these, 15 also occur in the USA. A formal taxonomic summary is given here for each Mexican/Central American species and the species are arranged into morphological groups. Sect. *Erythrolaena* (19 species) and sect. **Radiata** (Petrak) Nesom, **comb. et stat. nov.** (13 species) are endemic to Mexico and Central America and are formally recognized — other putative groups recognized by informal names.

The recent account of *Cirsium* for Flora of North America North of Mexico (Keil 2006) estimated the number of species as 62, with 41 non-typical varieties, for a total of 103 entities. Subsequent studies (e.g., Ackerfield et al. 2020b; Ackerfield 2022, 2023; Nesom 2026a, 2026b, 2026c, 2026e) have added USA species and the phylogenomic analyses by Ackerfield et al. indicate that some broadly defined species as recognized by Keil are polyphyletic, with varietal taxa justifiably treated at specific rank. Ackerfield et al. (2022b) point specifically to 4 additional undescribed taxa in the USA.

Estimates of *Cirsium* diversity for "North America" may not fully account for Mexico taxa. Studies of Franz Petrak (1910, 1911, 1917) provided a detailed account of these species. Species and critical observations have been added by Ownbey (1963, 1968, 1975, 1982) and Rzedowski (1994). Regional floristic studies in Mexico (e.g., McVaugh 1984; García López & Koch 1995; Rzedowski & Rzedowski 2001; Nesom 2026d) and the recent detailed description of Central American Asteraceae (Pruski 2018) have sharpened knowledge. The checklist of Mexico plants by Villaseñor (2016) included 44 species of *Cirsium*, 10 of which also occur in the USA. My studies of the genus (Literature Cited), begun at the University of Texas, have been toward providing a full account of the Mexican species, but time's flow suggests that a preliminary summary will be useful. The present account includes 60 species endemic to Mexico and Central America (not including those also in the USA). Further species are yet undescribed (Nesom in prep.), and iNaturalist observations suggest that others exist, yet to be vouchered. The arrangement here emphasizes involucral features, and to some extent, floral morphology, acknowledging wide variability in vegetative form. It can serve at least as a guide to phylogenetic study and to placement of species yet to be described.

The phylogenomic study by Ackerfield et al. (2020b) indicates that morphological parallelism and convergence in *Cirsium* can be misleading toward understanding evolutionary relationships. On the other hand, apart from Petrak and from relationships that might be inferred from similarities in keys, there has been no attempt to circumscribe morphologically natural groups among the American species, formally or otherwise. Petrak's detailed system for the American species is summarized as Appendix 2, as it might provide basionyms in nomenclature for formal arrangements to follow, but his groups are mostly artificial.

Preliminary phylogenetic assessments indicate that the American species are monophyletic, representing a single clade presumably derived from an Old World progenitor (Kelch & Baldwin 2003; Ackerfield et al. 2020a). The overall phylogenetic outline and understanding of evolutionary radiation is incomplete without the Mexican/Central American species.

Mexican and Central American species (alphabetically)

1. CIRSIUM ACANTHOLEPIS (Hemsl.) Petrak, Beih. Bot. Centralbl. 27 (Abt. 2): 211. 1910. *Cnicus acantholepis* Hemsl., Biol. Centr.-Amer. Bot 2: 251. 1881. **TYPE**: **MEXICO**. **Edo. Mexico**. Valley of Mexico, collines pres Santa Fe, 17 Aug 1865, *E. Bourgeau 714* (holotype: K; isotype: P-3 sheets). [Nesom 2022a] sect. Erythrolaena

2. CIRSIUM ACROLEPIS (Petrak) G.B. Ownbey, Phytologia 50: 317. 1982. *Cirsium occidentale* subsp. *acrolepis* Petrak, Bot. Tidsskr. 31: 66. 1911. **TYPE**: **MEXICO**. **Guanajuato**. Jaral, Aug 1887, *W. Schumann 163c* (holotype: JE; isotype: US). [Nesom 2022c] sect. Radiata

3. CIRSIUM ARIZONICUM (A. Gray) Petrak, Bot. Tidsskr. 31: 68. 1911. *Cnicus arizonicus* A. Gray, Proc. Amer. Acad. Arts 10: 44. 1874. **LECTOTYPE** (Moore & Frankton 1974): **MEXICO**. **Sonora**. Between the Barbocomori and Santa Cruz, [1851], *C. Wright 1294* (GH; isolectotypes: K, NY, photo DAO) Arizonicum group

4. CIRSIUM ARCTORHAPHIS Nesom, Phytoneuron 2022-24: 13. 2022. **TYPE**: **MEXICO**. **San Luis Potosí**. Mpio. Matehuala: Ca 13.8 mi NE of Matehuala, Rte 57, dry roadside in desert hills, ca. 5500 ft, 7 Sep 1966, *G.B. Ownbey 4012*, voucher for 2n = 24 (holotype: MEXU; isotype: TEX). [Nesom 2022b] Rhaphilepis group

5. CIRSIUM BASASEACHENSE Nesom, Phytoneuron 2022-24: 21. 2022. **TYPE**: **MEXICO**. **Chihuahua**. Mpio. Ocampo: Area of Cascada de Basaseachic at the confluence of Rio Basaseachic and Rio Durazno, ca. 2 mi S of the village of Basaseachic, abundant in open, grassy area in large basin at base of falls in steep canyon, ca. 1800 m, 27 Apr 1986, *G. Nesom 5435* (holotype: TEX: isotypes: ARIZ, GH, MEXU, MIN). [Nesom 2022b] Incertae sedis

6. CIRSIUM BICENTENARIALE Rzed., Acta Bot. Mex. 29: 101. 1994. **TYPE**: **MÉXICO**. **Querétaro**. Mpio. de Pinal de Amoles: 7 km al NE de Pinal de Amoles, sobre el camino a Jalpan, ladera caliza con vegetación de pastizal secundario, 2050 m, 18 Mar 1987, *J. Rzedowski 42872* (holotype: IEB; isotypes: CHAPA, MEXU). [Nesom 2022a] Sect. Erythrolaena

7. CIRSIUM BERNARDINUM (Greene) Petrak, Bot. Tidsskr. 31: 68. 1911. [not Davidson & Moxley 1923]. *Carduus bernardinus* Greene, Proc. Acad. Nat. Sci. Philad. 44: 361. 1893. *Carduus californicus* var. *bernardinus* Parish, Univ. Calif. Publ. Bot. 3: 241. 1907 (in H.M. Hall, Compositae of Southern California). *Cirsium californicum* var. *bernardinum* (Greene) Petrak, Beih. Bot. Centralbl. 35: 477. 1917. **TYPE**: **USA**. **California**. San Bernardino Co.: San Bernardino Mountains, Little Bear Valley, 4500 ft, 1884, *S.B. Parish 1686* (holotype: NDG). [Nesom 2026d] Occidentale Group

Cirsium californicum subsp. *pseudoreglense* Petrak, Beih. Bot. Centralbl. 35: 479. 1917. **TYPE: California**. San Diego Co.: Cuyamaca Mountains, 17 Jul 1875, *E. Palmer 201* (holotype: "H. St. P."'; isotypes: F, NY-2 sheets).

8. CIRSIUM BOCOYNENSE Nesom, Phytoneuron 2022-23: 25. 2022. **TYPE**: **MEXICO**. **Chihuahua**. Mpio. Bocoyna: Ca. 3.6 road mi E of Gonogochic [Ejido San Ignacio Arareco], along small narrow arroyo (part of Rio Bocoyna-Rio Conchos drainage), few scattered plants on soil deposits on rock ledge, 2180 m, 26 May 1984, *R. Bye et al. 12758* (holotype: UCR!; isotype: COLO). [Nesom 2022a] Sect. Erythrolaena

9. CIRSIUM CALIFORNICUM A. Gray, Pacif. Railr. Rep. Parke, Bot. 4: 112. 1856. **TYPE**: **USA**. **California**. Stanislaus Co.: Near Knight's Ferry, Stanislaus River, hillsides, 7 May 1854, *J.M. Bigelow s.n.* (GH; isotype: NY). [Nesom 2026d] Occidentale Group

10. CIRSIUM CANOASENSE Nesom, Phytoneuron 2022-23: 21. 2022. **TYPE**: **MEXICO**. **Durango**. Mpio. Mezquital: 14 km al ENE de Canoas, bosque de pino y encino, 31 Oct 1982, *S. González & J. Rzedowski 2258* (holotype: TEX; isotype: MEXU). [Nesom 2022a] Sect. Erythrolaena

11. CIRSIUM CERNUUM Lag., Gen. Sp. Pl. [Lagasca] 24. 1816. **TYPE**: **MEXICO**. Protologue: 319. CIRSIUM *cernuum*: foliis subamplexicaulibus lanceolatis sinuato-pinnatifidis spinosis subtus arachnoideis: calicibus arachnoideo-tomentosis cernuis. … Elench. H.R.M. ann. 1805. Habitat in Imperio Mexicano. 4" (holotype: MA 133124 on 3 sheets). Sect. Cirsiopsis Petrak

Petrak (1910) used *Cirsium cernuum* as the correct name for *C. nivale* (Kunth) Sch.Bip., but in 1917 he treated *C. cernuum* as the monotypic sect. *Cirsiopsis*, without indicating synonymy of the species name. Pruski (2018, p. 69) noted that "*Cirsium cernuum* Lag. ha sido en ocasiones erróneamente asignado a una especie de Mesoamérica, pero ha probado ser un nombre anterior para el taxón mexicano previamente llamado *C. nivale* (Kunth) Sch.Bip." The involucral morphology of *C. cernuum* (from the MA type) is highly distinctive and not a match for *C. nivale* or for any other species that I have seen from Mexico or Central America.

12. CIRSIUM CHIAPANUM Nesom, Phytoneuron 2022-24: 16. 2022. **TYPE**: **MEXICO**. **Chiapas**. Mpio. La Independencia: 3rd ridge along logging road from Las Margaritas to Campo Alegre, broad ridge with evergreen cloud forest, *Pinus*, *Quercus*, *Magnolia*, *Podocarpus*, *Photinia*, *Olmediella*, 2300 m, 18 Feb 1973, *D.E. Breedlove 33647* (holotype: MEXU; isotype: NY). [Nesom 2022b] Rhaphilepis group

13. CIRSIUM CHIONANTHUM Nesom & García-Mor., Phytoneuron 2021-68: 1. 2021. **TYPE**: **MÉXICO**. **Nuevo León**. [Mpio. General Zaragoza]: Dulces Nombres, and just E of border into Tamaulipas, moist, densely wooded N-facing slopes, 1690 m, 13 Jul 1948, *F.G. Meyer & D.J. Rogers 2753* (holotype: US 2158387 and 2158388, one plant on 2 sheets; isotype: MO). [Nesom & García-Morales 2021b] Mexicanum group

14. CIRSIUM CITRINUM (Petrak) Nesom, Phytoneuron 2026-26: 6. *Cirsium quercetorum* var. *citrinum* Petrak, Beih. Bot. Centralbl., Abt. 2. 35: 363. 1917. *Cirsium scariosum* var. *citrinum* (Petrak) Keil, Sida 21: 215. 2004. **TYPE**: **USA**. **California.** San Diego Co.: Warner's Hot Springs, 10 Apr 1913, *A. Eastwood 2629* (holotype: CAS). [Nesom 2026d, 2026e] Scariosum group

Cirsium drummondii subsp. *latisquamum* Petrak, Beih. Bot. Centralbl., Abt. 2. 35: 358. 1917. **TYPE**: **USA**. **California**. [Riverside Co.]: San Jacinto Mtn, June 1882, *S.B. & W.F. Parish 248* (holotype: Petrak cited herbarium "H.U.W."; isotypes: NDG, US). *Parish 248* (US) is from "Warner's Ranch, June 1880" and not the same collection as the one from San Jacinto Mtn, although it appears to be the same species.

15. CIRSIUM COAHUILENSE Ownbey & Pinkava, Syst. Bot. 5: 326. 1980. **TYPE**: **MEXICO**. **Coahuila**. Cuatro Ciénegas, 2400 ft, 18-20 Jul 1939, *S.S. White 1927* (holotype: MICH: isotype: US). Excelsior group

16. CIRSIUM CONSOCIATUM Blake, Brittonia 2: 355. 1937. **TYPE**: **GUATEMALA**. **Dept. Huehuetenango**. Sierra Cuchumatanes, alpine meadow, along trail between Huehuetenango and Soloma, "Chancol," 10,700 ft, 14 Sep 1934, *A.F. Skutch 1211* (holotype: GH on 2 sheets; isotype: LL on 2 sheets). [Nesom 2022c] Sect. Radiata

17. CIRSIUM CONSPICUUM (Sweet) Sch.Bip., Bot. Voy. Herald [Seemann] 7: 312. 1856. *Erythrolaena conspicua* Sweet, Brit. Fl. Gard. [Sweet] 2: pl. 134. 1825. **TYPE**: **MEXICO**. Probably Veracruz or in the western part of Edo. Mexico. Sweet noted that it was described and "drawn from a plant grown from seeds collected in Mexico by Mr. Bullock." Protologue: "For the opportunity of giving a figure of this new and grand plant, we are indebted to the liberality of Robert Barclay, Esq. who sent us fine flowering specimens in October last, that were blown [sic, = grown] in the open border of his garden at Bury Hill, and, we believe, for the first time in Europe. Mr. Barclay had received the plant from the Nursery of Mr. Tate, in Sloan Street, who raised it from seeds brought from Mexico, by Mr. Bullock, under the name of the Scarlet Thistle." Lectotype (Nesom 2022a): "Hort. Barclay" (K-527794). [Nesom 2022a] Sect. Erythrolaena

Carduus pyrochros Less., Linnaea 5: 130. 1830. **TYPE**: **MEXICO**. **Veracruz**. Protologue: "In dumetis pr. Jalapam, Aug." No specimen cited, but in a footnote Lessing seemed to be saying that he saw similar garden plants identified as *Erythrolaena conspicuum*. His description refers to reflexing, spiny-margined phyllaries.

Carduus heterolepis Greene, Proc. Acad. Nat. Sci. Philadelphia 44: 363. 1892 [1893] (not *Cirsium heterolepis* Benth. 1841 = *Cirsium subcoriaceum* from Guatemala). *Cirsium acantholepis* var. *heterolepis* (Greene) Petrak, Beih. Bot. Centralbl., Abt. 2. 27(2): 212. 1910. **LECTOTYPE** (Nesom 2022a): **MEXICO**. **Jalisco**. Rich canyons of mountains near Lake Chapala, 13 Dec 1889, *C.G. Pringle 2435* (US 116097; isolectotypes: BR, CM, F, GH, M, MEXU, MO, MSC, OH, PUL, US, VT, W). The only collection cited by Greene was *Pringle 2435* but he did not cite a particular sheet and one cannot be located that suggests that it was the one he studied. There is no sheet of *Pringle 2435* at NDG (fide Barbara Hellenthal 2021).

Cirsium anartiolepis Petrak, Bot. Tidsskr. 31. 65. 1911. **LECTOTYPE** (Nesom 2022a): **MEXICO**. **Jalisco**. Rich canyons of mountains near Lake Chapala, 13 Dec 1889, *C.G. Pringle 2435* (W?; isolectotypes: BR-3 sheets, CM, F, GH, M, MEXU, MO, MSC-Fig. 12, OH, PUL, US-2 sheets, VT).

Petrak cited two specimens: "Herb. Bot. Inst. Univ. Wien! [W] — Herb. Boissier! [presumably G]." He discussed Greene's earlier and homotypic *Carduus heterolepis* and though he did not specifically say it, his new species apparently was intended to function as a replacement name.

18. CIRSIUM DASYPHYLLUM Nesom, Phytoneuron 2022-24: 8. 2022. **TYPE**: **MEXICO**. **Nuevo León.** Mpio. Aramberri: N of Aramberri, pine woods, roadside, 1040 m, 16 Jun 1990, *Hinton et al. 20365* (holotype: TEX; isotype: GBHinton). [Nesom 2022b] Texanum group

19. CIRSIUM DURANGENSE (Greenm.) G.B. Ownbey, Brittonia 20: 337. 1968. *Cirsium ochrocentrum* A. Gray var. *durangense* Greenm., Proc. Amer. Acad. Arts 40: 51. 1904. **TYPE**: **MEXICO**. **Durango**. About the city of Durango, 1 Aug 1898, *E.W. Nelson 4633* (holotype: GH; isotype: US). Ochrocentrum group

Cirsium durangense occurs in Chihuahua, Durango, and Zacatecas, then apparently (and oddly) disjunct to disturbed habitats in Hidalgo and Edo. Mexico. Ownbey (1968) found that plants from Hidalgo were triploid (3n=45) with abortive pollen, compared to the western popuations, which are diploid (2n=30).

20. CIRSIUM EHRENBERGII Sch.Bip. in Seem., Bot. Voy. Herald, 312. 1856. **TYPE**: **MEXICO**. [**Hidalgo]**. "Huajalote" [El Guajolote, Mpio. Epazoyucan, Hidalgo], 26 Jun 1852, *C. Ehrenberg 468* (holotype: B destroyed; isotype: P-fragments). Schultz (or Seemann?), in the protologue, indicated that he saw the B type. **EPITYPE** (Nesom 2022a): **México D.F.** Las Palmas, 3600 m, Jul 1932, *E. Lyonnet 1006* (US). [Nesom 2022a] Sect. Erythrolaena

21. CIRSIUM EORYTHROS Nesom, Phytoneuron 2022-23: 15. 2022. **TYPE**: **MEXICO**. **Tamaulipas.** Mpio. Guemes [Güémez]: 3 km SE de Los San Pedro, bosque mesofilo de montana, 1550 m, suelos derivados de caliza, hierba perenne de 90 cm con flores rojizas, 15 Oct 1989, *F. González Medrano 17305* (holotype: MEXU). [Nesom 2022a] Sect. Erythrolaena

22. CIRSIUM EXCELSIUS (B.L. Rob) Petrak, Beih, Bot. Centralbl. (Abt. 2): 222. 1910. *Cnicus excelsior* B.L. Rob., Proc. Amer. Acad. Arts 19: 179. 1893. **TYPE**: **MEXICO**. **San Luis Potosí**. Hacienda de Angostura, amongst shrubs, low lands, 11 Jul 1891, *C.G. Pringle 3768* (holotype: GH; isotypes: BKL, BR, COLO, F, GOET, JE-2, K, M, MICH, MSC, MU, NY, P-2, PH, PUL, TEX, UC, US-2). Excelsius group

Carduus potosinus Greene, Proc. Amer. Acad. Sci. Philad. 44: 364. 1892. **TYPE: MEXICO. San Luis Potosí**. Hacienda de Angostura, amongst shrubs, low lands, 11 Jul 1891, *C.G. Pringle 3768* (holotype: NDG? not seen). Greene saw variation in the degree of decurrency as evidence that two species were present among the duplicates of *Pringle 3768*.

23. CIRSIUM FAUCIUM Petrak, Feddes Repert. Spec. Nov. Regni Veg. 58: 231. 1955. **TYPE**: **MEXICO**. **Edo. Mexico**. Mpio. Temascaltepec: Tequesquipan, barrancas, 2480 m, 3 Feb 1933, *G.B. Hinton 3250* (holotype W; isotypes: GH, K, MO, NY, US). [Nesom 2022a] Sect. Erythrolaena

24. CIRSIUM GRAHAMII A. Gray, Smiths. Contr. Knowl. 5(6) [Plantae Wrightianae]: 102. 1853. *Cirsium undulatum* var. *grahamii* (A. Gray) Petrak, Beih. Bot. Centralbl. (Abt. 2) 27: 247. 1910. **LECTOTYPE** (Nesom 2021a): **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). [Nesom 2021a] Grahamii group

25. CIRSIUM HELIORHAPHIS Nesom, Phytoneuron 2022-24: 16. 2022. **TYPE**: **MEXICO**. **Durango**. Mpio. Poanas: 2 km SE de 18 de Agosto, matorral xerófilo (*Opuntia*, *Acacia*, *Condalia* en malpais) bajio inundable, entre el matorral y el bajio, 1850 m, 14 Sep 1982, S. *Gonzalez 2114* (holotype: TEX; isotype: MEXU). [Nesom 2022b] Rhaphilepis group

26. CIRSIUM HIDALGOENSE Nesom, Phytoneuron 2022-36: 2. 2022. **TYPE**: **MEXICO**. **Hidalgo**. [Mpio. Nicolas Flores]: Woods above Minas Viejas near Km 255 on hwy between Zimapan and Jacala, 1800 m, 30 Apr 1947, *H.E. Moore, Jr. 2766* (holotype: GH). [Nesom 2022c] Sect. Radiata

27. CIRSIUM HORRIDULUM Mich., Fl. Bor.-Amer. 2: 90. 1803. **TYPE**: Protologue: "HAB, in pascuis ruderatisque Carolinae" *A. Michaux s.n.* (holotype: P 00705960). [Nesom 2026a] Sect. Radiata

Variants of *Cirsium horridulum* sensu lato in Mexico/Central America include three undescribed species (Nesom in prep.).

28. CIRSIUM HYGROPODUM Nesom, Phytoneuron 2022-69: 3. 2022. **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, NY, US). [Nesom 2021a] Grahamii Group

29. CIRSIUM IMBRICATUM (B.L. Rob. & Greenm.) Petrak, Beih. Bot. Centralbl. 27 (Abt. 2): 223. 1910. *Cnicus imbricatus* B.L. Rob. & Greenm., Amer. J. Sci. ser. 3, 1: 159. 1895. **TYPE: MEXICO. Oaxaca**. Sierra de Clavellinas, swampy meadows, 9000 ft, Oct 1894, *C.G. Pringle 6006*

(holotype: GH; isotypes: AC, BR, CM, GOET, ISC, JE, K, M, MEXU-2, MIN, NDG, NY, P-2, PH, S, TEX, UC, US). Sect. Erythrolaena

30. CIRSIUM JALISCOENSE Nesom, Phytoneuron 2022-23: 16. 2022. **TYPE**: **MEXICO**. **Jalisco**. Mpio. Cuautitlán: Nevado de Colima, 8000 feet, 28 May 1893, *C.G. Pringle 5505* (holotype: GH: isotype: VT). [Nesom 2022a] Sect. Erythrolaena

31. CIRSIUM JORULLENSE (Kunth) Spreng., Syst. Veg. 3: 376. 1826. *Cnicus jorullensis* Kunth, Nov. Gen. Sp. [H.B.K.] 4(14): 17 (ed. fol.). 1818. **TYPE**: **MEXICO**. [Michoacan]: "Crescit in monte ignivomo Jorullo Mexicanorum, alt. 520 hex. 4 Floret Octobri" [growing on a volcano, 3100 ft, October]" (holotype: P). Sect. Radiata

Cirsium jorullense var. *glabrescens* Petrak, Bot. Tidskr. 31: 60. 1911. **TYPE**: **MEXICO**. **Mexico**. Nevado del Toluca, cool pine woods, 26 Sep 1892, *C.G. Pringle 4301* (holotype: Wien-Herb. Boissier; isotypes: MO!, F, GH!, MSC, VT!).

Var. *glabrescens* is a synonym of typical *C. jorullense*; var. *pilosum* and var. *lanosum* are distinct entities (Nesom in prep.).

Cirsium jorullense var. *pilosum* Petrak, Bot. Tidskr. 31: 59. 1911. **TYPE**: **MEXICO**. **Hidalgo**. Sierra de Pachuca, by streams, ca. 2700 m, [date] *C.G. Pringle 6919* (holotype: Wien-Herb. Boissier; isotypes: MO!, MSC, F, GH!, VT!).

Cirsium jorullense subsp. *lanosum* Petr., Bot. Tidsskr. 31: 60. 1911. **TYPE**: **MEXICO**. **Mexico**. Sierra de las Cruces, wet meadows, date, *C.G. Pringle 4214* (holotype: Wien-Herb. Boissier; isotypes: GH, JE, M, MEXU-2, MIN, MU, NY, PUL, US-2, VT).

32. CIRSIUM LAPPOIDES (Less.) Sch.Bip. in Seem., Bot. Voy. Herald, 313. 1856. *Carduus lappoides* Less., Linnaea 5: 129. 1830. **TYPE**: **MEXICO**. **Veracruz**. Protologue: "In pratis pr. San Andres. Aug." In pratis prope San Andres, Aug [1828], *C.J.W. Schiede 278* (probable holotype: B-photo at F; probable isotype: HAL). [Nesom 2022b] Mexicanum group

The HAL sheet has a handwritten label, perhaps by Schiede, as "266 — Cnicus, San Andres in pratis, Aug 28" and another with "278. Carduus lappoides n. sp." and (printed) "A.v. Chamisso."

Cnicus leibmannii Klatt, Leopoldina 24: 128. 1888. *Cirsium liebmannii* (Klatt) Petrak, Beih. Bot. Centralbl. 27 (Abt. 2): 227. 1910. **TYPE**: **MEXICO**. **Veracruz**. Pic Orizaba, 8000 ft, *F.W. Liebmann 681* (holotype: C?; isotype: tracing and fragment-GH!). Klatt cited "Cirsium Liebmannii Schultz Bip." in synonymy.

33. CIRSIUM LIMOPHILUM Petrak, Bot. Tidsskr. 31: 61. 1911. **TYPE**: **MEXICO**. **Veracruz**. [Mpio. Totutla]: Mirador [of K.C. Sartorius, NE side of Coscomatepec, 6 mi SW of Huatusco], Feb 1842, *F.W. Liebmann 685* (holotype: C). Petrak's designation of the new taxon was "[Cirsium] limophilum Petrak nov. sp. hybr. x" and on the specimen label he noted "C. lappoides x mexicanum." [Nesom 2022b] Mexicanum group

34. CIRSIUM LOMATOLEPIS (Hemsl.) Petrak, Beih. Bot. Centralbl. (Abt. 2): 228. 1910. *Cnicus lomatolepis* Hemsl., Biol. Centr.-Amer. Bot. 2: 251. 1881. **TYPE**: **MEXICO**. [Distrito Federal]. Valley of Mexico, 17 Jul 1866, *M. Bourgeau 511* (holotype: K; isotypes: P-3 sheets). Mexicanum group

Cnicus linearifolius S. Wats., Proc. Amer. Acad. Arts 26: 143. 1891. **TYPE: MEXICO**. Distrito Federal: Low meadows, beside the city of Mexico, 27 Aug 1890, *C.G. Pringle 3145* (holotype: GH; isotypes: BR, CM, COLO, E, F, GOET, JE, K, M, MEXU, MSC, MU, NY, P-2, PH, PUL, RSA, S, TEX, US, VT).

35. CIRSIUM MACVAUGHII Nesom, Phytoneuron 2022-24: 20. 2022. **TYPE**: **MEXICO**. **Jalisco**. Santa Ana [1-2 km S of Acatlán de Juárez], swampy meadows [bordering shallow interior basins, 1300 m], in large perennial clumps, 16 Jun 1893, *C.G. Pringle 4406* (holotype: GH; isotypes: F, MEXU-3 sheets, MICH-2 sheets, MIN, MSC, US, VT). [Nesom 2022b] Rhaphilepis group

36. CIRSIUM MAGDALENENSE Nesom, Phytoneuron 2022-24: 18. 2022. **TYPE**: **Baja California Sur**. Mpio. Comondú: Arroyo near El Medano, S of Cd. Constitución, between Santa Rita and Puerto Chale, riparian/canyon vegetation with *Prosopis articulata*, *Vachellia farnesiana*, *Ambrosia ambrosioides*, *Vallesia glabra*, *Baccharis salicifolia*, 15 m, 7 Mar 2016, *J. Rebman 31141* (holotype: SD). [Nesom 2022b, 2026d] Rhaphilepis group

37. CIRSIUM MEXICANUM DC., Prodr. 6: 636. 1837. **TYPE**: **MEXICO**. **Tamaulipas**. "Tampico de Tamaulipas," 1827, *J.L. Berlandier 184* (holotype: G; isotype: P). [Nesom 2022b] Mexicanum group

Cirsium mexicanum var. *bracteatum* Petrak, Beih. Bot. Centralbl. 27 (Abt. 2): 231. 1910. **TYPE: COSTA RICA**. Tuis pres Turialba, ca. 620 m, 11 May 1897, *H. Pittier 11239* (holotype: "Herb. inst. phys. geogr. nat."; isotypes: M, US). Petrak's protologue cited *Cnicus costaricensis* as a synonym of this name.

Cnicus costaricensis Polak., Linnaea 41: 581. 1877. *Cirsium costaricense* (Polak.) Petrak, Beih. Bot. Centralbl. 27 (Abt. 2): 219. 1910. **TYPE**: **COSTA RICA**. San José, in locis incultis, 15 Jun 1852, *H. Polakowsky 64* (B, photo at F).

38. CIRSIUM MICHILIENSE Nesom, Phytoneuron 2022-23: 21. **TYPE**: **MEXICO**. **Durango**. Mpio. Mezquital: 3 km from Los Charcos on the road to La Guajolota, pine-oak, 18 Oct 1984, *M. González 1640* (holotype: TEX; isotypes: MEXU, CIIDIR). [Nesom 2022a] Sect. Erythrolaena

39. CIRSIUM MIMBRESENSE Nesom, Phytoneuron 2022-23: 20. **TYPE**: **MEXICO**. **Durango**. [Mpio. Durango]: 2 km W del puente Los Mimbres, ca. Km 48 de la carretera Durango-Mazatlán (Mex 40), a lo largo de la carretera en zonas rocosas en bosque de pino-encino, 2500 m, 20 Aug 1992, *J.L. Panero 2198* (holotype: TEX). [Nesom 2022a] Sect. Erythrolaena

40. CIRSIUM MOLLISSIMUM Nesom, Phytoneuron 2022-24: 10. 2022. **TYPE**: **MEXICO**. **Coahuila**. Mpio. Ocampo: Sierra del Pino, Ejido Acebuches, Cañón La Vaca, bosque disperso de *Pinus arizonica* y *Juniperus flaccida*, *Arbutus xalapensis*, *Quercus intricata*, *Q. gravesii*, *Q. glaucoides*, 1850 m, 12 Oct 1991, *M. Carranza et al. C-900* (holotype: TEX). [Nesom 2022b] Texanum group

41. CIRSIUM NEOMEXICANUM A. Gray, Smithson. Contr. Knowl. 5, art. 6 [Pl. Wright. 2]: 101. 1853. **TYPE: USA**. **New Mexico**. [Dona Ana Co.]: Side of Organ Mountains, NE of El Paso, Apr [1849], *C. Wright 1417* (holotype: GH 00263068; isotypes: GH, K-2). Neomexicanum group

42. CIRSIUM NIGRICEPS Standl. & Steyerm., Field Mus. Bot. 23: 258. 1947. **TYPE: GUATEMALA**. **Dept. Huehuetenango**. Between Tojquiá and Caxín bluff, summit of Sierra de los Cuchumatanes, ca. 3700 m, 6 Aug 1941, *J.A. Steyermark 50157* (holotype: F). Sect. Radiata

43. CIRSIUM NIVALE (Kunth) Schultz-Bip. in Seem., Bot. Voy. Herald, 312. 1856. *Cnicus nivale* Kunth, Nov. Gen. et Sp. 4 [folio]: 18. 1818. **TYPE**: **MEXICO**. **Edo Mexico**. Nevado de Toluca ["frigidissimis montis Tolucae, alt. 1900 hex."], *M.A. Bonpland 4379* (holotype?: P). Sect. Radiata

44. CIRSIUM NOTORHAPHIS Nesom, Phytoneuron 2022-24: 14. 2022. **TYPE**: **MEXICO**. **Puebla.** 8.2 mi NW of Tehuacan turnoff, Rte 150, 10 Jul 1965, *G.B. Ownbey 3761*, voucher for n=11 (holotype: MEXU; isotypes: TEX, US). [Nesom 2022b] Rhaphilepis group

45. CIRSIUM NOVOLEONENSE Nesom & Morales-G., Phytoneuron 2021-61: 1. 2021. **TYPE: MEXICO**. **Nuevo León**. Mpio. Galeana: Cerro Potosí, along road to summit, common along roadside at 10,000 ft, subalpine forest dominated by *Pinus culminicola* and lower slopes dominated by *Pinus hartwegii*, 27 Aug 1987, *D. Bogler* & *T. Atkins 205* (holotype: TEX; isotypes: MEXU, NY, US). [Nesom & Morales 2021a] Sect. Radiata

46. CIRSIUM OAXACANUM Nesom, Phytoneuron 2022-36: 1. 2022. **TYPE**: **MEXICO**. **Oaxaca**. Distrito Etla, Las Sedas, 1950 m, 25 Dec 1938, *C. Conzatti 4766* (holotype: LL!; isotype: GH!). [Nesom 2022c] Sect. Radiata

47. CIRSIUM OCCIDENTALE (Nutt.) Jeps., Fl. W. Calif. [Jepson], 509. 1901. *Carduus occidentalis* Nutt., Trans. Amer. Philos. Soc., n.s. 7: 418. 1841. **TYPE**: **USA**. **California**. "Round St. Barbara," *T. Nuttall s.n.* (holotype: BM). [Nesom 2026d] Occidentale group

48. CIRSIUM OCHROCENTRUM A. Gray, Mem. Amer. Acad. Arts, n.s. 4 [Pl. Fendlerianae]: 110. 1849. *Cnicus undulatus* var. *ochrocentrus* (A. Gray) A. Gray, Proc. Amer. Acad. Arts 10: 43. 1874. *Cnicus ochrocentrus* (A. Gray) A. Gray, Proc. Amer. Acad. Arts 19: 57. 1884 [1883]. *Carduus ochrocentrus* (A. Gray) Greene, Proc. Acad. Nat. Sci. Philadelphia 44: 363. 1892 [1893]. **TYPE**: **USA**. **New Mexico**. Mountainsides around Santa Fe, 1847, *A. Fendler 486* (holotype: GH; isotype: GH). [Nesom 2021c] Ochrocentrum group

49. CIRSIUM ORIZABENSE (Sch.-Bip.) Petrak, Beih. Bot. Centralbl. 27(2): 234. 1910. *Cnicus orizabensis* Klatt, Leopoldina 24: 128. 1888. **TYPE**: **MEXICO**. [**Veracruz**]. Pic Orizaba, 10-12000 ft, Jul 1841, *F. Leibmann 673* (holotype: P 00705699; isotype: P 00705700). [Nesom 2021c] Sect. Radiata

50. CIRSIUM PABLILLO Nesom, Phytoneuron 2022-24: 9. 2022. **TYPE**: **MEXICO**. **Nuevo León**. Mpio. Galeana: Hacienda Pablillo, 8 Jul 1936, *M. Taylor 88* (holotype: TEX; isotypes: F, MO). [Nesom 2022b] Texanum group

51. CIRSIUM PACIFICUM Nesom, Phytoneuron 2022-24: 17. 2022. **TYPE**: **MEXICO**. **Sonora**. [Mpio Navojoa]: 4.3 km SW of Huasaguari on Masiaca-San Antonio del Las Ibarras road, large riparian wash, disturbed roadside, 100 m, 13 Apr 1995, *T. Van Devender 95-271* (holotype: TEX; isotypes: ASU; isotypes: UCR, USON). [Nesom 2022b] Rhaphilepis group

52. CIRSIUM PASCUARENSE (Kunth) Spreng., Syst. Veg. 3: 372. 1826. *Cnicus pascuarensis* Kunth, Nov. Gen. et Spec. 4: 22, t. 310. 1820. **TYPE**: **MEXICO**. [**Michoacan**]. "In Regni Mexicani temperatis prope Pascuaro, alt. 1130 hex, Sep, *Humboldt? s.n.* (holotype: P 00322253). Mexicanum group

53. CIRSIUM PINETORUM Greenm., Proc. Amer. Acad. Arts 41: 267. 1905. *Cirsium acantholepis* var. *pinetorum* (Greenm.) Petrak, Beih. Bot. Centralbl., Abt. 2. 27(2): 212. 1910. **TYPE**: **MEXICO**. **Puebla**. Honey Station, pine forests, 5800 ft, 15 Sep 1904, *C.G. Pringle 8884* (holotype: GH; isotypes: C, CM, GOET, K, LL, M, MA, MEXU-4, MIN, MSC, P, PH, S, UC, US-2, VT). [Nesom 2021c] Sect. Radiata

554. 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, P-2, PH, PUL, RSA-2, S, UC, US-2). [Nesom 2021a] Grahamii group

55. CIRSIUM RADIANS Benth., P1. Hartw. 77. 1841. *Cnicus radians* (Benth.) Hemsl., Biol. Cent.-Amer., Bot. 2(10): 252. 1881. **TYPE**: **GUATEMALA**. **Dept. Quetzaltenango**. "In arvis" (protologue), "in fields" (K label), 1839, *T. Hartweg 538* (holotype: K 527785; isotypes: K, LD, P). Sect. Radiata

Cirsium guatemalense Blake, J. Wash Acad. Sci. 24: 442. 1934. **TYPE**: **GUATEMALA**. **Dept. Chimaltenango**. Chichavac, edge of oak woods, 8300 ft, 10 Nov 1933, *A.F. Skutch 660* (holotype: US on 3 sheets; isotype: LL).

56. CIRSIUM RHAPHILEPIS (Hemsl.) Petrak, Beih. Bot. Centralbl. 27 (Abt. 2): 242. 1910. *Cnicus rhaphilepis* Hemsl., Biol. Centr. Amer., Bot. 2: 252. 1881. **TYPE**: **MEXICO**. **Edo. México**. Valley of Mexico, 2 May 1865, *E. Bourgeau 141* (holotype: K; isotypes: BR, GH, P-3 sheets). [Nesom 2022b] Rhaphilepis group

Cirsium reglense Sch.Bip. ex Klatt (in synonymy), Leopoldina 24: 128. 1888. *Cnicus reglensis* Klatt, Leopoldina 24: 128. 1888. **TYPE**: **MEXICO**. [**Hidalgo**]. "Regle" [San Miguel Regla, near Real del Monte], [1836], *C.A. Ehrenberg 16* (holotype: B, presumably destroyed; isotype: apparent fragment at P, mounted with 3 stems of *Schaffner 42*).

57. CIRSIUM RUPINARUM Nesom, Phytoneuron 2022-23: 24. 2022. **TYPE**: **MEXICO**. **Chihuahua**. Mpio. Maguarichi: Ca. 25 air mi SW of San Juanito, 6 mi NE of village of Maguarichi, igneous rock, at seep in small canyon on S-facing slope, ca. 7000 ft, with various *Quercus*, *Pinus*, and *Juniperus*, 28 Apr 1985, *R. Spellenberg et al. 8112* (holotype: NMC!; isotypes: MEXU, NY, LAC). [Nesom 2022a] Sect. Erythrolaena

58. CIRSIUM SANPEDRANUM Nesom, Phytoneuron 2026-26: 7. 2026. **Type**: **TYPE**: **MEXICO. Baja California**. Sierra San Pedro Martir, Vallecitos area, 1.7 mi N of turn to La Tasajera and 2.2 mi SE of Observatory Road, 30 59 54 N, 115 27 03 W, pine-aspen forest, 2380 m, 25 Jun 1996, *J. Rebman 3252* (holotype: SD). [Nesom 2026d, 2026e] Scariosum group

59. CIRSIUM SKUTCHII Blake, Brittonia 2: 357. 1937. **TYPE**: **GUATEMALA**. **Dept. Huehuetenango**. Sierra Cuchumatanes, along trail between Huehuetenango and Soloma, 10,600 ft, 15 Sep 1934, *A.F. Skutch 1264* (holotype: A on 2 sheets). Mexicanum group

60. CIRSIUM SUBCORIACEUM (Less.) Sch.Bip. in Seem., Bot. Voy. Herald 312. 1856. *Carduus subcoriaceus* Less., Linnaea 5: 130. 1830. **TYPE**: **MEXICO**. **Veracruz**. In monte Maculteper prope Jalapam, Aug 1828, *C.J.W. Schiede 265* (as on the original, handwritten label, or "leg: C.J.W. Schiede & F. Deppe" as on the printed label (holotype: HAL 69940). **EPITYPE** (Nesom 2022): **Veracruz**. [Mpio. Coscomatepec]: Barrancas near Huatusco, Feb 1913, *C.A. Purpus 6323* (US). [Nesom 2022a] Sect. Erythrolaena

Cirsium heterolepis Benth., Pl. Hartw., 87. 1841. *Cnicus heterolepis* (Benth.) A. Gray, Proc. Amer. Acad. Arts 10: 44. 1874. **TYPE**: **GUATEMALA**. Protologue: "In montibus Mixco." No collection data besides "Guatemala" on the specimen label, *K.T. Hartweg 596* (holotype: K; isotypes: LD, P).

Cirsium maximum Benth., Pl. Hartw., 289. 1849. **TYPE**: **GUATEMALA**. Protologue: "In montibus Santa Rosa." Mountains near Santa Rosa, *K.T. Hartweg 596* (holotype: K).

Cnicus pinnatisectum Klatt, Bull. Soc. Roy. Belg. 35: 292. 1896. *Cirsium pinnatisectum* (Klatt) Petrak, Beih. Bot. Centralbl. 27 (Abt. 2): 236. 1910. **TYPE**: **COSTA RICA**. Paramos del Abejonal, 1900 m, Apr 1893, *A. Tonduz 7791* (holotype: GH-on 2 sheets).

61. CIRSIUM SUBULIFORME G.B. Ownbey, Phytologia 50: 321. 1982 [not C. Shih 1984). **TYPE**: **MEXICO**. **Morelos**. 7.6 mi S of Estacion Parres (El Guarda), Rte 95D from Mexico City to Cuernavaca, roadways and cuts, ca. 9000 ft, 4 Sep 1966, *G.B. Ownbey & J.M. Muggli 3996* (holotype: MIN 1000665; isotypes: ENCB, MICH, MIN-3, US-2). Sect. Radiata

62. CIRSIUM TANCITAROENSE Nesom, Phytoneuron 2022-23: 17. 2022. **TYPE**: **MEXICO**. **Michoacan**. Mpio. Tancitaro: Tancitaro region, common in cloud forest, 8000 ft, 5 Jul 1941, *W.C. Leavenworth & H. Hoogstraal 4026* (holotype: F). [Nesom 2022a] Sect. Erythrolaena

63. CIRSIUM TENORIOANUM Nesom, Phytoneuron 2022-24: 19. 2022. **TYPE**: **MEXICO**. **Durango**. [Mpio. Durango]: ca. 4 mi W of the Barranca de los Mimbres, Rte 40, ca. 9000 ft, wet soil, road bank, 8 Aug 1966, *G.B. Ownbey 3920a*, voucher for "2n=11" [presumably n=11] (holotype: MEXU; isotype: US). [Nesom 2022b] Rhaphilepis group

Cirsium tenorioanum commemorates Pedro Tenorio Lezama, remarkably productive field biologist and collector of the Mexico flora. *Cirsium tenoreanum* Petrak (Sched. Cirsiotheca Universa 17: n. 168. 1921, nom. nov. for *C. spurium* (DC.) Lacaita, 1918; not *C. spurium* (Del.) Del.,1842. — dedicated to the Italian botanist Michele Tenore (1780–1861).

64. CIRSIUM TEPEHUANENSE Nesom, Phytoneuron 2022-23: 22. 2022. **Type**: **MEXICO**. **Durango**. Mpio. Santiago Papasquiaro: ca. 20 air km WNW of Santiago Papasquiaro, 3.3 mi by Topia Road, N crest of sierra from jct with road to antenna, steep forested slope, roadside, and canyon with spring, wet area about spring, 9 Jul 1983, *R.D. Worthington 10917* (holotype: TEX; isotype: COLO). [Nesom 2022a] Sect. Erythrolaena

65. CIRSIUM TEXANUM Buckley, Proc. Amer. Acad. Nat. Sci. Philadelphia 13: 460. 1862. **TYPE**: **USA**. **Texas**. [Mason Co.:] Near Brady's Creek, N of Fort Mason, Jun 1861, *S.B. Buckley s.n.* (holotype: PH!). [Nesom 2022b] Texanum group

Carduus helleri Small, Fl. Southeast. U.S., 1307, 1341. 1903. *Cirsium ochrocentrum* var. *helleri* (Small) Petrak, Beih. Bot. Centralbl. 35 (Abt. 2): 418. 1917. *Cirsium ochrocentrum* subsp. *helleri* (Small) Petrak, Beih. Bot. Centralbl. 35 (Abt. 2): 419. 1917. *Cirsium helleri* (Small) Cory, Rhodora 38: 408. 1936. **TYPE**: **USA**. **Texas**. Kerr Co.: Kerrville, 1600-2000 ft, 7-14 May 1894, *A.A. Heller 1720* (holotype: NY; isotype: US).

Carduus austrinus Small, Fl. Southeast. U.S., 1307, 1341. 1903. *Cirsium austrinum* (Small) E.D. Schulz, Wild Fl. S. Antonio, 242. 1922. **TYPE**: **USA**. **Texas**. 1851, *C. Wright 1291* (holotype: NY; isotypes: GH 4606, GH 4607, MO). Wright's field notes: field #377, from "low and grassy flats around Escondido Springs between the Pecos and the Limpia" — 7 Jun 1851, Pecos Co., Texas.

Cirsium greenei Petrak, Repert. Spec. Nov. Regni Veg. 9: 177. 1911. **TYPE**: **MEXICO**. **Coahuila**. Rio Grande Valley near Diaz [Piedras Negras], 700 ft, 19 Apr 1900, *C.G. Pringlei 8296* (holotype: W?; isotypes: BRU, LL, MEXU-2 sheets, MIN, NY, RM, US).

This was described by Petrak as "nov. spec." but it apparently was intended to function as a replacement name for *Cirsium filipendulum* (A. Gray) Engelm. [not *C. filipendulum* Lange], which he cited in synonymy but which is now regarded as a synonym of *Cirsium engelmannii* Rydb. (Keil 2006). Petrak also cited *Palmer 765* (here = *C. arctorhaphis*) and two collections by Karwinsky.

Cirsium texanum var. *stenolepis* Shinners, Field & Lab. 19: 81. 1951. **TYPE**: **USA**. **Texas**. Van Zandt Co.: 2 1/4 mi W of Grand Saline, low ground, sandy soil, 15 May 1949, *L.H. Shinners 11192* (holotype: SMU, as 2 sheets).

66. CIRSIUM TOLUCANUM (B.L. Rob. & Seat.) Petrak, Beih. Bot. Centralbl. 27 (Abt. 2): 245. 1910. *Cnicus tolucanus* B.L. Rob. & Seat., Proc. Amer. Acad. Arts 28: 111. 1893. **TYPE**: **MEXICO**. **Edo. Mexico**. Sierra de las Cruces, wooded canyons, 28 Aug 1892, *C.G. Pringle 4308* (holotype: GH; isotypes: BR-3, E, GOET, JE, K, M, MIN, MO, P, S, UC-2, VT). Sect. Erythrolaena

67. CIRSIUM TOWNSENDII (Petrak) Nesom, Phytoneuron 2021-72: 2. 2021. *Cirsium ochrocentrum* var. *townsendii* Petrak, Beih. Bot. Centralbl. (Abt. 2) 35: 420. 1917. **TYPE**: **MEXICO**. **Chihuahua**. Near Colonia Garcia in the Sierra Madre, ca. 2200 m, 2 Jun 1895, *C.H.T. Townsend & C.M. Barber 59* (holotype: WU; isotypes: GH, MEXU-2, MO, NY, RM, TEX, US, VT). [Nesom 2021c] Ochrocentrum group

Cirsium ochrocentrum subsp. *martinii* Barlow-Irick, Novon 9: 318. 1999. *Cirsium ochrocentrum* var. *martinii* (Barlow-Irick) Keil, Sida 21: 215. 2004. **TYPE**: **USA**. **New Mexico**. Catron Co.: NMex Hwy 12, 12.5 mi E of San Francisco River bridge at Reserve, 5800 ft, 28 Jul 1997, *P. Barlow-Irick 97-8* (holotype: US as 2 sheets; isotypes: ASU, MO, NMC, UNM).

68. CIRSIUM TRACHYLOMUM Blake, J. Wash. Acad. Sci. 25: 322. 1935. **TYPE**: **MEXICO**. **Baja California**. Sierra San Pedro Martir, La Encantada, granitic soil along small canyon at upper end of meadow, ca. 2200 m, 18 Sep 1930, *I.L. Wiggins & D. Demaree 4904* (holotype: US-116150; isotypes: DS, GH, LL, MU, NY, RSA, UC, US-116149). [Nesom 2026d] Incertae sedis

69. CIRSIUM TURNERI Warnock, Southw. Nat. 5: 101. 1960. **TYPE**: **USA**. **Texas**. Brewster Co.: 25 mi SE of Alpine, Del Norte Mts., Doubtful Canyon, Gage Estate, 4500 ft, rare in limestone crevices, 11 Jul 1948, *B.H. Warnock 7974* (holotype: SRSC; isotypes: BRIT, DAO-2, GH, LL-2, MEXU, MIN, MO, NY, TEX). Arizonicum group?

70. CIRSIUM UNDULATUM (Nutt.) Spreng., Syst. Veg., ed. 16 [Sprengel] 3: 374. 1826. *Carduus undulatus* Nutt., Gen. N. Amer. Pl. 2: 130. 1818. *Cnicus undulatus* (Nutt.) A. Gray, Proc. Amer. Acad. Arts 10: 42. 1874. **TYPE**: "Missouri," [1811], *T. Nuttall s.n.* (holotype: PH). [Hsi 1960; Nesom 2021b] Undulatum group

Protologue: "On the calcareous islands of lake Huron, and on the plains of Upper Louisiana" — this may reflect confusion by Nuttall about the type locality (see 1946 note by Shinners on the PH type sheet; Ownbey 1952; Stuckey 1967), but "Missouri" on the type label is clear.

EPITYPE (Nesom 2021): **USA**. **South Dakota**. Bennett Co.: 2 mi E of Martin, upland prairie pasture, thin grass, limestone, clay soil, 14 Jul 1971, *S. Stephens 49366* (KANU).

Cnicus undulatus var. *megacephalus* A. Gray, Proc. Amer. Acad. Arts 10: 42. 1874. *Carduus undulatus* var. *megacephalus* (A. Gray) Greene, Proc. Acad. Nat. Sci. Philad. 1892. 360. 1893. *Carduus megacephalus* (A. Gray) Smyth, Trans. Kansas Acad. Sci. 16: 160. 1899. *Cirsium megacephalum* (A. Gray) Cockerell, Univ. Missouri Stud., Sci. Ser. 2: 254. 1911. *Cirsium undulatum* var. *megacephalum* (A. Gray) Fernald, Rhodora 10: 94. 1908. **TYPE**: "Missouri," [ca. 1810], *T. Nuttall s.n.* (holotype: PH).

71. CIRSIUM VELATUM (S. Wats.) Petrak, Beih. Bot. Centralbl. 27 (Abt. 2): 247. 1910. *Cnicus velatus* S. Wats., Proc. Amer. Acad. Arts 26: 143. 1891. *Carduus velatus* (S. Wats.) Greene, Proc. Acad. Sci. Philad. 1893: 363. 1892. **TYPE**: **MEXICO**. **Edo. Mexico**. Flor de Maria, low

meadows, *C.G. Pringle 3228* (holotype: GH; isotypes: AC, BR, CM, COLO, E, ENCB, GOET, JE, K, M, MEXU, MIN, MSC, MO, MU, NY, P-2, RSA-2, S, UC, US-2). Mexicanum Group

72. CIRSIUM VERGELENSE Nesom, Phytoneuron 2022-23: 23. 2022. **TYPE**: **MEXICO**. **Chihuahua**. Mpio. San Pablo Balleza: S side of bridge crossing of Rio Verde in deep barranca, 21 mi SW of El Vergel, SW of Parral, 19 Aug 1988, *G. Nesom 6446* (holotype: TEX; isotypes: CAS, COLO, F, GH, MEXU, MO, NY, TEX, US). [Nesom 2022a] Sect. Erythrolaena

73. CIRSIUM VULGARE (Savi) Tenore, Fl. Napol. 5: 209. 1835-36. *Carduus vulgaris* Savi, Fl. Pis. 2: 241. 1798. **TYPE**: Italy Old World species

74. CIRSIUM WRIGHTII A. Gray, Smiths. Contr. Knowl. 5(6) [Pl. Wright. 2]: 101. 1853. **LECTOTYPE** (Nesom 2018): **USA**. **Arizona**. [Cochise Co.]: "Around springs near San Bernardino," 3 Oct 1851, *C. Wright 1290* (GH 006001 and 6002, probably the same collection mounted on 2 sheets; isolectotypes: K, NY). [Nesom 2018; Singhurst & Demere 2026] Grahamii group

75. CIRSIUM ZAMORANENSE Rzed., Acta Bot. Mex. 29: 104. 1994. **TYPE**: **MEXICO**. **Querétaro**. Mpio Colón: Parte alta del Cerro Zamorano, 3200 m, bosque de *Abies*, 1 Sep 1987, *J. Rzedowski 44443* (holotype: IEB). [Nesom 2022c] Sect. Radiata

Excluded species (not in the flora of Mexico)

CIRSIUM MOHAVENSE (E. Greene) Petrak, Bot. Tidsskr. 31: 68. 1911. *Carduus mohavensis* Greene, Proc. Acad. Sci. Philad. 1892: 361. 1892. **TYPE**: **USA**. **California**. [San Bernardino Co.:] Mohave Desert, Rabbit Springs, Jun 1886, *S.B. Parish 1834* (holotype: NDG; isotype: UC).

Villaseñor (2016) included *Cirsium mohavense* as occurring in Baja California, but I have not seen a voucher. Perhaps a misidentification of *C. californicum*.

CIRSIUM WHEELERI (A. Gray) Petrak, Bot. Tidsskr. 31: 67. 1911. *Cnicus wheeleri* A. Gray, Proc. Amer. Acad. Arts 19:56. 1883. **TYPE**: **USA**. **Arizona**. Navajo Co.: Near Camp Apache, *J.T. Rothrock 293* (holotype: GH; isotype: US).

Petrak (1911) cited *Townsend & Barber 234* from Chihuahua as *Cirsium wheeleri*, but this collection is typical *C. grahami*.

Species also occurring in the USA

Cirsium arizonicum, *C. bernardinum*, *C. californicum*, *C. citrinum*, *C. grahamii*, *C. horridulum* [sensu lato], *C. neomexicanum*, *C. occidentale*, *C. ochrocentrum*, *C. texanum*, *C. townsendii*, *C. turneri*, *C. undulatum*, *C. vulgare*, *C. wrightii*

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APPENDIX 1. Natural groups in Mexican-Central American *Cirsium*

Petrak placed all American species in sect. *Onotrophe* and sect. *Echenais*, each of which is typified by an Old World species. Most of his formal groups (subsections and series, Appendix 2, below) are artificial in composition. His sect. *Erythrolaena*, however, is typified by an American species and is regarded here as a clearly delimited endemic of Mexico and Central America. Petrak's subsect *Radiata* also appears to be a distinct American group of numerous species, and rank coordinate with the Erythrolaena species is appropriate. Without a guiding taxonomic pattern related to the larger phylogenetic structure of the genus, other larger natural groups that might be treated as sectional rank are not evident — the molecular analysis by Ackerfield et al. (2020a) has the beginning of an outline of large-scale structure, and presumably morphology and chromosome numbers may provide information to show larger patterns. Most of the groupings here are speculative.

1. CIRSIUM sect. **ERYTHROLAENA** (Sweet) Petrak, Beih. Bot. Centralbl. 35 (Abt. 2): 269. 1917. *Erythrolaena* Sweet, Brit. Fl. Gard. [Sweet] 2: pl. 134. 1825. **TYPE**: *Erythrolaena conspicua* Sweet

Cirsium subsect. *Subcoriacea* Petrak, Beih. Bot. Centralbl. 35 (Abt. 2): 269. 1917.
Petrak included the red-involucred *C. arizonicum*, *C. pulchellum*, *C. rothrockii*, and *C. andersonii*.

Cirsium subsect. *Conspicua* Petrak, Beih. Bot. Centralbl. 35 (Abt. 2): 271. 1917.

Petrak included *C. anartiolepis*, *C. conspicuum*, *C. subcoriaceum*, and *C. pinnatisectum* in the group but, other than his choice of the subsection name, did not point to one of the species as the type.

SPECIES: C. acantholepis, C. bicentenariale, C. bocoynense, C. canoasense, C. conspicuum, C. eorythros, C. ehrenbergii, C. faucium, C. imbricatum, C. jaliscoense, C. michiliense, C. mimbresense, C. rupinarum, C. subcoriaceum, C. tancitaroense, C. tepehuanense, C. tolucanum, C. vergelense [2n = 34]

2. CIRSIUM sect. **RADIATA** (Petrak) Nesom, **comb. et stat. nov.** *Cirsium* [subg. *Cirsium* sect. *Onotrophe*] subsect. *Radiata* Petrak, Beih. Bot. Centralbl. 35 (Abt. 2): 268. 1917. **LECTOTYPE** (designated here): *Cirsium radians* Benth. Petrak's subsect. *Radiata* included *Cirsium orizabense*, *C. radians*, and *C. acantholepis*.

Leaves mostly lanceolate-oblong in outline, barely or not at all clasping or decurrent. **Phyllaries** at nearly equal in length (not strongly graduated), linear-lanceolate and evenly tapered, with a thick, keel-like midrib along the whole length, sometimes with marginal spines. **Chromosome number**, 2n = 34 (Ownbey et al. 1975). *Cirsium horridulum* and *C. jorullense* have been included among molecular phylogeny samples, but the position of neither has been resolved. A preliminary account of the group was given in Nesom (2022c).

As defined here, sect. *Radiata* is strictly a Mexican/Cantral American group.

SPECIES: C. acrolepis, C. consociatum, C. hidalgoense C. horridulum, C. jorullense, C. nigriceps, C. nivale, C. novoleonense, C. oaxacanum, C. orizabense, C. pinetorum (incl. C. subuliforme), C. radians, C. zamoranense. If *Cirsium cernuum* proves to be an American species, it may belong here; Petrak placed it as the monotypic sect. *Cirsiopsis*. [2n = 34]

3. OLD WORLD SPECIES

SPECIES: C. vulgare [USA: C. palustre (L.) Scop. and C. arvense (L.) Scop. are naturalized but apparently not closely related to *C. vulgare*]

4. PHYLLARIES WITH A PROMINENTLY GLUTINOUS, DORSAL RIDGE

At least two lineages are represented here. The Undulatum group (studied by Hsi 1960) is well-defined; the inclusion of *C. velatum* by Hsi seems incorrect, placed here with *C. mexicanum*. The Ochrocentrum and Neomexicanum groups are similar to the Undulatum group and perhaps are monophyletic. The Texanum group (perhaps better as the "Virginianum group," with the oldest name) is hypothesized here to be a southwestward extension of those species in the eastern USA. Each of the Excelsior, Rhaphilepis, and Grahamii groups is well-defined and all three probably are closely related to the Texanum group.

Grahamii Group [2n = 34, 32]

SPECIES: C. grahamii, C. hygropodum, C. pringlei, C. wrightii

Undulatum group [2n = 34, 30, 28]

SPECIES: undulatum

USA:

[2n = 34] canescens, canovirens, pitcheri, pulcherrimum

[2n = 30] hillii, pumilum, repandum

[2n = 28] lecontei (2n=28, 32), nuttallii, virginianum

[2n = 28] undulatum, ciliolatum

[2n = 22] brevifolium, flodmanii, tracyi

[2n = 20] carolinianum, discolor, muticum

[2n = 18] altissimum, engelmannii, iowense
Cirsium engelmannii has reports of 2n=17, 18, and 20;

Texanum group [2n = 20, 22, 23, 24]
SPECIES: C. dasyphyllum, C. mollissimum, C. pablillo, C. texanum

Rhaphilepis Group [2n = 22]
SPECIES: C. arctorhaphis, C. benitorhaphis, C. chiapanum, C. heliorhaphis, C. macvaughii (lvs decurrent), C. magdalenense (lvs decurrent), C. notorhaphis, C. pacificum (lvs decurrent), C. rhaphilepis, C. tenorioanum

Mexicanum Group [2n = 22] Dorsal ridge very thin.
SPECIES: C. chionanthum, C. lappoides, C. limophilum, C. lomatolepis (lvs decurrent), C. mexicanum, C. pascuarense, C. skutchii, ?C. velatum

Excelsior group [2n = 30]
SPECIES: C. coahuilense, C. excelsior

Ochrocentrum group [2n = 30, 31, 32]
SPECIES: C. durangense, C. ochrocentrum, C. townsendii [USA: C. parryi]

Occidentale group [2n = 28, 30, 32]
SPECIES: C. occidentale, C. neomexicanum, C. californicum [USA: C. hydrophilum, C. inamoenum [2n=32, 34, 36], C. mohavense, C. rydbergii, C. subniveum, C. utahense]

Incertae sedis: C. basacheasense (without a glutinous dorsal ridge?), C. trachylomum

5. PHYLLARIES WITHOUT A PROMINENTLY GLUTINOUS, DORSAL RIDGE
Arizonicum group [2n = 30-34]
SPECIES: C. arizonicum, [USA: andersonii, C. chellyense, C. chuskaense, C. navajoense, C. nidulum, C. rothrockii] *Cirsium turneri* has the appearance of the Arizonicum group but molecular data (Ackerfield et al. 2022a) place it as more closely related to *C. altissimum*, *C. carolinianum C. engelmannii*, and *C. texanum*.

These species are similar to those of sect. *Erythrolaena* in their dimorphic phyllaries, the inner series red, erect, and extending above the outer, short stigmas, and long corolla lobes, but this morphology has been independently derived (fide phylogenetic topology of Ackerfield et al. 2020b).

Scariosum Group [2n = 34]
SPECIES: C. citrinum, C. sanpedranum [USA: C. congdonii, C. keilii, C. loncholepis, C. robustum, C. tehachapense, C. tioganaum, C. ursinum]

APPENDIX 2. Petrak's formal classification of American Cirsium species (1917, pp. 250-271)

Subg. Eucirsium

I. Sect. **CIRSIOPSIS** Petrak, Beih. Bot. Centralbl. 35 (Abt. 2): 251. 1917.
[C. cernuum]

II. Sect. **MASTIGOPHYLLUM** Petrak, Beih. Bot. Centralbl. 35 (Abt. 2): 251. 1917.
[C. maritimum]

III. Sect. **DERMATOLEPIS** Petrak, Beih. Bot. Centralbl. 35 (Abt. 2): 252. 1917.
[C. fontinale]

IV. Sect. **ECHENAIS** (Cass.) Petrak, Beih. Bot. Centralbl. 35 (Abt. 2): 252. 1917.
Echenais Cass., Bull. Sci. Soc. Philom. Paris 1818: 33. 1818.

Cassini's new genus included only *E. carlinioides* Cass. (nom. nov. for "Carlina echinus Marschall, Flor. Taur. Cauc." = Carlina echinus M. Bieb., Fl. Taur.-Caucas. 2: 283. 1808), currently identified as *Cirsium echinus* (M. Bieb.) Hand.-Mazz., Turkey to Iran.

1. Subsect. **Linearifolia** Petrak, p. 253
[C. lomatolepis]

2. Subsect. **Tolucana** Petrak, p. 253
[C. tolucanum]

3. Subsect. **Imbricata** Petrak, p. 253
[C. imbricatum]

4. Subsect. **Americana** Petrak, p. 253
[C. americanum, callilepis, remotifolia]

V. Sect. **ONOTROPHE** (Cass.) Petrak, Beih. Bot. Centralbl. 35 (Abt. 2): 254. 1917.
Onotrophe Cass., Dict. Sci. Nat. (ed. 2.) 36: 145. 1825.

Cassini included three species — *Carduus palustris* L., *Cnicus oleraceus* L., and *Carduus acaulis* L., each of which is now identified as an old World species of *Cirsium*. All the American species in deCandolle's treatment were included here.

1. Subsect. **Crassifolia** Petrak, p. 254
[C. rydbergii]

2. Subsect. **Minutifolia** Petrak, p. 255
[C. edule]

3. Subsect. **Stenanthe** Petrak, p. 255
   1. Ser. Latifolia [C. lappoides]
   2. Ser. Mexicana [C. costaricense, mexicanum]

4. Subsect. **Globosa** Petrak, p. 256
   1. Ser. Viridiflora [C. pallidum, parryi]
   2. Ser. Acanthocephala [C. jorullense, liebmanii]
   3. Ser. Amplifolia [C. amplifolium, crassicaule, hallii, loncholepis, oreophilum]
   4. Ser. Lanigera [C. eatonii, hesperium, scopulorum]

5. Subsect. **Acaulia** Petrak, p. 258
[C. coloradense, drummondii, loncholepis, quercetorum, scariosum]

6. Subsect. **Odorata** Petrak, p. 259
   1. Ser. Pumila [C. odoratum]
   2. Ser. Horridula [C. chrismarii, horridulum]

7. Subsect. **Campanulata** Petrak, p. 260
   1. Ser. Multiflora [C. nuttallii]
   2. Ser. Repanda [C. lecontei, repandum]

8. Subsect. **Acanthophylla** Petrak, p. 261
   1. Ser. Mutica [C. muticum]
   2. Ser. Altissima [C. altissimum, discolor]
   3. Ser. Rigidifolia [C. walkerianum]
   4. Ser. Undulata [C. canescens, megacephalum, ochrocentrum, perplexans, pitcheri, plattense, tracyi, undulatum]
   5. Ser. Viscida [C. pringlei]

6. Ser. Velata [C. velatum]
7. Ser. Paniculata [C. rhaphilepis, texanum, wrightii]
8. Ser. Virginiana [C. virginianum]

9. Subsect. **Botryocephala** Petrak, p. 165
   1. Ser. Parviflora [C. excelsius]
   2. Ser. Glutinosa [C. breweri, hydrophilum, montigenum, reglense]

10. Subsect. **Campylophylla** Petrak, p. 266
    1. Ser. Novo-Mexicana [C. mohavense, novo-mexicanum, utahense]
    2. Ser. Californica [C. botrys, californicum, triacanthum
    3. Ser. Occidentalia [C. occidentale]

11. Subsect. **Radiata** Petrak, p. 268
    [C. orizabense, radians, acantholepis]

VI. Sect. **ERYTHROLAENA** (D. Don) Petrak, Beih. Bot. Centralbl. 35 (Abt. 2): 269. 1917.
Erythrolaena D. Don in Sweet, Brit. Flower Gard. t. 134. 1825.

1. Subsect. **Subcoriacea** Petrak, p. 269
   1. Ser. Arizonica [C. arizonicum]
   2. Ser. Pulchella [C. rothrockii, puchellum]
   3. Ser. Megacephala [C. andersonii]

2. Subsect. **Conspicua** Petrak, p. 271
   [C. anartiolepis, conspicuum, subcoriaceum]