

TWO NEW SPECIES OF *CIRSIIUM* (ASTERACEAE: CARDUEAE) FROM THE SOUTHEASTERN USA

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ABSTRACT

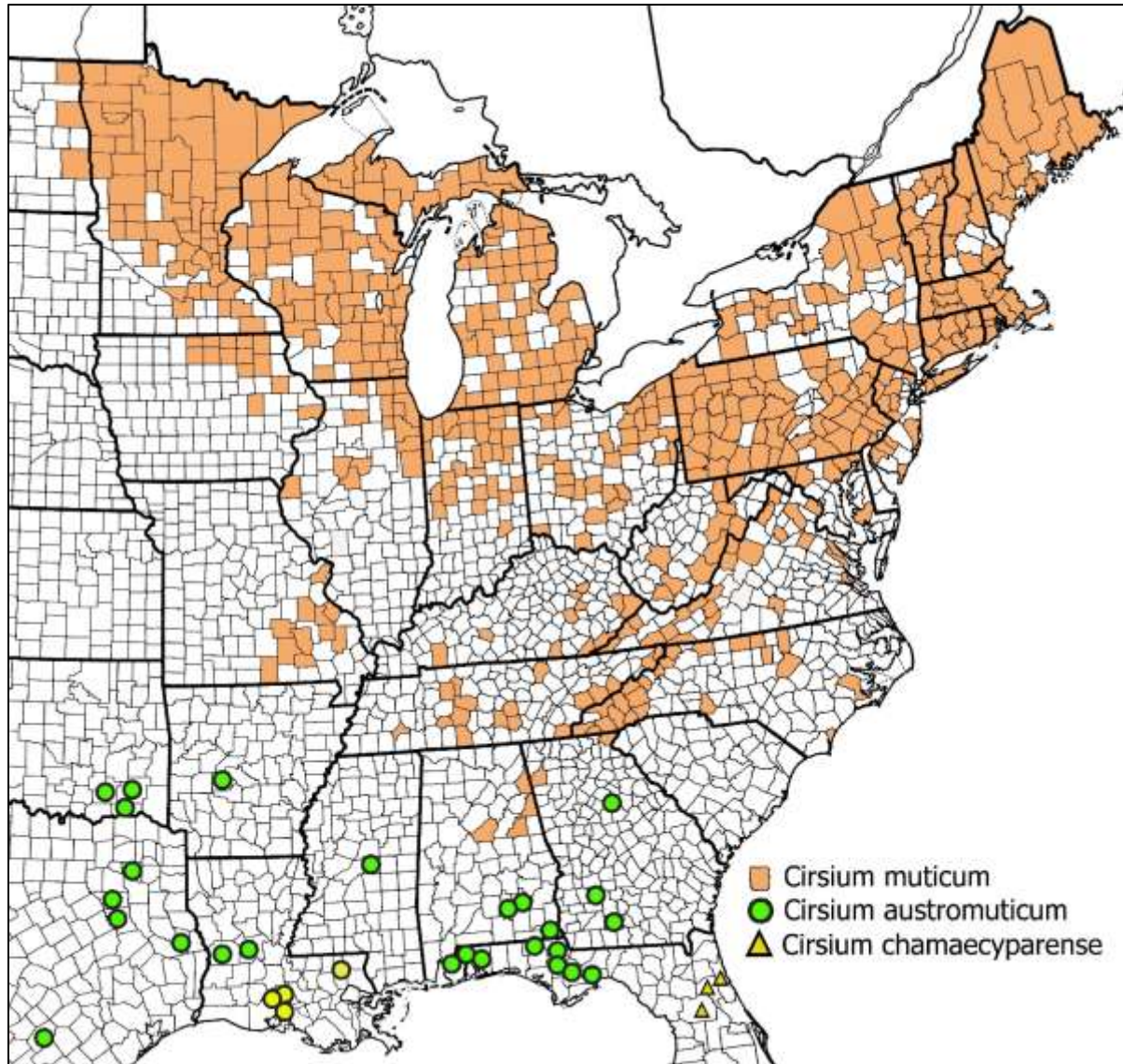
Plants of the southeastern USA previously identified as *Cirsium muticum* are recognized here as two distinct species. ***Cirsium austromuticum* Nesom, sp. nov.**, occurs widely but sporadically from western panhandle Florida and adjacent Alabama westward to Oklahoma and Texas. ***Cirsium chamaecyparens* Nesom, sp. nov.**, is known only from a small area within Putnam, Marion, and St. Johns cos., Florida, where associated with *Chamaecyparis thyoides*.

The range of *Cirsium muticum* Michx. is primarily in the northern two-thirds of the eastern USA into adjacent Canada, but scattered populations have been recognized in Gulf states, Florida to Texas (Map 1; and see Keil 2006, Weakley et al. 2026). The southern populations have seemed to give the species an unusually wide ecological latitude, but they have been regarded perhaps as relicts of a wider distribution (e.g., Keil 2006).

From the western panhandle of Florida and adjacent Alabama westward to Texas (Map 1), plants identified as *Cirsium muticum* have the geographic and morphological characteristics of a distinct species. The plants are similar to *C. muticum* in phyllaries without a terminal spine/spinule but differ in significant ways, especially in their tall stature, long peduncles, and glabrous and larger involucre. These plants are formally recognized here as *Cirsium austromuticum*, the epithet alluding to a close evolutionary relationship.

Plants in a small area of northeastern Florida (Maps 1, 2) with small, white-flowered heads in a panicle also have been identified as *Cirsium muticum* because of their spineless phyllaries, but they are divergent in morphology from any expression of *C. muticum*. These plants grow in white cedar swamps and are described here as *Cirsium chamaecyparens*.

1. Heads numerous in a panicle; involucre 10–12 mm wide; flowers white; adaxial leaf surface glabrous ***Cirsium chamaecyparens***
1. Heads 1 or few in a loose corymb, panicle, or cluster; involucre 18–32 mm wide; flowers most purplish to lilac; adaxial leaf surface sparsely villous with multicellular hairs.
 2. Plants mostly 0.4–1.2(–1.8, 3) meters tall; peduncles 0.4–3(–12) cm long, often with leaf-like bracts; heads immediately subtended by bracts, involucre 17–26 mm wide; inner phyllaries 17–24 mm long ***Cirsium muticum***
 2. Plants 1–3 (–4.5) meters tall; peduncles (10–)12–18(–24) cm long, with bracts strongly reduced in size from the cauline leaves; heads rarely immediately subtended by a bract; involucre (20–)26–32 mm wide; inner phyllaries (23–)26–28 mm long ***Cirsium austromuticum***



Map 1. Distribution of *Cirsium muticum*, *C. austromuticum*, and *C. chamaecyparense*. The Canadian distribution of *C. muticum* is mapped in Frankton and Moore (1963) — southern Saskatchewan eastward to Labrador and Newfoundland. The yellow symbols indicate plants that are more similar to typical *C. muticum* (see text).

1. **CIRSIUM MUTICUM** Michx., Fl. Bor.-Amer. 2: 89–90. 1803. **TYPE: North Carolina.** In altissimis montibus Carolinæ, *A. Michaux s.n.* (holotype: P). Figures 1-9.

South of northern Iowa, Illinois, and Indiana to Pennsylvania, the distribution of typical *Cirsium muticum* becomes patchy. The more southern plants of *C. austromuticum* might be seen as an extension of this presumably relictual patchiness, but these two are interpreted here as sister species and their distribution probably reflects a different evolutionary scenario (vs. vicariant differentiation).

Cirsium muticum was reported by Orzell (1984) and Orzell & Kurz (1986) as extant in 9 counties of Missouri, at the southwest corner of its range, where it occurs in sedge meadow-shrub fens. Yatskievych (2006) mapped it similarly and characterized the habitat as "Fens and less commonly banks of creeks and bases of bluffs, usually in areas of calcareous seepage."

Plants described as *Cirsium muticum* var. *monticola* Fernald from serpentine habitats in the Chic-Choc Mountains of Quebec's central Gaspé Peninsula and similar ones from Blomidon Mountains of western Newfoundland are distinctive and should be recognized, perhaps at specific rank — needing further study. One of the features of these plants is the thin, flaring, and colored apex of the inner phyllaries, but this also occurs elsewhere in the northeastern range. Var. *monticola* was recognized by Frankton and Moore (1963) with representative collections cited.

Chromosome number reports of $2n=20$ (sometimes with β /accessory chromosomes) have been made from Manitoba, Michigan, Minnesota, Newfoundland, and Ontario (Frankton & Moore 1963; Ownbey 1951; Ownbey & Hsi 1963; Ownbey & Olson 1969; Bloom 1977). A report of $2n=20$ (Ownbey & Olson 1969) from Lafayette, Louisiana, is discussed below.

In the interpretation here, the southernmost occurrences of typical *Cirsium muticum* are in Georgia and Alabama, at the southern foot of the Appalachians (Map 1). Muticum-like collections from southern Louisiana, within the range of *C. austromuticum*, are cited under the latter.

***Cirsium muticum sensu stricto* in Alabama and Georgia.** **Alabama.** Cherokee Co.: Precise locality obscured, 4 Oct 2023, *Barger 6201* (ALNHS-2 sheets); precise locality obscured, low site in open woodlands in prairie-like area, 22 Sep 1996, *Spaulding 9262* (JSU). Clay Co.: Ca. 13 mi NW of Lineville, Talladega Natl Forest, banks of Cheaha Creek, 33° 27' 10" N 85° 54' 11" W, uncommon, 1 Jun 2017, *Davenport 6554* (UWAL). Cleburne Co.: Precise locality obscured, wooded bottomland, siliceous soils, 13 Sep 1980, *Whetstone 10345* (JSU-2 sheets). Shelby Co.: *Everts s.n.* (F not seen, annotated by David Keil in 1997 as *C. muticum*). **Georgia.** Floyd Co.: WNW of Cave Spring, W of Mud Creek, off Jefferson Road, prairie-like area, 29 Sep 1996, *Matthews s.n.* (UNCC); WNW of Cave Spring, W of Jefferson Road and N of Mud Creek, wet prairie, 4 Oct 1997, *Matthews s.n.* (UNCC); ca. 4 air mi NW of Cave Spring, Jefferson Road ca. 1 mi W of jct with Melson Road, S side of Jefferson Road next to Mud Creek on the E side of the creek, [ca. 34.14 N, 85.40 W], 1 Oct 1997, *Ware s.n.* (GA). Rabun Co.: Tallulah River at Tallulah River Campground on Tate City Road, side of road, scattered in deep shade, 5 Sep 1997, *Stiles 1183* (GA).

2. CIRSIUM AUSTROMUTICUM Nesom, **sp. nov.** **TYPE: Florida.** Jackson Co.: S of Marianna on Hwy 71, edge of swamp, 7 Sep 1949, *S.C. Hood 2641* (holotype: FLAS).

Similar to the more widely distributed *Cirsium muticum sensu stricto* but taller, with longer, mostly ebracteate peduncles, larger heads consistently lacking immediately subtending bracts, and restricted to the Gulf coastal plain.

Annual or biennial herbs. **Stems** 1–3 (–4.5) m tall, single from the base, glabrous or sparsely villous with multicellular hairs. **Leaves:** glabrous or less commonly sparsely villous adaxially with multicellular hairs, thinly pubescent abaxially, basal in a loose rosette (rosette quickly senescent, not persistent), proximal cauline 17–40 cm long, 8–12 cm wide, not clasping, not decurrent, pectinate divided with narrowly oblong lobes cut nearly to the midrib, morphology consistent up to the peduncles, adaxial surface usually sparsely villous with multicellular hairs, margins antrorsely spinulose-ciliate. **Heads** solitary or few in an open panicle, rarely immediately subtended by bracts, peduncles (10–)12–18(–24) cm long, ebracteate or usually with greatly reduced bracts. **Involucre**s (20–)26–32 mm wide (pressed); phyllaries narrowly oblong with ovate apex to narrowly oblong-ovate, with a thick glutinous dorsal ridge, glabrous or margins cobwebby, apex acute to obtuse, not spinulose, in 8–9 series of unequal length, inner (23–)26–28 mm long. **Flowers** (corollas, stamens, style branches) lilac to pinkish purple, corollas 32–35 mm long, lobes 7–10 mm, throat 14–15 mm long, tube 12–13 mm long. **Achenes** not seen. Figures 10–29.

Flowering July–October. Swamps and swamp edges, seepage bogs, seepy meadows, borders of pocosins and bottomland woods, sandy floodplains, low roadsides, ditches. Coastal plain of the southeastern USA, except for the collection from Morgan Co., Georgia, which is slightly to the north but in a characteristic wetland habitat.

The difference of *Cirsium austromuticum* from *C. muticum* seems quantitative — taller stems, longer peduncles, and larger heads — but the difference in appearance is striking and the geographical distinction supports recognition of the coastal plain species. The deeply incised cauline leaves also are characteristic but similar morphology occurs sporadically within typical *C. muticum*. Several collections from Louisiana — *Correll 10512* from Tangipahoa Parish (Fig. 19) and plants from Iberia Parish and around Lafayette, Louisiana, have less incised leaves, enlarged peduncular bracts, and smaller heads, more like typical *C. muticum* (Map 1). Greenhouse progeny of *Thieret 799* from Lafayette had a chromosome number of $2n=20$ (Ownbey & Olson 1969), but they also noted that "considerable instability in chromosome numbers" (accessory chromosomes) was seen in plants of 799. Whether these are typical *C. muticum* within the range of *C. austromuticum* or variants within *C. austromuticum* needs investigation.

In contrast to all other reports of $2n=20$ from over the geographic range of *Cirsium muticum*, 5 greenhouse-grown seedlings of *Godfrey 58935* (Wakulla Co., Florida) were found by Frankton and Moore (1963) to have $2n=30$ (rarely $2n=31$). The authors noted (p. 78) that "15 bodies, presumably bivalents, were regularly present at metaphase I. A bagged head set seed, demonstrating self-fertility. These observations indicate that the plant is acting as a normal diploid, whatever its origin. Possibly it should be recognized as a new species."

Additional collections. **Alabama.** Baldwin Co.: Data not seen (DUKE 10119577 not seen, identified on SERNEC as *C. muticum*). Crenshaw Co.: Un-numbered dirt road just W of Mulberry Creek, T7N R16E Sec 10, swamp, wet sandy soil in full sun, rare, 4 Sep 1997, *Diamond 11098* (AUA). Houston Co.: Dothan (south side), ca. 3/4 mi S of Ross Clark Circle along Atlanta St./Andrews Bay Railroad, locally common along railroad, corollas pinkish purple, 6 Sep 1992, *MacDonald 5408* (SWSL). Pike Co.: Hwy 21 at Bluff Creek, T8N R19E Sec 36, E side of the road, wet soil in full sun. with limestone, abundant, 6 Sep 1989, *Diamond 6348* (AUA). **Arkansas.** Garland Co.: S of the Walnut Creek bridge on Hickory Mountain Rd, open woods and fen-like meadow with seeps, 44 plants in area 200 yds across, 11 Sep 2021, *Keesling & Barnard 2021-0221* (ANHC with duplicates). **Florida.** No other data, 1845, *Rugel 578* (US). Calhoun Co.: W of Blountstown, near the Chipola River, E side, borders of bottomland woodland, 1-2.5 m tall, 10 Sep 1980, *Godfrey 78117* (TTRS-2). Escambia Co.: E of Hwy 29, 4 mi N of Pine Barren Creek bridge, low swamp forest by channelized creek. to 6 ft tall, 4 Sep 1982, *Burkhalter 8439* (FLAS, LSU, UWFP-2); near Cantonment, S side of Beck's Lake Rd, 2 mi E of jct with Hwy 29, low area by roadside, 11 Aug 1990, *Burkhalter 12271* (UWFP). Holmes Co.: Just W of Ponce DeLeon, Hwy 10A ca 0.4 mi NW of jct with US Hwy 90, low area at edge of woods by roadside, 20 Aug 1997, *Burkhalter 15508* (UWFP). Jackson Co.: S of Sneads and ca 1/2 mi S of Hwy I-10, W side of State Rd 280, along small stream, sandy floodplain, 13 Oct 1978, *Gholson 7424* (FLAS); S of Sneads by Hwy 280, 0.7 mi S of Hwy I-10, semi-open floodplain of creek, 2.5 m tall, 14 Oct 1978, *Godfrey 76727* (TTRS-2). Liberty Co.: 1 mi E of Hosford on Hwy 20, moist roadside ditch, 7 Sep 1955, *Redfearn 844-89-55* (GH). Santa Rosa Co.: Near Chumuckla, S of Co Rd 182, ca 2.5 mi E of jct with Hwy 197, near S edge of wetlands associated with Pond Creek, up to 6 ft tall, 6 Sep 1994, *Burkhalter 14353* (UWFP). Wakulla Co.: Ca. 6 mi NW of Sopchoppy along Rte 375, open boggy area bordering swampy woodland, plants to 1.8 m tall, 19 Sep 1959, *Godfrey 58935* (NY on 5 sheets; voucher for $2n=30$). **Georgia.** Colquitt Co.: Doerun Pitcherplant Bog Wildlife Managmt Area, roadside of old field, past barn, 18 Jul 2010, *Van Horne s.n.* (GA). Lee Co.: 3 mi N of Albany, Muckalee Creek, swampy woods along the creek, 30 Aug 1948, *Thorne 8775* (GA, GEO). Morgan Co.: Buckhead: Swords-Blue Springs Community, 1131 Fraction Bottom Road (private), N of railroad tracks, forested wetland, 11 Sep 2011, *Galau 187* (GA on 3 sheets). **Louisiana.** Iberia Par.: Avery's Island, moist soil, 21 Sep 1917, *Wurzelow 22027* (LSU). Lafayette Par.: N environs of Lafayette, low open woods, rare, *Thieret [Olson] 799* (MIN-2, voucher for $2n= 20, 21$); ca 4-5 mi SW of Lafayette, ca 1.2 mi WNW of jct of Kaliste Saloon Road and Ambassador Caffrey Road, fields along Vermilion River at end of L.O. Peck Road, 16 Sep 1980, *Pruski 1904* (NY); near Lafayette, grazed woodland, not uncommon, 20 Sep 1962, *Thieret 9537* (MIN); 2 mi W of Flanders Bridge near the Vermilion River, S side of road, edge of deciduous woods, 2-4 ft tall, 4 Oct 1968, *Westling 162* (NCU). Rapides Par.: Old Seminary, Aug-Sep, *Featherman s.n.* (LSU); no other data, *Hale*

s.n. (BRU-2, GH-2, LSU/NO, NY-2). Saint Martin Par.: St. Martinville, in woods, 14 Oct 1890, *Langlois s.n.* (US, WIS). Tangipahoa Par.: 2 mi W of Robert, border of pocosin and pine woods, moist slope, 23 Aug 1938, *Correll 00000* (DUKE). Vernon Par.: Ca. 7 mi SE of Leesville, Fort Polk Army Base, ca. 200 m N of Mill Creek Road near Firing Point 712, seepage area in longleaf pine woods, 6 Sep 1987, 6 Sep 1987, *Thomas 101421* (LSU). West Feliciana Par.: Feliciana, pine woods, 6-10 ft high, Sep, *Carpenter 48* (NY, US-2); Old Tunica Road, sandy roadside, ca. 4 ft. tall, 11 Aug 1978, *Darwin 843* (LSU-NO-2). **Mississippi.** Leake Co.: Thomas [presumably "Thomastown"], low ground, 5 Sep 1931, *Sargent s.n.* (BYU). **Oklahoma.** Atoka Co.: McGee Creek Wilderness Area, Ferndale Bog, shortleaf pine-oak forest with natural fen, open herbaceous flora over *Sphagnum*, 15 Aug 2006, *Singhurst 14326* with E. Bridges (BAYLU). Choctaw Co.: Ca. 0.5 mi N of Hamden at "Railroad"/"Hugo" bog site, 23 Aug 2007, *Hoagland AB-7573* (OKL); 11 mi NW of Hugo, 2.5 mi N of Speer, bog on the W side of the RR tracks, 22 Aug 1976, *Taylor 23229* (DUR) and 14 Sep 1976, *Taylor 23609* (DUR, NLU, SMU). Pushmataha Co.: Ca. 0.4 mi N of Hamden, 0.6 mi S of Pushmataha Co. line, ca. 2.5 mi N of Speer and 9 mi NNW of Hugo, just W of railroad, in draining of One Creek, Hugo Bog, quaking deep peat seepage bog, 8 Oct 1988, *Orzell & Bridges 8645* (TEX); ca. 5 mi WSW of Antlers, tributary to N of Beaver Creek, S of gravel road intersection 0.5 mi S of Hwy 3 and Hwy 7, Harrison Bog, stream valley seepage bog, 8 Oct 1988, *Orzell & Bridges 8668* (TEX); ca. 5.5 mi W of Antlers, bog, 1 Sep 1976, *Taylor 23369* (DUR). **Texas.** Anderson Co.: Engeling Wildlife Mgmt Area, ca. 1 mi S of Farm Rd 296, 0.5 mi E of main road through Engeling WMA, Andrews Bog, lower slope seepage peat bog, 15 Aug 1988, *Orzell & Bridges 7974* (TEX-2). Gonzales Co.: Ottine, sphagnum bogs, 31 Jul 1927, *Bogusch 2349* (TEX-2); Ottine, Palmetto State Park, Aug 1936, *Brinkley s.n.* (HEND); Ottine, damp pasture near swamp, 20 Jul 1936, *McCart 252* (SMU); Soefje Bog, peat bog, 3 Aug 2006, *Singhurst 14313* (BAYLU); Ottine, Laefge marsh, 1935, *Tharp s.n.* (TEX); Ottine, 7 Aug 1941, *Tharp s.n.* (TEX); [Ottine bog], 15 Aug 1941, *Tharp s.n.* (GH, NY, TEX). Henderson Co.: New York Community Gaylon Dingler Ranch, pitcher plant bog and associated seepage slopes, 10 Sep 2006, *Singhurst 12277* with E. Bridges (BAYLU). San Augustine Co.: San Augustine, sandy swamps, 10 Sep 1917, *Palmer 12715* (GH, US). Wood Co.: Golden, swamp, 25 Aug 1928, *McMullen s.n.* (TEX).

3. CIRSIUM CHAMAECYPARENSE Nesom, **sp. nov.** **TYPE: Florida.** Putnam Co.: Ca 0.4 mi E of Hwy 315 1.0 mi N of jct Co. Rd 310, ca 4.5 mi S of jct with Hwy 20 at Interlachen, 29.566 N, 81.869 W, powerline crossing of Deep Creek, white cedar-sweet bay spring-fed swamp forest, 30-40 ft, 7 Nov 1990, *S.L. Orzell & E.L. Bridges 15706* (holotype: NCU; isotypes: FTG, NY-2).

Similar to *Cirsium muticum* in its phyllaries without a terminal spine but distinct in its clasping proximal cauline leaves, paniculate inflorescence of smaller heads, glabrous involucre with phyllaries more triangular-acute in shape, and consistently white flowers.

Annual (biennial?) herbs, roots not seen. **Stems** ca. 1–2.5 (–4.5) m tall, single from the base, glabrous. **Leaves**: glabrous on both surfaces, basal in a loose rosette (rosette quickly senescent, not persistent), pinnatifid, proximal cauline up to 21 cm long, 12–14 cm wide, deeply incised with narrowly oblong lobes, distinctly clasping, not decurrent, distal cauline not clasping, becoming triangular-lanceolate and coarsely serrate rather than lobed, adaxial surface glabrous, margins antrorsely spinulose-ciliate. **Heads** in an open panicle, peduncles 0.5–8 cm long, mostly not immediately subtended by bracts. **Involucre** 10–12 mm wide (pressed); phyllaries ovate-triangular in 6–8 series of unequal length, inner 17–19 mm long, with a thick glutinous dorsal ridge, apex acute, not spinulose. **Flowers** (corollas, stamens, style branches) white, corollas 21–23 mm long, lobes 5–6 mm, throat 7–8 mm long. **Achenes** ca. 4 mm long, narrowly oblong-ovate. **Chromosome number** not reported. Figures 30-39.

Flowering (June-) July-November. Spring-fed and seepage swamps with white cedar (*Chamaecyparis thyoides*), *Sabal palmetto*, *Magnolia virginiana*, *Illicium parviflorum*. The epithet alludes to the characteristic habitat of white cedar swamps.

Additional collections. **Florida.** Marion Co.: Mormon Branch, a little off Hwy 19 and to the E, much white cedar and cabbage palm, closed canopy, seepage area, leaf from a large rosette, 28 Jun 1984,

Godfrey 81399 (FLAS); Mormon Branch of Juniper Creek, Ocala Natl Forest, 5 Jul 1984, *Simons s.n.* (FLAS on 3 sheets); ca. 15 mi S of Salt Springs, Mormon Branch, ca. 0.25 mi S of Forest Service Rd 71 crossing, 0.5 mi E of Hwy 19, 1.1 mi S of Juniper Creek bridge, wet shady *Chamaecyparis* swamp, on half-rotten log in creek, infrequent, T15S, R26E, S37, 2 Sep 1984, *Ward 9887* (FLAS-2) and *Ward 9888* (FLAS). Putnam Co.: 4.3 mi S of Interlachen, 0.4 mi E of Hwy 315, just S of powerline, tributary to Deep Creek, T11S, R24E, S2 [29.57 N, 81.87 W], 19 Aug 1984, *Ward 9880* (FLAS-2). St. Johns Co.: Deep Creek Conservation Area, 29.77886 N, 81.49592 W, iNaturalist observation, 18 Jun 2018, Eric M. Powell (Figs. 35-38).



Map 2. Distribution of *Cirsium chamaecyparens*. Marion, Putnam, and St. Johns cos., Florida.

Anderson et al. (1995) reported the occurrence of *Cirsium muticum* in the spring-fed, seepage-saturated Sulphur Run hammock of Lake Co., Florida, where associated with the rare *Hasteola robertiorum*. A voucher is not available but it seems likely that those plants are *C. chamaecyparens*.

Although these plants have been identified as *Cirsium muticum*, their very tall stems, subclasping leaves, small heads, and paniculate inflorescence *C. muticum* are divergent within the species. Variants of typical *Cirsium muticum* sometimes produce a panicle inflorescence but the peduncles are shorter. The small, white-flowered heads in a panicle are similar, perhaps convergently,

to those of typical *C. nuttallii*, which also produces white-flowered heads on plants of tall stature but which is more closely similar to *C. virginianum*.

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Figure 1. *Cirsium muticum*. Coffee Co., Tennessee, Medley 11541-84 (APSC).



Figure 2. *Cirsium muticum*. Williamson Co., Tennessee, Kral 86717B (APSC).



Figure 3. *Cirsium muticum*. Buncombe Co., North Carolina, Govus 337 (WCUH).



Figure 4. *Cirsium muticum*. James City Co., Virginia, Wieboldt 5403 (WILLI).

Figure 5. *Cirsium muticum*. Will Co., Illinois, Wilhelm s.n. (MOR).



Figure 6. *Cirsium muticum*. Monroe Co., Pennsylvania, Buser 10849 (NLU).



Figure 7. *Cirsium muticum*. Somerset Co., Pennsylvania, Shetler 394 (PAC).

Figure 8. *Cirsium muticum*. Waushara Co., Wisconsin, Cochrane 14538 (WIS).



Figure 9. *Cirsium muticum*. Carter Co., Missouri, Steyermark 69219 (F).

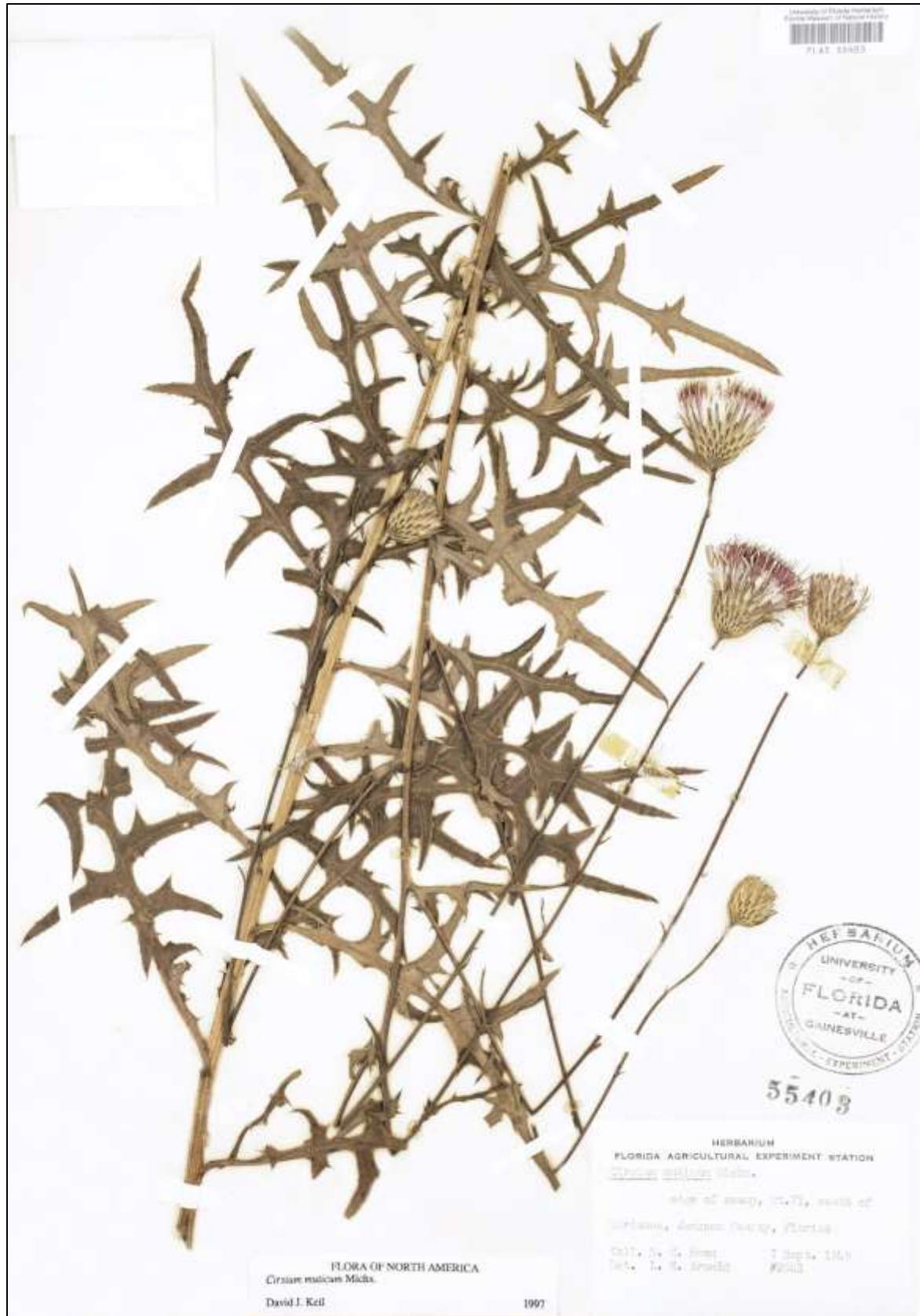


Figure 10. *Cirsium austromuticum*. Jackson Co., Florida, Hood 2641 (FLAS). Holotype.

Figure 11. *Cirsium austromuticum*. Jackson Co., Florida, Gholson 7424 (UWFP).



Figure 12. *Cirsium austromuticum*. Jackson Co., Florida, Godfrey 76727 (TTRS).



Figure 13. *Cirsium austromuticum*. Escambia Co., Florida, Burkhalter 12271 (UWFP).



Figure 14. *Cirsium austromuticum*. Liberty Co., Florida, Redfearn & Godfrey 844-89-55 (GH).

Figure 15. *Cirsium austromuticum*. Morgan Co., Georgia, Galau 187 (GA).



Figure 16. *Cirsium austromuticum*. Pike Co., Alabama, Diamond 6348 (AUA).

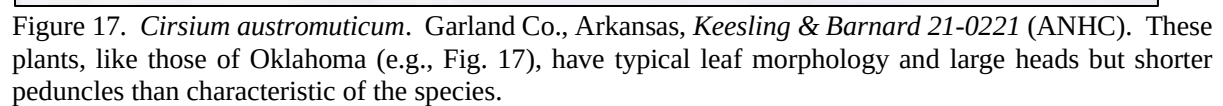




Figure 18. *Cirsium austromuticum*. Pushmataha Co., Oklahoma, Taylor 28869 (DUR). Similar to the Arkansas plants.

Figure 19. *Cirsium austromuticum*. Anderson Co., Texas, Orzell & Bridges 7974 (TEX).



Figure 20. *Cirsium austromuticum*. Tangipahoa Par., Louisiana, Correll 10512 (DUKE).

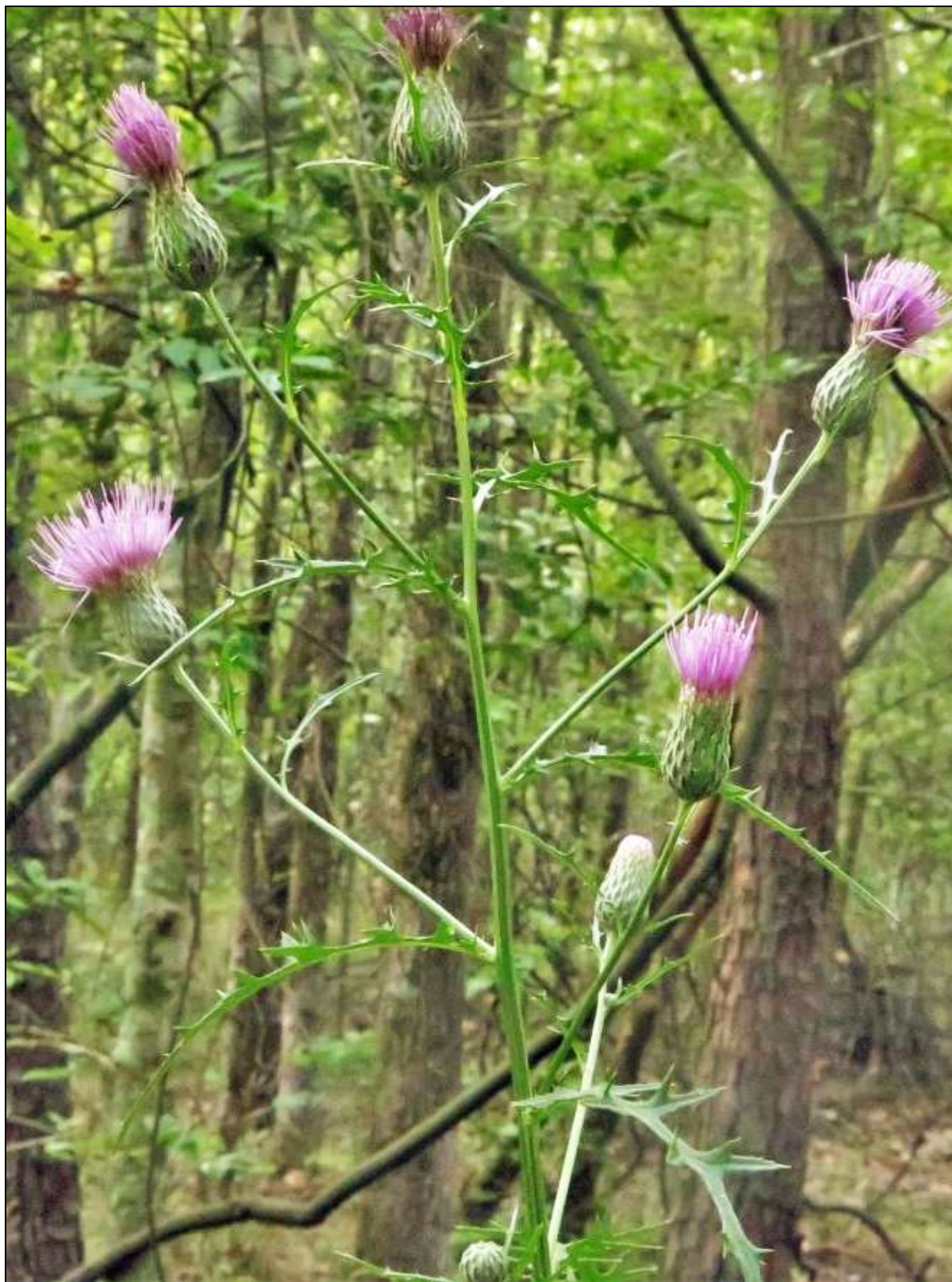


Figure 21. *Cirsium austromuticum*. Garland Co., Arkansas, September 2021. iNaturalist photo by Jim Keesling.

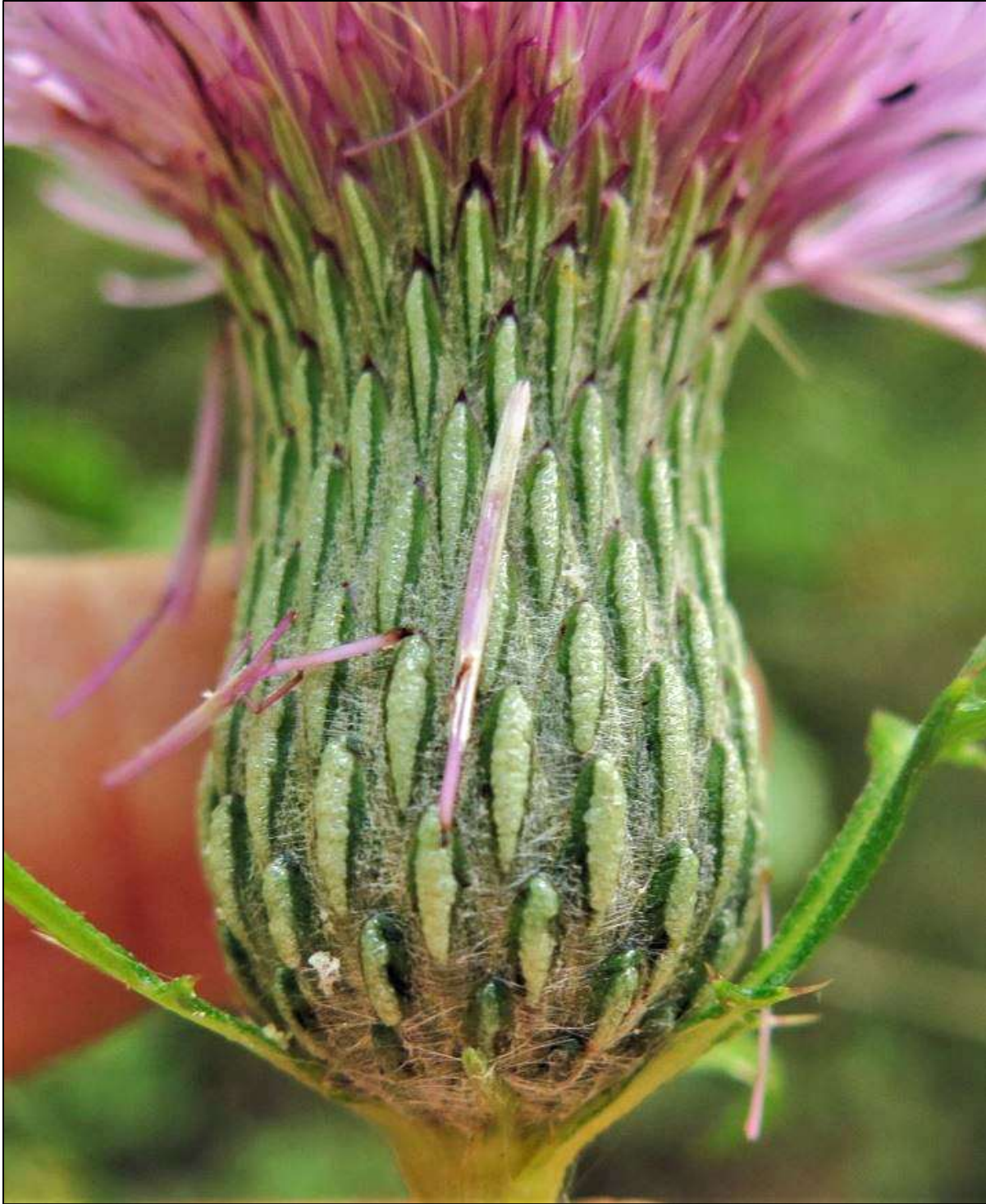


Figure 22. *Cirsium austromuticum*. Garland Co., Arkansas, September 2021. iNaturalist photo by Jim Keesling.

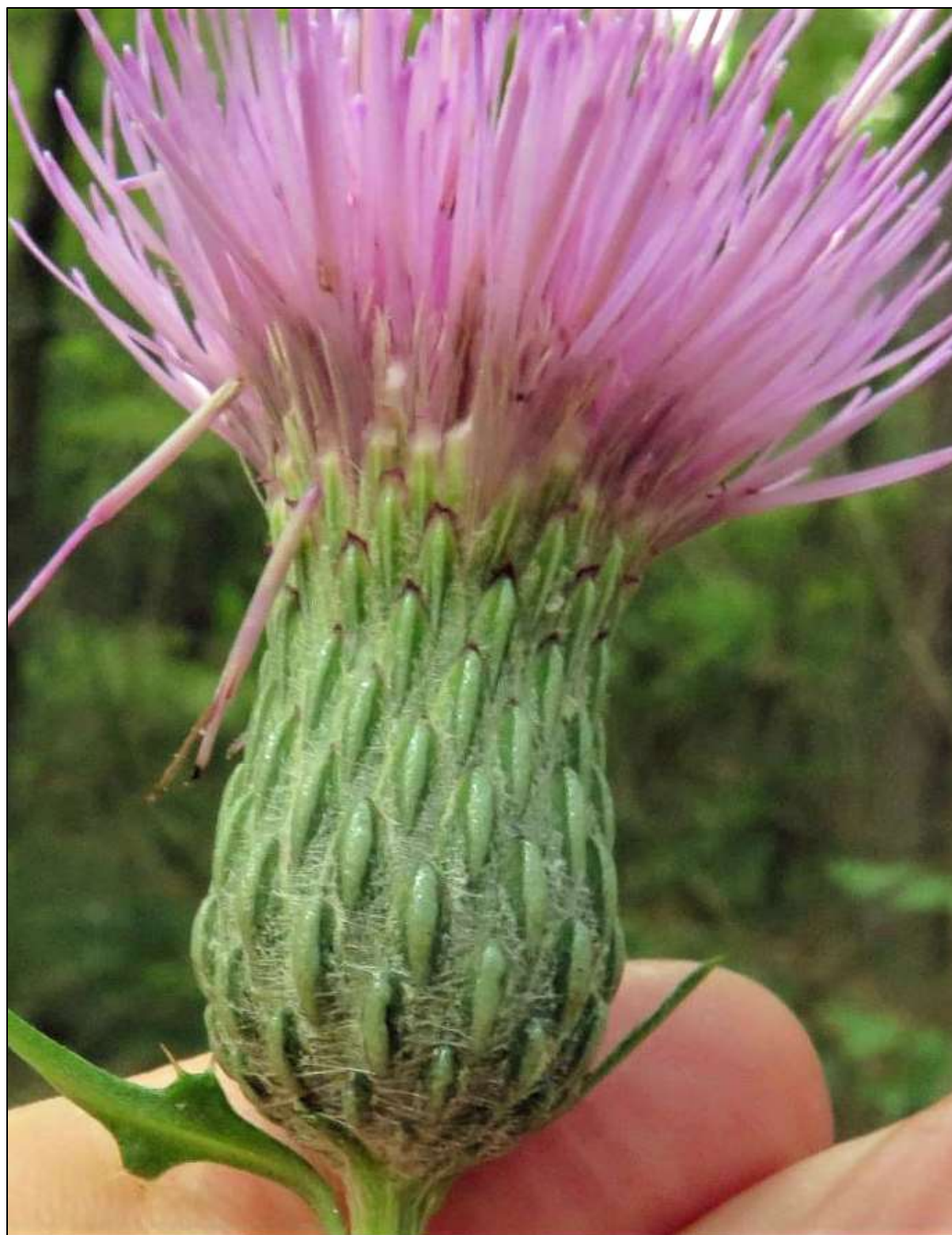


Figure 23. *Cirsium austromuticum*. Garland Co., Arkansas, September 2021. iNaturalist photo by Jim Keesling.



Figure 24. *Cirsium austromuticum*. Garland Co., Arkansas, September 2021. iNaturalist photo by tallpaultheforester. Bracts immediately subtending the involucre are unusual.



Figure 25. *Cirsium austromuticum*. Garland Co., Arkansas, September 2021. iNaturalist photo by Jim Keesling.



Figure 26. *Cirsium austromuticum*. Garland Co., Arkansas, September 2021. iNaturalist photo by Jim Keesling.



Figure 27. *Cirsium austromuticum*. Garland Co., Arkansas, September 2021. iNaturalist photo by Jim Keesling.

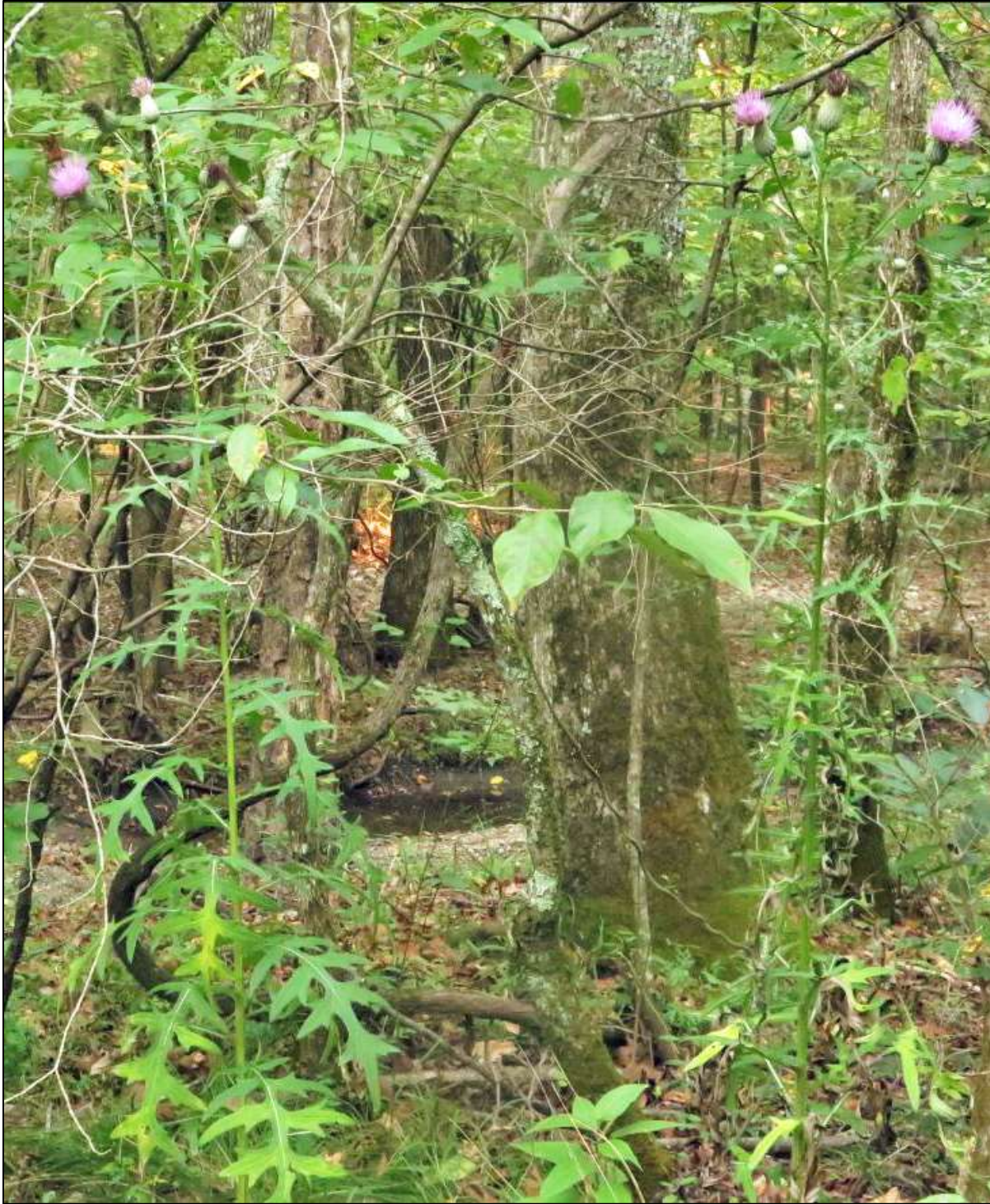


Figure 28. *Cirsium austromuticum*. Garland Co., Arkansas, September 2021. iNaturalist photo by Jim Keesling.



Figure 29. *Cirsium austromuticum*. Gonzales Co., Texas, with Edwin Bridges. Photo by Jason Singhurst.



Figure 30. *Cirsium chamaecyparens*. Putnam County, Orzell & Bridges 15706 (FTG). Isotype.



Figure 31. *Cirsium chamaecyparense*. Putnam County, Orzell & Bridges 15706 (FTG). Isotype.

Figure 32. *Cirsium chamaecyparense*. Putnam County, Ward 9880 (FLAS).

Figure 33. *Cirsium chamaecyparense*. Marion County, Simons s.n. (FLAS).



Figure 34. *Cirsium chamaecyparense*. Putnam County, Orzell & Bridges 15706 (FTG). Isotype.

Figure 35. *Cirsium chamaecyparense*. Putnam County, Godfrey 81399 (FLAS). Rosette leaf.



Figure 36. *Cirsium chamaecyparense*. Putnam County, 20 Oct 2019, iNatural photo by Eric M. Powell.



Figure 37. *Cirsium chamaecyparens*. Putnam County, 20 Oct 2019, iNatural photo by Eric M. Powell.



Figure 38. *Cirsium chamaecyparense*. St. Johns County, 18 Jun 2018, iNatural photo by Eric M. Powell.



Figure 39. *Cirsium chamaecyparens*. St. Johns County, 18 Jun 2018, iNaturalist photo by Eric M. Powell. Arrows point to the stem. Label notes indicate that plants reach up to 4.5 meters tall in this area.