

**BOLTONIA (ASTERACEAE: ASTEREAE):
THE CENTRAL AND MIDWESTERN SPECIES**

GUY L. NESOM

Research Associate

Academy of Natural Sciences of Drexel University

Philadelphia, Pennsylvania

guynesom@sbcglobal.net

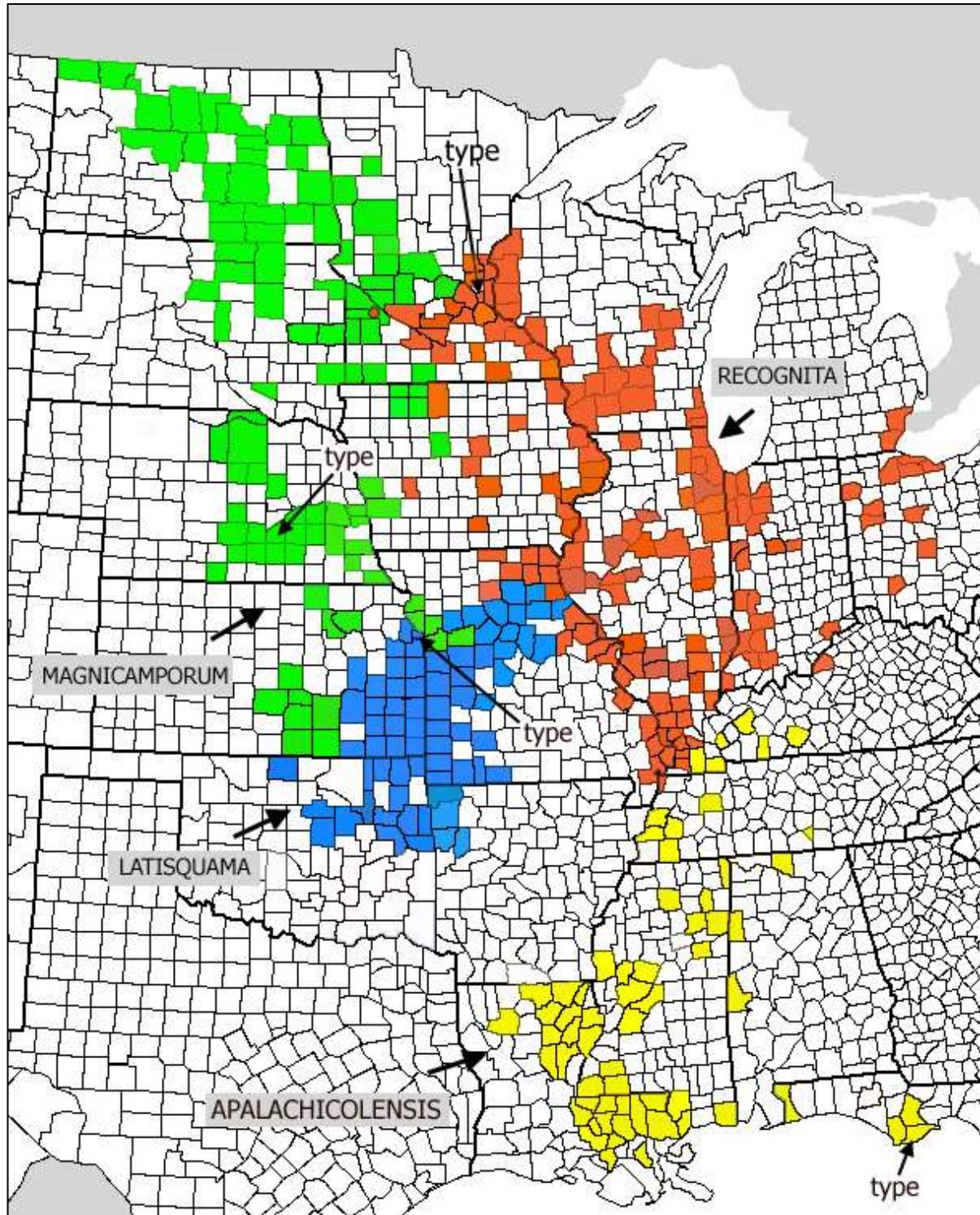
ABSTRACT

Boltonia species primarily of the central and midwestern USA are described and mapped. *Boltonia recognita* is an inhabitant of low woods along the Ohio and upper Mississippi rivers and major tributaries in Minnesota and Iowa eastward to Ohio. *Boltonia latisquama* and ***Boltonia magnicamporum* Nesom, sp. nov.**, are species of prairies and plains and are closely similar to each other, separated most diagnostically by the production of rhizomes in *B. magnicamporum*. *Boltonia apalachicolensis* is interpreted here to have a broader range than originally described, most commonly encountered in Louisiana and Mississippi — it lacks rhizomes but otherwise is closely similar to *B. recognita* in morphology and perhaps most closely related to it.

Boltonia asteroides (L.) L'Hér. usually has been interpreted to include var. *recognita* and var. *latisquama* of the central and midwestern USA (Fernald 1940; Morgan 1967; Townsend & Weakley 2026). Both taxa are recognized here at specific rank (along with other segregates of *B. asteroides*), as *B. asteroides* sensu stricto is now considered to be a well-defined species endemic to habits closely associated with the Susquehanna River in southeastern Pennsylvania and adjacent Maryland (Townsend 2013). *Boltonia latisquama* as mapped by Morgan (1967) is regarded here to consist of two parapatric prairie species — *B. latisquama* and a more widely distributed *B. magnicamporum* (Kansas to Manitoba and Saskatchewan, Map 1).

KEY TO CENTRAL AND MIDWESTERN BOLTONIA

1. Inflorescence paniculate to subcorymboid; rhizomes present or absent; phyllary apex apiculate; prairies.
 2. Rhizomes absent; midcauline leaves 1–5 mm wide; inflorescence paniculate; peduncles 3–10(–30) cm long; involucre 4.5–5 mm wide; dark midline of phyllaries broadly expanded distally; ray corollas 10–18 mm long ***Boltonia latisquama***
 2. Rhizomes present; midcauline leaves 5–12 mm wide; inflorescence paniculate-subcorymboid to subcorymboid, peduncles 1–2.5(–4.5) cm long; involucre 6–8 mm wide; dark midline of phyllaries mostly linear or slightly expanded distally; ray corollas 6–8 mm long ***Boltonia magnicamporum***
1. Inflorescence distinctly corymboid; rhizomes absent; phyllary apex not apiculate; usually in bottomlands or wet woods.
 3. Leaves decurrent ***Boltonia decurrens***
 3. Leaves not decurrent.
 4. Rhizomes present; rays 30–60; inner phyllaries 2.5–3 mm long; achenes 2–3 mm long, awns 1–1.5 mm, ray achenes with awns, corona absent or only as fimbria ***Boltonia recognita***
 4. Rhizomes absent; rays 25–30; inner phyllaries 1.5–2 mm long; achenes 1.6–2 mm long, awns 0.2–0.5 mm long, ray achenes often without awns, corona prominent ***Boltonia apalachicolensis***



Map 1. Distribution of *Boltonia magnicamporum* (green), *B. recognita* (orange), *B. latisquama* (blue), and *B. apalachicolensis* (yellow).

1. BOLTONIA RECOGNITA (Fernald & Griscom) G.N. Jones in Jones & Fuller, Vasc. Pl. Illinois, 478. 1955. *Boltonia latisquama* var. *recognita* Fernald & Griscom, Rhodora 42: 491. 1940. *Boltonia asteroides* var. *recognita* (Fernald & Griscom) Cronq., Bull. Torrey Bot. Club 74: 149. 1947. **TYPE: Minnesota.** [Ramsey Co.]: Fort Snelling, 20 Aug 1891, *E.A. Mearns s.n.* (holotype: GH).

Boltonia latisquama var. *microcephala* Fernald & Griscom, Rhodora 42: 492. 1940. **TYPE: Illinois.** Cook Co.: South Harvey, along Illinois Central Railroad, 30 Aug 1893, *S.H. Burnham s.n.* (holotype: GH; isotype: PH-2 sheets).

Among the paratypes, as identified here: *B. recognita* — *Fitzpatrick s.n.* (GH; Iowa), *Gleason 1961* (GH; Illinois), *Gleason 2741* (GH; Illinois), *Manning s.n.* (GH; Minnesota), *Ridgway 66* (GH; Illinois); *Baker s.n.* (GH; Wisconsin). *B. magnicamporum* — *Hotchkiss & Jones 362* (GH; Minnesota). The heads are small but the short, few-bracted peduncles, phyllary morphology, and relatively long achenial awns are like *B. recognita*, otherwise the only species known from Cook County.

Herbaceous perennials, glabrous, fibrous-rooted, rhizomatous, sometimes with sessile basal offsets. **Stems** 40–150 cm, sometimes fistulose. **Leaves:** basal deciduous by flowering, cauline mostly narrowly oblanceolate to narrowly elliptic, 5–14 cm long, 5–12 mm wide, continuing little-reduced into the inflorescence. **Inflorescence** corymbose to subcorymbose, sometimes corymbose on lateral branches, peduncles 0.8–2 cm long, ebracteate or with 1 or rarely 2 linear bracts. **Receptacles** low-conic. **Involucres** 4–6 mm wide (pressed); phyllaries oblong, in (2–)3–4 series of equal to slightly subequal length, inner 2.5–3 mm long, dark midregion linear, margins whitish and prominent, the inner sometimes with broad scarious margins approaching *B. latisquama*, apex rounded to rounded-obtuse or rounded-acute not apiculate. **Ray flowers** ca. 30–60, corollas 7–10 mm long, **Disc corollas** 1.4–1.8 mm long. **Achenes** obovate, 2–3 mm long, winged, awns 1–1.5 mm long, corona essentially lacking or as a few minute fimbria. Figures 6-17.

Flowering (July-)August - October. River and creek banks, pond and lake edges, oak flatwoods, floodplain forest, riparian marsh, wet prairies, low roadsides.



Figure 1. *Boltonia recognita*. From the type collection.

Boltonia recognita, in its range from Minnesota to Ohio, reaches southward to the area of the confluence of the Mississippi and Ohio rivers. Farther south along the Mississippi drainage and into panhandle Florida, plants with the aspect of *B. recognita* but lacking rhizomes are identified here as *B. apalachicolensis*. Both species characteristically occur in low and swampy woods.

Apparent intermediates between *Boltonia recognita* and *B. latisquama* are encountered where the ranges of the two meet in northeastern Missouri.

The type collection of *Boltonia latisquama* var. *microcephala* and protologue paratypes at first take are distinctive in their dense inflorescence of relatively small heads on thin and few-bracted peduncles, in aspect like *B. diffusa*. Even as paratypes cited by Fernald, however, they are distributed through the range of *B. recognita* and similar collections and intermediates are not uncommon — all are interpreted here as variants within the species.

2. BOLTONIA APALACHICOLENSIS L.C. Anderson, Syst. Bot. 12: 133. 1987. **TYPE: Florida.** Franklin Co.: Forbes Island at milepost 16.8 on Apalachicola River, ca. 12.7 air mi NNW of town of Apalachicola, muddy soil of wooded floodplain, frequent with *Commelina virginica*, *Eupatorium serotinum*, *Panicum gymnocarpon*, and *Lobelia* spp., 18 Oct 1985, L.C. Anderson 8921 (holotype: NY; isotype: MO).

Herbaceous perennials, glabrous, fibrous-rooted, without rhizomes, sometimes with sessile basal offsets. **Stems** 60–120 cm, not fistulose, 1-several from the base. **Leaves:** basal and lower cauline persistent or deciduous by flowering, cauline mostly narrowly elliptic-ob lanceolate, 4–11 cm long, 4–15 mm wide, gradually smaller up to the heads, then bracteate. **Inflorescence** corymboid to subcorymboid, peduncles (0.5–)1.5–6 cm long (look for lateral buds), with 0–2(–3) minute bracts. **Receptacles** low-conic. **Involucres** (3.5–)4–5 mm wide (pressed); phyllaries narrowly oblong, in 3–4 series of unequal to subequal length, inner 1.5–2 mm long, outer 1/3–1/2 as long, dark midregion narrowly oblanceolate and distinctly elliptic to oblanceolate in the distal half, margins broad and prominent whitish, apex acute to acute-acuminate, not apiculate. **Ray flowers** 20–35, 6–10 mm long, **Disc corollas** 1.4–1.8 mm long. **Achenes** 1.6–2 mm long, ray achenes sometimes 3-winged and often without awns, awns 0.3–0.5 mm long, corona usually present as a low ring. **Chromosome number**, 2n=18. Figures 18–38.

Flowering (April, June, rarely) September–November). Cypress-gum swamps and bottoms, low hardwoods sometimes with pine, river and creek bottoms and terraces, floodplains, riparian woods, wet roadsides and pastures, ditches.

Anderson (1987) contrasted *Boltonia apalachicolensis* with "*B. diffusa*" and "*B. asteroides*" but did not cite examples of the latter two as guides to the derivation of his concepts. He noted that *B. diffusa* occurs "mainly from Georgia and Florida west to eastern Texas and northward into Illinois and Oklahoma (his concept thus presumably including *B. sabinea*, *B. diffusa* sensu stricto, and *B. floridana* as identified here). *Boltonia asteroides* in his view included plants of three varieties from over the eastern half of the USA.

In the Gulf Coast region where *Boltonia apalachicolensis* occurs sympatrically with *B. diffusa* (as seen here), plants of the former often have been identified as "*B. asteroides*," surely in recognition of the morphological contrast, especially in their relatively few-flowered, corymboid inflorescence with larger heads. Features of *B. apalachicolensis* illustrated by Anderson as distinct — ray achenes with 3 wings and reduced pappus — also occur in other species of *Boltonia*, at least sporadically, including *B. diffusa*. Apparent intermediates between *B. apalachicolensis* and *B. diffusa* sometimes are encountered — these perhaps are most evident when a plant has a distinctly corymboid inflorescence but thin peduncles with 2–3 small bracts.



Figure 2. *Boltonia apalachicolensis*. Details from holotype and paratype.

Boltonia apalachicolensis and *B. recognita* appear to be distinct species — the presence/absence of rhizomes is diagnostic but other morphological differences are more subtle, and the geographic division between them needs clarification.

Anderson (1987) made numerous chromosome counts of $2n=18$ from Franklin Co., Florida, the type locality of *Boltonia apalachicolensis*, and a collection of *B. recognita* from Illinois has been reported as $2n=36$. Two counts of $2n=36$ from western Mississippi by Morgan (1967), interpreted as from *B. apalachicolensis* (see Nesom 2026, and as mapped here), are anomalous if the species is expected to be consistent in chromosome number.

Additional collections. **Alabama.** Lamar Co.: S side of Vernon, silty, logged, cypress-gum bottoms, 6 Nov 1980, *Kral* 66543 (VDB). Limestone Co.: 1 mi N of Athens and jct Hwy 127, gravelly creek bottoms by Hwy 31, 3 Oct 1968, *Kral* 33482 (VDB-2). Sumter Co.: ESE of Geiger in private hunting area, level upland just above S bank of Noxubee River, woodland high terrace, 32.84791 N, 88.22006 W, 30 Sep 2021, *Brock* 4179 (APSC). **Arkansas.** Union Co.: Calion Lake, base of Ouachita River levee, 8 Oct 1988, *Sundell* 8833 (KANU, UAM); just S of Moro Bay State Park, beside Hwy 15, along road in woods near Ouachita River, 22 Oct 1989, *Thomas* 114,070 (VSC); W of Crossett, W side of Ouachita River, under or beside elevated bridge on Hwy 82, 22 Oct 1989, *Thomas* 114,092 (NLU). **Florida.** Escambia Co.: Near Pensacola, campus of Univ of W Florida, edge of Thompsons Bayou by dock near picnic area at end of old fishcamp road, NW of Bldg 58, low moist site, 26 Oct 1976, *Burkhalter* 4982 (UWF); near Cottage Hill, N of Hwy 184 (Quintette Rd), E of Palafox Hwy (Hwy 95A), weedy roadside, a few plants beside cultivated field, 8 Oct 1977, *Burkhalter* 5601 (UWF). Franklin Co.: *Anderson* 7690, 7713, 7777, 7783, 7796, 7819, 7900, 8915 (as cited). Gulf Co.: Brothers River, 13 air mi NNW of Apalachicola, *Anderson* 8930 (FSU, as cited); ca. 7 air mi SSE of Wewahitchka, Lister Landing on Chipola River, E of Hwy 381, moist, shaded loam of wooded floodplain, frequent, 15 Sep 2017, *Anderson* 30912 (FSU); ca. 5.5 air mi SSE of Wewahitchka, edge of Lockey Lake (i.e. Chipola River) at Bryants Landing, wet musky soil of clearing, frequent, 12 Oct 2017, *Anderson* 31015 (FSU). Liberty Co.: Ca. 5.8 air mi WNW of Sumatra, Cotton Landing on Kennedy Creek, *Anderson* 7822 (FSU, as cited). **Kentucky.** Graves Co.: Dollar sunfish wetland, 16 Aug 1983, *Rice* s.n. (EKY). Calloway Co.: Crappie Hollow subdivision on Hwy 280, wet soil, 5 Sep

1977, *Athey* 3811 (FSU, MEM); Murray SU Hancock Biological Station, early successional old field prairie, 25 Sep 1998, *Thompson* 98-690 (BEREA, DOV); Murray SU Hancock Biological Station, glade N of loblolly pine plantation, 22 Oct 1999, *Thompson* 99-428 (BEREA, DOV). Hopkins Co.: Along Clear Creek W of Hwy 109; from edge of Hwy 109 to 1 mi W along Clear Creek, 360 ft, 14 Aug 1980, *Hannan* 5102 (EKY). Lyon Co.: Land Between the Lakes, mudflats on Cumberland River just S of Silo Overlook, 2 Oct 1984, *Chester* 84-653 (APSC). Todd Co.: W of Guthrie on S side of Hwy 41, roadside near walking bridge over small stream, tall robust plants in wet open thickets, 27 Oct 2020, *Brock* 3459 (APSC). Warren Co.: Pennyroyal Plain, just outside of Chaney Lake Preserve at SW corner, mowed wet meadow in upland karst, uncommon through powerline, plants ca. 6 ft tall, 8 Sep 2021, *Brock* 4090 (ASPC, hybrid with *B. diffusa*?).

Louisiana. Ascension Par.: St. Amant, between New River and Hwy 429, off Hwy 429 0.9 mi E of jct with Hwy 431, 12 Oct 1974, *Young* 36 (LSUS). Assumption Par.: Between 4.4 and 9.1 mi SW of Paincourtville, dirt road along Hwy 402, bottomland hardwood swamp on both sides of road, 29 Oct 1989, *Givens* 5603 (LSU) and *Givens* 5637 (LSU). Bienville Par.: 6 mi W of Mt. Olive, piney hills, boggy area in swale, 28 Sep 1962, *Kral* 15944 (NLU). Catahoula Par.: Harrisonburg Rec Area at N end of Hwy 922 N of Hwy 8 at Harrisonburg, east bank of Ouachita River, 21 Nov 1989, *Thomas* 114,685 (NLU); *Thomas* 130843 (NLU); *Thomas* 114645 (LSU). East Baton Rouge Par.: Ca. 2 mi S of Central at Biltmore Subdivision just E of Hwy 3035, common in overgrown pasture, 14 Oct 1979, *Barr* 45 (LSU); E of Baker, between Plank Road and Indian Mounds, 10 Nov 1927, *Brown* 1567 (LSU); Zeeland Place, 22 Oct 1928, *Brown* 2320 (LSU-2); Baton Rouge, Highland Road, adjacent to LSU Agricultural Center, along open pasture, 10 Oct 1974, *Bulat* 8 (LSU); ca. 1 mi S of Baker, thickets along hwy, 7 Oct 1958, *Richardson* 730 (LSU). Baton Rouge, LSU's Doyle Chambers Central Research Station, W of Ben Hur Road just S of jct with Hwy 30 (Nicholson Drive), old growth bottomland hardwood forest remnant ca. 150 acres (62 ha) in size, locally common in wet swale beneath *Nyssa aquatica*, *Fraxinus profunda*, *Taxodium distichum*, and *Cephalanthus occidentalis*, 2 Nov 2024, *Reid* 10943 (LSU); East New Campus, swamp, low grounds, 11 Nov 1933, *Velez* 130 (LSU). East Feliciana Par.: W of Norwood, Thompson Creek at boundary East/West Feliciana Parish, common along stream bank in sand. 27 Sep 1969, *Brown* 21030 (LSU); Shothole Branch off Hwy 19, "perennial herbs 1-2.5 ft. tall; taproot plus fibrous roots with slender, creeping rhizomes" [long fibrous roots incorreced interpreted to be rhizomes], 28 Sep 1974, *Coulon* 38 (LSU); SE of Clinton LSU Agricultural Center, Idlewild Research Station, past the station office at the entrance to the station, take the left side of a circular loop road to the first small stream with a bridge, 6 Oct 2003, *Ferguson* 1255 (LSU); ca. 4 mi S of Clinton, LSU Agricultural Center, Idlewild Research Station, Idlewild Experimental Farm along Hwy 67, 15 Oct 1979, *Pruski* 1259 (LSU-2); Thompson Creek at Hwy 61 S of St. Francisville, gravel pits and sand bars along east bank, 4 Oct 1981, *Thomas* 78724 (LSU). Iberville Par.: Ca. 0.9 mi S of Bayou Sorrel [the town, on Hwy 75], uncommon in deciduous woods, 26 Mar 1975, *Haynes* 4694 (LSUS); inside the Mississippi River levee along Hwy 75 near the LSU Sugar Cane Research Station, 30.261975 N, 91.108812 W, sandy river bank close to river channel, area of riparian woodland, uncommon, 17 Nov 2010, *Urbatsch* 10049 (LSU). LaSalle Par.: Along Hwy 28 N of Saline Wildlife Refuge, 23 Sep 1976, *Thomas* 50489 (NLU). Livingston Par.: 5 mi E of Springville, between bridges on Hwy 42 at Tickfaw River, 29 Sep 1984, *Joye* 29 (LSU); Denham Springs, field at jct of Rushing Rd and Range Ave, common, 30 Oct 1994, *Montz* 7233 (LSU-3, SELU); ca. 7 mi SW of Springfield, Tickfaw State Park, along Canoe Launch Road (part of Pine Hardwood Forest Trail) SSW of parking lot, bottom hardwood forest, 20 Apr 2006, *Nguyen* 33 (LSU); Hwy 190 at Amite River, 6 Nov 1981, *Quinn & Weston* 2018 (LSU); 2 mi SSW of Whitehall on dirt road, bottomland hardwood-cypress swamp, infrequent, 7 Oct 1972, *Spindler* 27 (LSU); 4.25 mi S of Denham Springs, along dirt road in low mixed woods with *Pinus glabra*, 4 ft tall, 27 Sep 1966, *Thieret* 24807 (FLAS); SE of Walker, woods along Spring Ranch Road S of Hwy I-12 at Satsuma Exit, 6 Oct 1981, *Thomas* 78890 (NLU); Hungarian Settlement, East Bates Rd, just N of Fekete Rd, roadside ditch adjacent of cutover wet pine flatwoods used as pasture, 5 Nov 1996, *Zebryk* 3367 (NLU, SELU). Madison Par.: Ca. 4.5 air mi ESE of Sondheimer, W side of Mississippi River ca 7.5 mi downstream from Cottonwood Bar, sand bar, 1 Nov 2007, *Reid et al.* 6419 (LSU); 6.0 mi E of jct Hwy 80 and Hwy 65, bottomland wet area adjacent to Hwy 80, 30 Oct 1977, *Rich* 698 (NLU). Morehouse Par.: W of Kilbourne on Hwy 835, western bank of Boef River, 19 May 1977, *Thomas* 52397 (NLU). Ouachita Par.: SE of Monroe, Ouachita WMA north of Hwy 15 near Bayou Lafourche, rice field, 30 Sep 1987, *Thomas* 101,066 (NLU); Russell Sage WMA east of Monroe, edge of ditch along N side of RR tracks just W of Bayou Lafourche S of Hwy 80, 24 Oct 1995, *Thomas* 147,827

(NLU). Pointe Coupee Par.: False River area near New Roads, swampy ground, 22 Oct 1932, *Chaney* 121 (LSU). Richland Par.: S of Oak Ridge, SE bank of Boef River E of Hwy 133, woods and cleared area, 21 Jun 1978 [not yet flowering], *Thomas* 59021 (NLU); W of Boef River and S of Hwy 15 E of Rhymes, T. Sartor property, open woods on sandy soil between cotton field and a brake, 11 Nov 1998, *Thomas* 158,552 (NLU). St. Charles Par.: Ca. 1 mi N of Mississippi River, Destrehan, pipeline opening, abundant, 25 Oct 1976, *Montz* 4325 (LSU); Bonnet Carre Spillway, pipeline clearing ca. 1/2 mi N of Hwy 61 bridge on W side of floodway, infrequent, 3 Sep 1894, *Montz* 5385 (LSU-3, SELU). St. Helena Par.: Ca. 7.5 mi SW of Pine Grove, along the Amite River, wet sandy area with *Cyperus*, 25 Sep 1971, *Allen* 1575 (LSU). St. Tammany Par.: West Pearl River, ca. 1 mi N of Hwy 90 (D. White ecological study site no 30), floor of dense cypress-tupelo swamp, 13 Oct 1978, *Darwin* 952 (LSU), *Darwin* 964 (LSU, NCU); Camp Villere, adjacent to North Perimeter Road, 3.8 km E of Liberty Bayou, 3.7 km NNW of Bonfouca Bayou, slash pine-pond cypress/hardwood forest with standing water, scattered, to 8 dm tall, 18 Oct 2003, *Douglas* 776 (LSU); Camp Salmen, former Boy Scout camp and soon to be parish nature park, at terminus of Camp Salmen Road, 0.65 mi SE of jct with Hwy 190 in SE part of Slidell, edge of Liberty Bayou, 21 Aug 2007, *Reid* 6213 (LSU-7); Big Branch Marsh NWR, Mildred Road near jct with Hwy 434, roadside, common, 11 Oct 1999, *Rosen* 926 (LSU-2); 2 mi SW of the end of Sun Valley Drive in Slidell, Big Branch Marsh NWR, Salmen Tract, NW of Southern Rail and Hwy 111, mixed pine hardwood forest, frequent, 27 Oct 2001, *Rosen* 1668 (LSU); directly E of jct of James Chapel Road North and Hwy 441, disturbed open habitat, 25 Nov 2018, *Szubryt* 818 (LSU); S of Sun, along N shore of Bogue Chitto River at Hwy 21, 19 Oct 1979, *Thomas* 68991 (NLU); E of Slidell, E side of West Pearl River at Mill Bayou, between Hwy 90 and I-10, woods, 16 Oct 1999, *Thomas* 164056 (LSU); Pearl River WMA, between Johnson Lake and Perch Lake, ca. 1 mi N of Hwy 10, swamp accessible by boat, 7 Aug 2012, *Villani s.n.* (LSU); Guste Island Road, disturbed roadside adjacent to abandoned agricultural fields and impoundments, 11 Oct 1995, *Zebryk* 2714 (GA, LSU). Tangipahoa Par.: Hammond, edges of cleared area at North Campus Recreational Complex, common, 13 Oct 1994, *Montz* 7143 (SELU); Hammond, SLU campus, abundant along drainage canal E of Physical Plant & Services Shops, 5 Nov 1994, *Montz* 7258 (SELU); Hammond, SLU campus, North Campus Recreational Complex, abundant, 11 Nov 1994, *Montz* 7284 (SELU); 2.6 mi N of Wardline Road in Hammond, along Hwy 51, Natalbany, banks of Ponchatoula Creek, common, 20 Oct 1997, *Montz* 8875 (LSU, NLU; perhaps x *B. diffusa*); E of Kentwood, Hwy 38 E of Hwy 51 at the Terry Creek bridge, roadbank, 15 Oct 1999, *Thomas* 162771 (NLU). Tensas Par.: West bank of the Mississippi River S of end of Hwy 3078 at Port Gibson Ferry, N of St. Joseph, [ca. 31.99 N, 91.11 W], sandbar, 8 Nov 1983 (not yet in flower), *Thomas* 86764 (NLU). Union Par.: Roadside of Hwy 2, at Bayou de Lourte, 12 Sep 1981, *Lewis* 3371 (NLU). Washington Par.: W of Franklinton on Clyde Fussell's property, woods between Hwy 10 and Bogue Chitto River, 29 Sep 1972, *Thomas* 32324 (NLU); E of Bogalusa, S of Hwy 10 beside Pearl River, 26 Oct 1974, *Thomas* 42301 (DES, NLU); 1 m N of Hwy 38 and Mt. Hermon, woods W of Hwy 438, 18 Oct 1979, *Thomas* 68842 (BRY, CM, LSU, SHST, SIU, USF); W of Clifton, beside Hwy 38 at E branch of Bogue Chitto River, 18 Oct 1979, *Thomas* 68872 (MO, NLU, TROY); E of Bogalusa, W of Pearl River at Hwy 10 bridge, woods beside bank, 18 Oct 1979, *Thomas* 68988 (NLU, VSC, WILLI); N of Mt. Hermon, woods beside Silver Creek and Hwy 438, 31 Oct 1980, *Thomas* 74545 (NLU); just N of Enon, beside Pig Branch W of Hwy 17, wet area, 6 Oct 1981, *Thomas* 79013 (NLU); E of Bogalusa, woods along W bank of Pearl River S of Hwy 10 bridge, 23 Oct 1992, *Thomas* 132780 (NLU); E of Bogalusa, small strip of woods on W side of Pearl River beside Hwy 10 bridge and new bridge under construction, 27 Sep 1996, *Thomas* 152281 (NLU); W of Wamerton, along W bank of Bogue Chitto River at Hwy 438 bridge, 15 Oct 1999, *Thomas* 163820 (NLU). West Carroll Par.: 0.5 mi N of new bridge over Boeuf River W of Fiske Union, along east bank of river, 13 Nov 1977, *Thomas* 56386 (NLU). West Feliciana Par.: Along bank of Thompson Creek at Hwy 61, 21 Oct 1986, *Harris* 649 (LSU, SELU, TENN); 1 mi E of Baines, woods along Alexander Creek S of paved road, 28 Oct 1978, *Thomas* 61892 (NLU, TENN); NE of Hollywood, beside Gates Creek at bridge on paved road W of Lake Rosemound, 3 Nov 1989, *Thomas* 114265 (LSU); W of Lake Rosemound and E of Turnbull, sandbars along Bayou Sara, 3 Nov 1989, *Thomas* 114345 (NLU); W of Turnbull, along ridge top along a dirt road running south from jct of Hwy 969 and Hwy 66, 24 Oct 1992, *Thomas* 132918 (LSU). Mississippi. Amite Co.: S of Liberty, Greensburg Rd at the East Fork Amite River, roadside, 12 Sep 1998, *Alford* 1443 (DUKE); 3.5 mi SW of Liberty, Hwy 48-569, open roadside, 2 meters tall, 28 Oct 1967, *Temple* 8054 (MISS). Chickasaw Co.: 3.6 mi E of Van Fleet, Hwy 32, low open roadside, 11 Oct

1968, *Pullen* 68543 (MISS). Franklin Co.: Homochitto Natl Forest, N of Co. Rd 105 (Freewoods Road) ca. 2.0 mi S of jct with USFS Rd 103A, margins of ponds, 3 Oct 2003, *Havran* 1486 (NLU). Hancock Co.: Marsh Island in St. Louis Bay Estuary near mouth of Jourdan River, occurring singly among *Juncus* and *Spartina*, 29 Aug 1975, *de la Cruz* s.n. (MISSA). Hinds Co.: Natchez Trace, 6 mi N of Hwy 467, open field and edge of low woods, 3 Oct 1970, *Temple* 13094 (MISS); Clinton, Pineheaven Rd, ca 0.5 mi S of Northside Drive, open area around pond, 24 Oct 1970, *Temple* 14011 (MISS). Holmes Co.: Hwy 49E at RR crossing ca. 2 mi N of Yazoo-Holmes Co line, open area around low woods, 4 Oct 1968, *Temple* 10704 (MMNS-2, NCU). Jackson Co.: Macon Bend (inland from strand of *Zizaniopsis miliacea*) of West Pascagoula River (Singing River) 2 mi N of I-10 causeway, full sun of marsh with mud substrate along bank of river, 28 Oct 11986, *Eleuterius B-186* (AUA, FSU, UNA, USCH). Lafayette Co.: 11.5 mi N of Oxford on Hwy 7, along Tallahatchie River and under bridge, 15 Oct 1965, *Temple* 2404 (MISS, MMNS, NCU). Leflore Co.: Along Yazoo River just W of Greenwood on Hwy 82 at jct Hwy 49E, 10 Oct 1970, *Temple* 13600 (MISS). Madison Co.: Big Black River at Yazoo-Madison County line, Hwy 49E, low ground along river, 4 Oct 1968, *Temple* 10648 (GA, LSU, MISS). Monroe Co.: Darracott Road just S of jct with Strong Road, roadside at edge of mixed deciduous woods, common, 6 Oct 2019, *Folk* 298 (MISSA); vic. of Aberdeen, Islet in Tombigbee River just NE of Blue Bluff Park, 4 Nov 1995, *MacDonald* 9261 (DOV, VDB); ca. 6-7 mi N of Aberdeen, Coontail Access Area on Corps of Engineers property, near river in low wet area, 11 Oct 1996, *MacDonald* 9969 (MISS); ca. 1.3 mi E of Aberdeen, dredge disposal pond for Corps of Engineers, exposed mud flat, 8 Nov 1997, *McDonald* 10942 (SWSL, VDB). Oktibbeha Co.: WSW of Bradley, Hwy 12 at Cypress Creek, 13 Oct 2019, *Folk* 335 (MISSA; x *B. diffusa*?). Pearl River Co.: Between Bogalusa and Poplarville, area of new bridge across Pearl River, 15 Oct 1999, *Thomas* 163975 (NLU, TENN). Sharkey Co.: 5 mi NW of Holly Bluff on FS Rd 717, Delta Natl Forest, alluvial bottomland and edge of woods, 10 Jul 1977, *Carter* 938 (MISS, MO). Tishomingo Co.: Yellow Creek embayment, 1/4 mi E of Hwy 25, 1/2 mi N of Poplar Springs Church, 3 mi N of Cross Roads, 26 Sept 1974, *Coleman* s.n. (FLAS, hybrid with *B. diffusa*?); 1 mi SE of Burnsville, Yellow Creek bottomlands, floodplain forest, 26 Sep 1974, *Coleman* s.n. (FLAS); Hwy 25 at Yellow Creek, marsh, 26 Sep 1974, *Coleman* 50330 (TENN); Tishomingo State Park, mixed deciduous-pine slope among giant sandstone boulders and adjacent roadside, 11 Aug 1966, *Temple* 3935 (MISS). Washington Co.: NE of Stoneville, Delta Exptl Forest, mixed hardwood forest, 10 Aug 1988, *Bryson* 8277 (SWSL, VDB), *Bryson* 8281 (NLU, SWSL); ca. 3 air mi NNE of Stoneville, Delta Exptl Forest (=Stoneville Woods), along seasonally wet drain to W of main N-S road through forest, 7 Sep 2010, *Bryson* 23630 (MMNS, VSC). Wilkinson Co.: N of Crosby, Homochitto Natl Forest, wooded S bank of Homochitto River, 18 Oct 1983, *Jones* 6572 (CM, FSU). Yazoo Co.: just N of Yazoo City near jct with Hwy 3, open field of W side of Hwy 49, 3 Oct 1968, *Temple* 10627 (GA).

Tennessee. Carroll Co.: Hollow Rock, Sep 1882, *Gottinger* s.n. (US). Fayette Co.: 4 Aug 1968, *Warrington* 18 (MEM). Haywood Co.: Hatchie NWR, swampy area of Compartment 8, 17 Sep 1983, *Lewis* 1484 (TENN); Hatchie Bottoms along Hwy 54 at Tipton Co. line, 1 Oct 1983, *Lewis* 1507 (TENN); Hatchie NWR, Powell Rd, near fields at SE end, 7 Oct 1983, *Lewis* 1528 (NLU). Lake Co.: E of Old Cranetown, damp woods, with *Fraxinus/Acer*, *Brunnichia*, *Saururus*, *Leersia*, 19 Sep 1986, *Guthrie* 1448 (TENN, VDB; *Boltonia recognita*). Lauderdale Co.: 2 Sep 1976, *Keiran* 734 (MEM). Moore Co.: No other data, [2018], *Ciafre* 732 (APSC). Tipton Co.: 2 mi E of Tipton, damp soil, 27 Aug 1927, *Ek* s.n. (BUT); Millstone Mt., bottomlands of Hatchie River, in fields, 21 Sep 1991, *Pyne* 91-101 (VDB); Hatchie bottoms, 3.6 mi N of intersection at St. Matthew's cemetery near Charleston, woods of large trees, grassy interior, thicket of small trees, weeds and vines at edge, 15 Sep 1968, *Warrington* 381 (BALT, MEM, NCU).

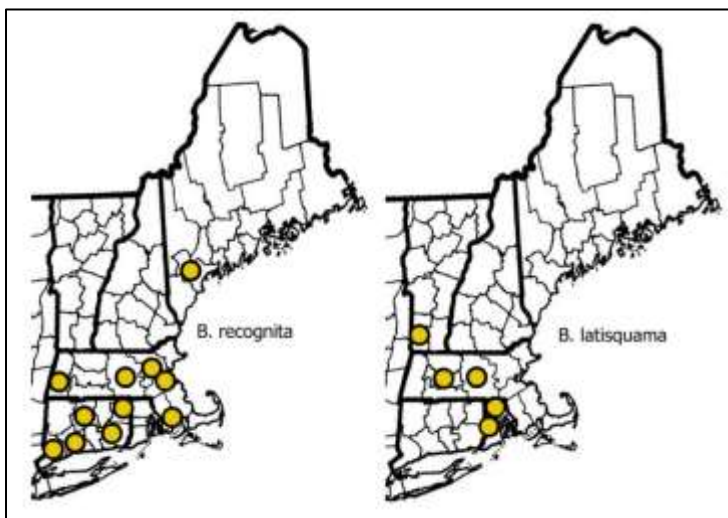
3. BOLTONIA LATISQUAMA A. Gray, Amer. J. Sci. Arts ser. 2, 33: 238. 1862. *Boltonia asteroides* var. *latisquama* Cronq., Bull. Torrey Bot. Club 74: 149. 1947. *Boltonia asteroides* subsp. *latisquama* (A. Gray) M.A. Paz, Phytoneuron 2025-42: 1. 2025. **TYPE: Kansas.** **Protologue:** "Near the mouth of the Kansas River, Sept; growing in large clump, in rich soil." **Label:** Kansas River, 1861, C.C. Parry 12 (probable holotype: GH; isotype: NY). The printed label with heading — "ROCKY MOUNTAIN FLORA — was for collections by the US-Mexican Boundary Survey in a different area. The "mouth of the Kansas River" refers to an area now within Leavenworth or Wyandotte county, Kansas (both counties mapped here), near the confluence of the Kansas and Missouri rivers. See comments by Paz (2025).

Herbaceous perennials, glabrous, fibrous-rooted, without rhizomes. **Stems** 40–150 cm, not fistulose. **Leaves**: basal deciduous by flowering, cauline narrowly oblong to oblong-linear, 8–15 cm long, 1–5 mm wide, all linear above midstem. **Inflorescence** paniculate to paniculate-subcorymboid, peduncles 3–10(–30) cm long, with (2–)5–15 linear bracts. **Receptacle** low-convex. **Involucres** 4.5–6 mm wide (pressed); phyllaries elliptic to oblong-obovate, in 3–4 series of unequal length, inner 4–5 mm long, outer half as long, dark midregion elliptic, prominently broadening distally, margins whitish and prominent, apex obtuse-rounded and apiculate. **Ray flowers** ca. 38–48, 10–18 mm long, **Disc corollas** 1.8–2 mm long. **Achenes** obovate, 2–2.5 mm long, winged, awns 1–1.5, corona evident as a rim. Figures 39–45.

Flowering August–October. Wet and seasonally flooded prairies, prairie and roadside ditches and pits, pond edges.



Figure 3. *Boltonia latissquama*. From the type collection (Leavenworth or Wyandotte Co., Kansas).



Map 2. Distribution of *Boltonia recognita* and *B. latissquama* in the northeastern USA. Data from Angelo and Boufford (2012). These occurrences all are adventive.

4. *BOLTONIA MAGNICAMPORUM* Nesom, *sp. nov.* TYPE: **Nebraska. Hamilton Co.: 5 mi S of Aurora on Hwy 14, 2 mi E [Pintail State WMA, ca. 40.79 N, 97.96 W], along marsh shore of lake, with *Juncus*, *Marsilea*, *Eleocharis*, common, 14 Sep 1975, S.P. Churchill 6578 (holotype: NY; isotypes: CSCN, KANU, NEB).**

Herbaceous perennials, glabrous, fibrous-rooted, rhizomatous. **Stems** 40–80 cm, not fistulose. **Leaves:** basal and lower cauline deciduous by flowering, cauline mostly narrowly oblanceolate, 3–9 cm long, 5–12 mm wide, gradually smaller up to the heads. **Inflorescence** subcorymboid to subcorymboid-paniculate, peduncles mostly 1–2.5(–4.5) cm long, with 0–2(–3) bracts. **Involucres** 6–8 mm wide (pressed); phyllaries elliptic to oblong-obovate, in 3 series of equal to subequal or unequal length, inner ca. 3.5–5 mm long, dark midregion linear-ob lanceolate to narrowly oblanceolate, margins broad and prominent whitish, apex obtuse-rounded and apiculate. **Ray flowers** ca. 40–60, corollas 6–8 mm long, **Disc corollas** 2–3 mm long. **Achenes** obovate, 2–3 mm long, winged, awns 1–1.5 mm long. Figures 46–56.

Flowering July–September. Intermittent prairie wetland, prairie sloughs, moist prairie hay meadows, prairie and roadside ditches, low brushy woods, marshy lake shores, low pastures.

The Kansas population system of *Boltonia magnicamporum* is closely restricted to sandy habitats of the Wellington-McPherson Lowlands physiographic region (GeoKansas 2026), which is "mainly a relatively flat to rolling alluvial plain, made up of unconsolidated sand, silt, and gravel." Although these plants appear to be disjunct from the more extensive northern system, they are similar in diagnostic features, especially the rhizomes and involucre morphology.



Figure 4. *Boltonia magnicamporum*. Holt Co., Nebraska, Magrath 6403.

South-central Kansas collections. **Butler Co.:** Butler County State Lake area, prairie area S of the lake, 12 Sep 1967, *Barker* 4753 (KANU); N edge of Cassoday, low moist area, a few plants, 9 Oct 1975, *Gregor* 28656 (KANU). **Cowley Co.:** 1 mi W of Arkansas City, 9 Oct 1975, *McGregor* 28662 (KANU). **Harvey Co.:** 2.5 mi N of Burrton, sandhills, 21 Sep 1969, *Bare* 2210 (KANU); 5.5 mi N of Halstead, 4 mi W of Sand Prairie Natural History Reservation, rolling sand prairie with several small, ephemeral ponds along the W edge of the reservation, infrequent around dry ponds, 1420 ft, 18 Oct 2000, *Freeman* 16713 (KANU, KHD); Harvey West County Park, River Park Road & SW 24th (on 24th), low area along road ditch, with *Populus deltoides*, 16 Oct 2007, *Hansen* s.n. (CHIC); 3.3 mi N of Burrton, wet margins of small ponds in sand area, abundant, 5 Oct 1968, *Johnson* 1875 (KANU); 4.5 mi N of Burrton, edge of pond in sand dunes, 29 Jul 1960, *McGregor* 15865 (KANU); 3 mi N of Burrton, 4.5 mi E of Harvey County Park,

lake shore, sandy soil, abundant, 31 Aug 1975, *Stephens 87823* (KANU). *McPherson Co.*: No other locality data, wet soil, 24 Aug 1895, *Hitchcock 232* (GH, NMC, NY, US). *Reno Co.*: NE area of Cheney Lake, along weedy lake shore, scattered, 27 Sep 1988, *McGregor 39777* (KANU); 9.5 mi N, 0.5 mi W of Sylvia (on Sylvia Rd, 2.5 mi N junction with 4th Ave). property of Esther Smith, E side of Sylvia Rd ("Tretbar Place"), weedy, cattle-grazed sandhill prairie on gently undulating ground, scattered small swales and large permanently inundated wetland, 1770 ft, 22 Sept 1999, *Morse 4035* (CS, KANU, NEB, NLU, USCH); 1 mi NE of Partridge, prairie roadside, low land, sandy soil, abundant, 13 Sep 1975, *Stephens 88083* (KANU). *Sedgwick Co.*: 3 mi W of Clearwater, low area, 9 Oct 1975, *McGregor 28708* (KANU). *Sumner Co.*: No other locality data, Sep 1891, *Carleton 499* (DOV, GH, US); 1 mi N of Oxford, low moist area, common, 9 Oct 1975, *McGregor 28680* (KANU).

5. *BOLTONIA DECURRENS* (Torr. & Gray) Wood, Amer. Bot. Fl. 166. 1870. *Boltonia glastifolia* var. *decurrens* Torr. & Gray, Fl. N. Amer. 2(2): 188. 1842. *Boltonia asteroides* var. *decurrens* (Torr. & Gray) Engelm. ex A. Gray, Synopt. Fl. N. Amer. 1, pt. 2: 166. 1884. *Boltonia latisquama* var. *decurrens* (Torr. & Gray) Fernald & Griscom, Rhodora 42: 492. 1940. **TYPE: Illinois.** Label: "Wet prairies of Illinois, Sept," C.W. Short s.n. (holotype: NY).

Herbaceous perennials, glabrous, fibrous-rooted, without rhizomes but producing basal offsets. **Stems** 50–200 cm tall, not fistulose, winged proximally. **Leaves**: basal and lowermost cauline sometimes deciduous by flowering, cauline oblong-elliptic to narrowly lanceolate, 7–15 cm long, 8–25 mm wide, evenly spaced and relatively even-sized up to the inflorescence, decurrent 12–22 mm, foliar bracts of the inflorescence not decurrent. **Inflorescence** corymboid to corymboid-paniculate, peduncles (0.5–)1.2–4(–5) cm long, ebracteate or less commonly with 1–2 small linear bracts. **Receptacles** low-convex. **Involucres** 6–7.5 mm wide (pressed); phyllaries narrowly elliptic, in 2–3 series of equal to subequal length, inner ca. 3 mm long, margins wide, dark midregion linear-oblong, apex apiculate. **Ray flowers** 30–60, corollas mostly 10–13 mm long. **Disc corollas** 2–2.2 mm long. **Achenes** obovoid, 2–2.5 mm long, margins winged, awns 2, prominent.

Boltonia decurrens is similar to *B. recognita* in its large leaves extending into the inflorescence as foliar bracts and its mostly corymboid inflorescence of few, large heads on short and ebracteate peduncles, and long ray corollas — but perhaps more similar to *B. latisquama* and *B. magnicamporum* in its wide-margined, apiculate phyllaries. Decurrent leaves do not occur elsewhere in the genus. The species has been the object of detailed biological and ecological study, e.g., Schwegman & Nyboer (1985), Smith & Keevin (1998), DeWoody et al. (2011).



Figure 5. Heads of *Boltonia decurrens*. Holotype.



Map 3. Distribution of *Boltonia decurrens*.

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Figure 6. *Boltonia recognita*. Hennepin Co., Minnesota. Moyle s.n. (MINN).

Figure 7. *Boltonia recognita*. Hennepin Co., Minnesota. Roberts s.n. (MINN).



Figure 8. *Boltonia recognita*. Washington Co., Minnesota. Smith 14989 (MINN).



Figure 9. *Boltonia recognita*. Scott Co., Minnesota. Smith 38598 (MINN).

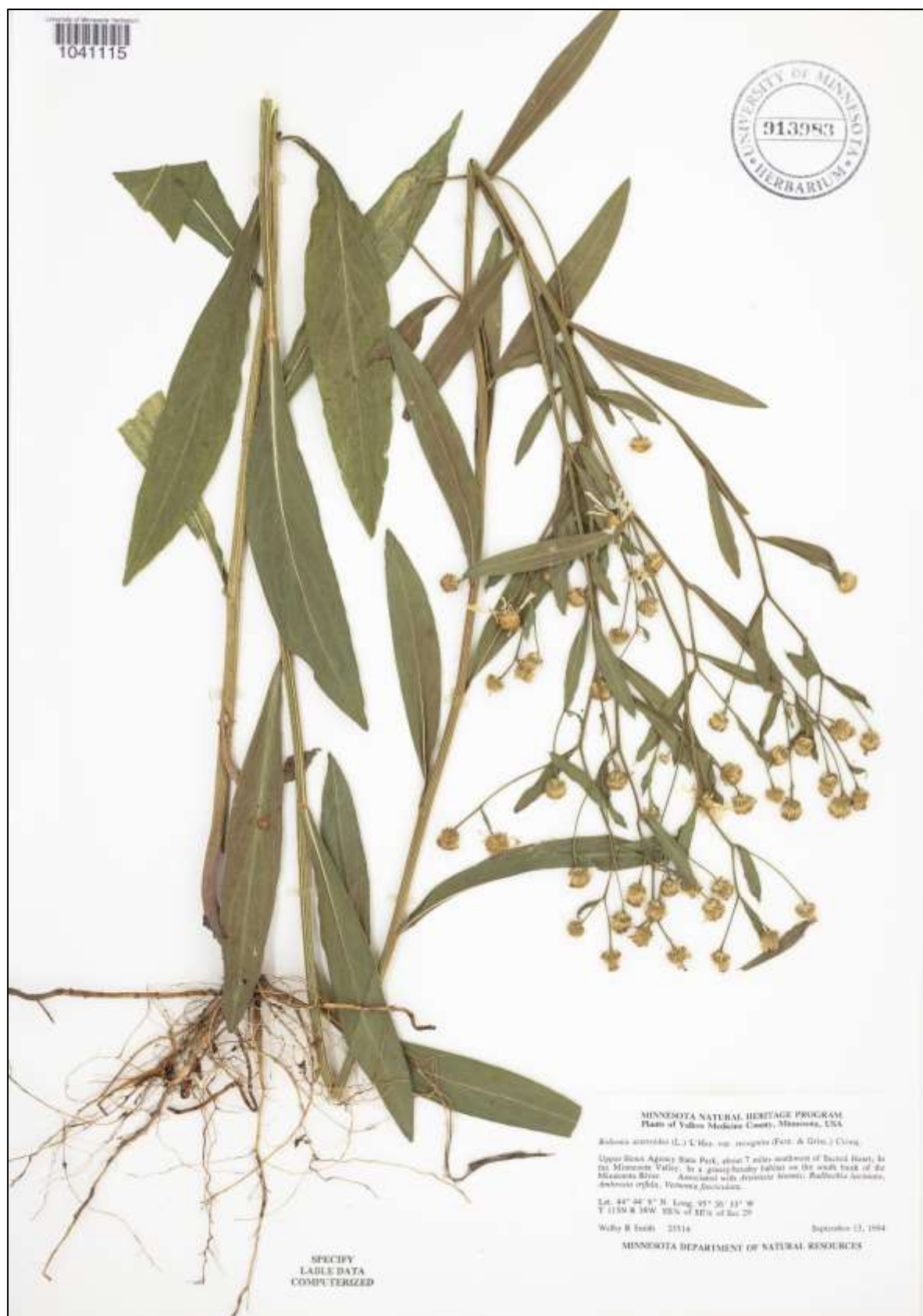


Figure 10. *Boltonia recognita*. Yellow Medicine Co., Minnesota. Smith 5514 (MINN).

Figure 11 *Boltonia recognita*. Sauk Co., Wisconsin. Iltis (WIS).



Figure 12. *Boltonia recognita*. St. Croix Co., Wisconsin. Collector ? (WIS).



Figure 13. *Boltonia recognita*. Pulaski Co., Illinois. Basinger 3218 (SIU).



Figure 14. *Boltonia recognita*. Cook Co., Illinois. Umbach 3729 (GH).



Figure 15. *Boltonia recognita*. Union Co., Illinois. Sands & Drapalik 442 (SIU).



Figure 16. *Boltonia racemosa*. Johnson Co., Illinois. Evers 36061 (SIU).



Figure 17. *Boltonia recognita*. Greene Co., Indiana. Deam 24039 (IND).



Figure 18. *Boltonia apalachicolaensis*. Franklin Co., Florida, Anderson 8921 (MO). Isotype.



Figure 19. *Boltonia apalachicolaensis*. Franklin Co., Florida, Godfrey 84001 (TTRS).



Figure 20. *Boltonia apalachicolaensis*. Franklin Co., Florida, Chapman 142 (US).



Figure 21. *Boltonia floridana*. Lee Co., Florida, Standley 18734 (US). similar in aspect (inflorescence structure) to *B. apalachicolensis* but with rhizomes and smaller heads, and out of range.



Figure 22. *Boltonia apalachicolaensis*. Escambia Co., Florida, Ward 9296 (FLAS).



Figure 23. *Boltonia diffusa* (>*apalachicolensis*). Santa Rosa Co., Florida, Wilhelm 11539 (USF). Long peduncles atypical for *B. apalachicolensis*.



Figure 24. *Boltonia diffusa* (>*apalachicolensis*). Santa Rosa Co., Florida, Burkhalter 11661 (UWF). Long peduncles atypical for *B. apalachicolensis*.



Figure 25. *Boltonia apalachicolaensis*. Mobile Co., Alabama, Lelong 8193.1 (USAM).



Figure 26. *Boltonia apalachicolaensis*. Sumter Co., Alabama, Brock 4179 (APSC).



Figure 27. *Boltonia apalachicolaensis*. Monroe Co., Mississippi, MacDonald 10942 (VDB).



Figure 28. *Boltonia apalachicolaensis*. Yazoo Co., Mississippi, Temple 10627 (GA).



Figure 29. *Boltonia apalachicolaensis*. Pearl River Co., Mississippi, Thomas 163975 (TENN).



Figure 30. *Boltonia apalachicolaensis*. Iberville Par., Louisiana, Urbatsch 10049 (LSU).



Figure 31. *Boltonia apalachicolaensis*. Iberville Par., Louisiana, Haynes 4894 (LSUS).



Figure 32. *Boltonia apalachicolaensis*. Madison Par., Louisiana, Reid 6419 (MO).

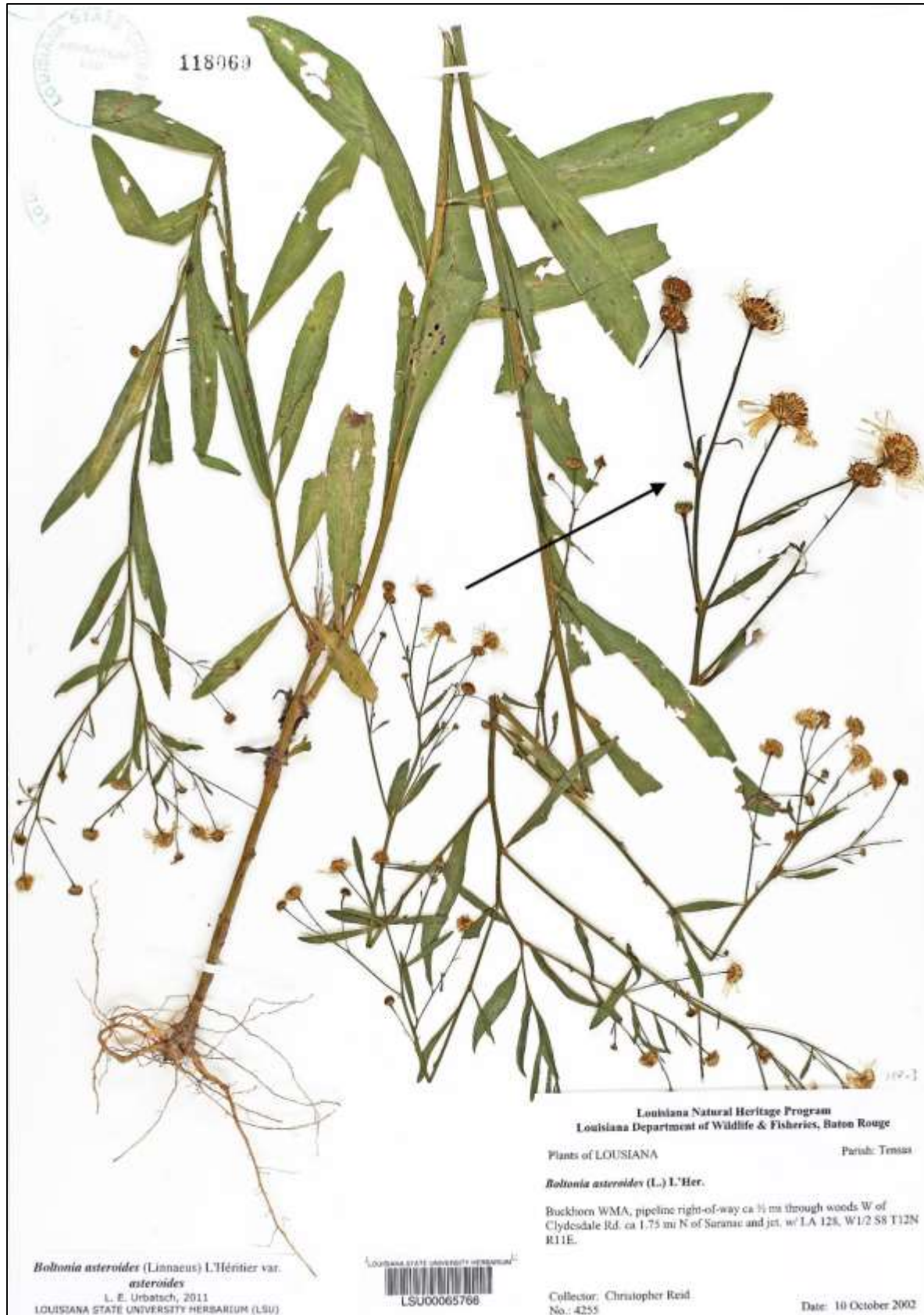


Figure 33. *Boltonia apalachicolaensis*. Tensas Par., Louisiana, Reid 4255 (LSU).



Figure 34. *Boltonia apalachicolaensis*. Tensas Par., Louisiana, Thomas 86764 (NLU).



Figure 35. *Boltonia apalachicolaensis*. Union Co., Arkansas, Sundell 8833 (KANU).



Figure 36. *Boltonia apalachicolaensis*. Tipton Co., Tennessee, Warrington 381 (BALT).



Figure 37. *Boltonia apalachicolaensis*. Carroll Co., Tennessee, Gattinger s.n. (US).



Figure 38. *Boltonia apalachicolaensis*. Moore Co., Tennessee, Ciafre 732 (ASPC).



Figure 39. *Boltonia latisquama*. Douglas Co., Kansas, Jackson 2953 (NY).



Figure 40. *Boltonia latisquama*. Philadelphia Co., Pennsylvania, Anonymous (PH). Cultivated in Germantown, 20 Sep 1896.



Figure 41. *Boltonia latisquama*. Muskogee Co., Oklahoma, Patterson 35 (SMU).



Figure 42. *Boltonia latisquama*. Sequoyah Co., Oklahoma, Wallis 8429 (VDB).



Figure 43. *Boltonia latisquama*. Creek Co., Oklahoma, Bush 1434 (NY).



Figure 44. *Boltonia latisquama*. Washington Co., Arkansas, Harvey 43 732 (NY).



Figure 45. *Boltonia latisquama*. Northwest Arkansas, Harvey 32 (NY).



Figure 46. *Boltonia magnicamporum*. Hamilton Co., Nebraska, Churchill 6578 (NY).



Figure 47. *Boltonia magnicamporum*. Detail from Figure 46.



Figure 48. *Boltonia magnicamporum*. Holt Co., Nebraska, McGregor 477 (KANU).



Figure 49. *Boltonia magnicamporum*. Detail from Figure 48.



Figure 50. *Boltonia magnicamporum*. Reno Co., Kansas, McGregor 39777 (KANU).



Figure 51. *Boltonia magnicamporum*. Greenwood Co., Kansas, Weedon 5140 (KANU).



Figure 52. *Boltonia magnicamporum*. Greenwood Co., Kansas, McGregor 39800 (KANU).



Figure 53. *Boltonia magnicamporum*. Harvey Co., Kansas, Bare 2210 (KANU).



Figure 54. *Boltonia magnicamporum*. Harvey Co., Kansas, Freeman 16713 (KANU).



Figure 55. *Boltonia magnicamporum*. Cowley Co., Kansas, McGregor 28662 (KANU).

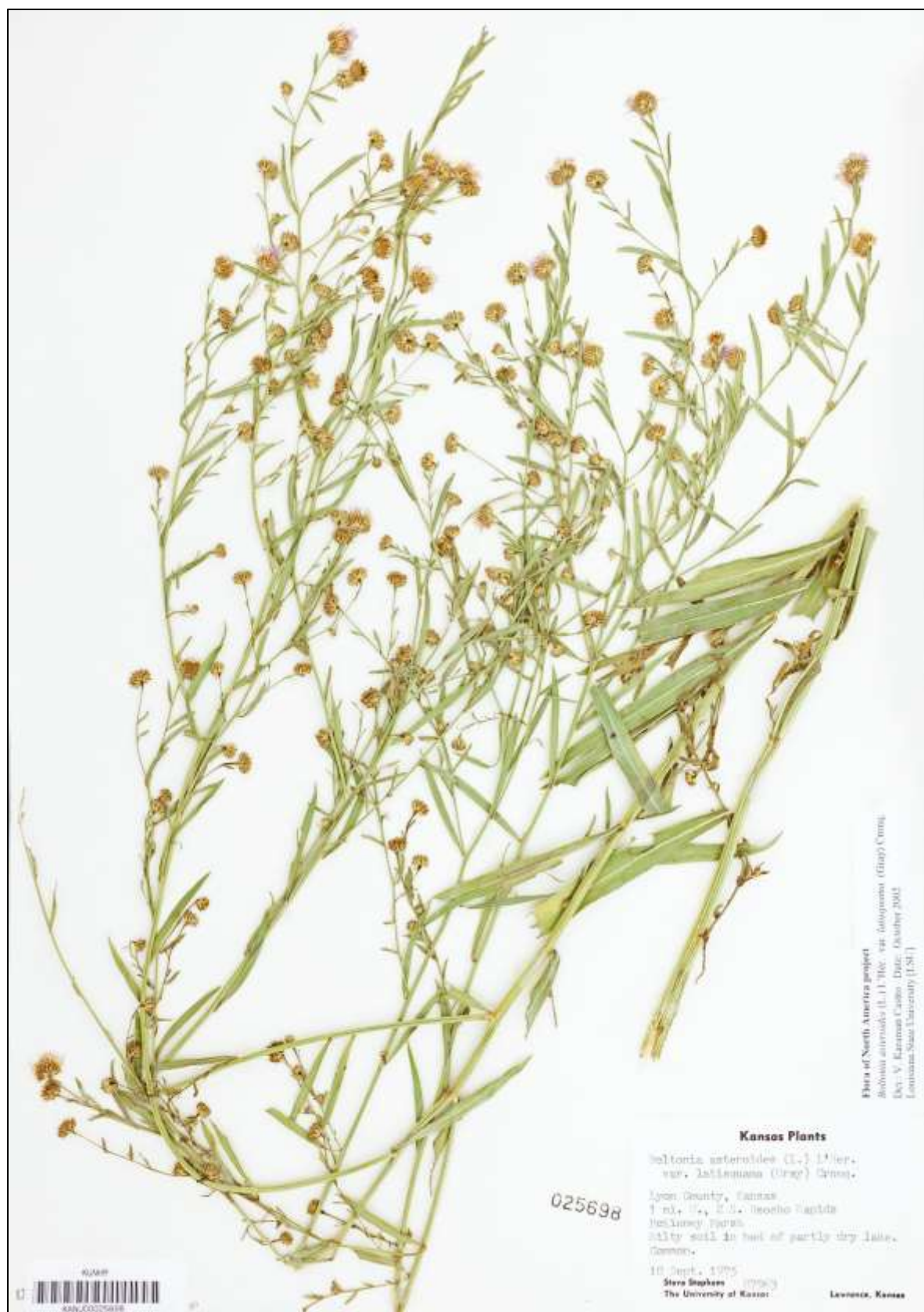


Figure 56. *Boltonia magnicamporum*. Lyon Co., Kansas, Stephens 87963 (KANU).