

**A NEW SPECIES OF *IONACTIS* (ASTERACEAE: ASTEREAE)
FROM THE EAST GULF COASTAL PLAIN**

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ABSTRACT

A population system of *Ionactis* from the east Gulf Coastal Plain is recognized as ***Ionactis repens*** Nesom, **sp. nov.**, discontinuously distinct in morphology and geography from the widespread *I. linariifolia*. The new species differs in its creeping, scale-leaved rhizomes and evidently colonial habit and in its reduced branching that produces solitary heads on long, bracteate, peduncle-like branches. Maps and illustrations of both species are provided.

Recent taxonomic revisions of *Ionactis* Greene (Nesom & Leary 1992; Nesom 2006) have recognized five species — one widely distributed in the eastern USA and southeastern Canada (*I. linariifolia* (L.) Greene) and four of limited distributions in the western USA.

The large-scale distribution of *Ionactis linariifolia* is patchy (Fig. 2), especially west of the Mississippi River, and regional differentiation might be expected. In a review made possible by online specimen images, variation in *I. linariifolia* is evident in branching pattern, leaf size, head size, and ray color — some of this is roughly correlated with geography but consistent patterns are not evident. Plants of a population system along the southern margin of the east Gulf Coastal Plain (Fig. 1), however, are discontinuously distinct from the rest of the species, differing most conspicuously in habit and position and abundance of branching. This system is formally recognized here as a distinct species.

IONACTIS REPENS Nesom, **sp. nov.** **TYPE: Alabama.** Washington Co.: Vicinity of Leroy on US Hwy 43, ca. 1 mi S of Leroy jct, cutover longleaf pine hills, 22 Oct 1969, *R. Kral* 38273 (holotype: BRIT, Fig. 3; isotypes: FSU image, GA image, TENN image).

Similar to the widespread *Ionactis linariifolia* but distinct in its combination of branching, creeping, scale-leaved rhizomes and evidently colonial habit (vs. caespitose habit, without rhizomes, stems arising from a compact, woody, fibrous-rooted crown), solitary heads on long, bracteate peduncle-like branches arising from midstem or slightly above (vs. heads relatively crowded from shorter, distal branches), and its distribution on the east Gulf Coastal Plain.

Plants with branching, creeping, scale-leaved rhizomes, apparently at least weakly colonial. **Stems** erect to ascending-erect, 10–40 cm long, unbranched or few-branched above the middle. **Leaves** uniform, glabrous, linear to narrowly oblong or oblanceolate, midstem 9–22 mm long, 0.8–1.5 mm wide, faces glabrous, eglandular. **Heads** solitary on long, bracteate peduncle-like branches arising from midstem or slightly above. **Involucres** 7–9 mm wide (pressed), phyllaries in (4–)5–6 series strongly graduate in length, apices obtuse to rounded. **Ray flowers** 8–12, corollas blue. **Chromosome number**, $2n = 18$ [Florida. Franklin Co.: S of Sumatra, open pine woods, 24 Oct 1999, *Semple 10930*, USF image]. Figures 3-11.

Flowering October–November. Hills, flats, clearcuts, sand, red clay, silty clay, sandy peat, longleaf pine, longleaf pine-wiregrass savannas, longleaf pine-scrub oak, pine-galberry flatwoods, live oak-pine, loblolly-longleaf pine; 20–370 ft.

Taxonomic rank of eastern USA *Ionactis*

Because of the similarity of the rhizomatous and non-rhizomatous plants and their clear sister evolutionary relationship, recognition at varietal rank might be preferred by some, keeping all of eastern USA *Ionactis* as a single species. The choice here emphasizes the apparent discontinuity in morphology and geography, central in most species concepts. The degree of morphological difference between these two entities is small in the context of their overall similarity and larger morphological gaps between *Ionactis* species of the western USA, but reliance on degree of difference is subjective.

Geography provides confidence in the distinction of *Ionactis repens*, as its range corresponds almost exactly with phytogeographic pattern #10 of Sorrie and Weakley (2001) — the "East Gulf Coastal Plain," which characterizes the distribution of many other endemic species. The EGCP was "an important refuge for plants during Pleistocene glaciation cycles" (Sorrie & Weakley, p. 59). The outlier of *I. repens* in Nassau Co., Florida (*Beckner s.n.*, FLAS-Fig. 10), appears to be disjunct, as the intervening area has been well collected. The occurrence of *I. linariifolia* sensu stricto in St. Helena Par., Louisiana (*Allen 189*, LSU; *Smith s.n.*, LSU; *Stam 117*, LSU) where *I. repens* would be expected, seems unusual.

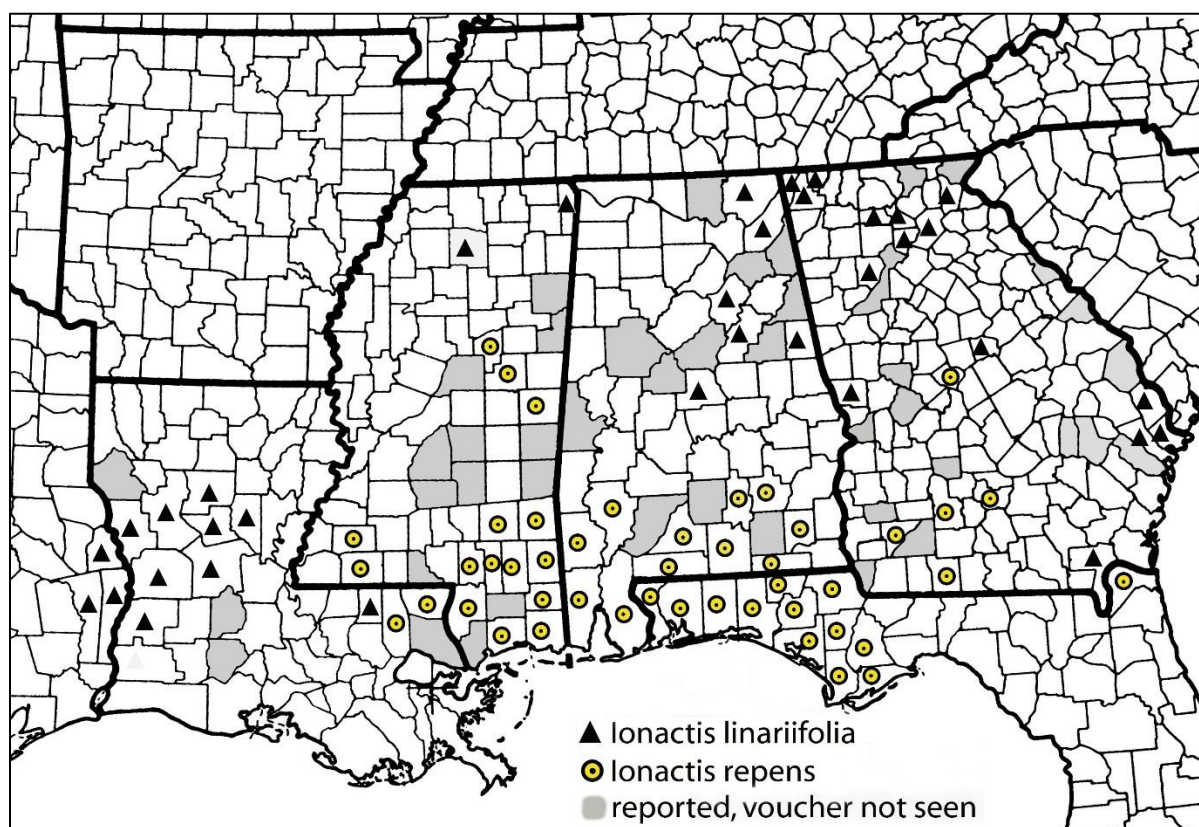


Figure 1. Distribution of *Ionactis repens* and *I. linariifolia* in the east Gulf Coastal Plain. Gray-shaded counties are those where *Ionactis* has been reported but for which a voucher has not been seen in this study. Possible sympatry of the two species remains to be determined.

Alan Weakley and Derick Poindexter (UNC Chapel Hill; pers. comm.) have pointed out that non-rhizomatous plants similar to *Ionactis repens* in branching pattern and very narrow leaves occur in a small area of the North Carolina-South Carolina coastal plain. These possibly represent a third entity of the genus in the eastern USA.

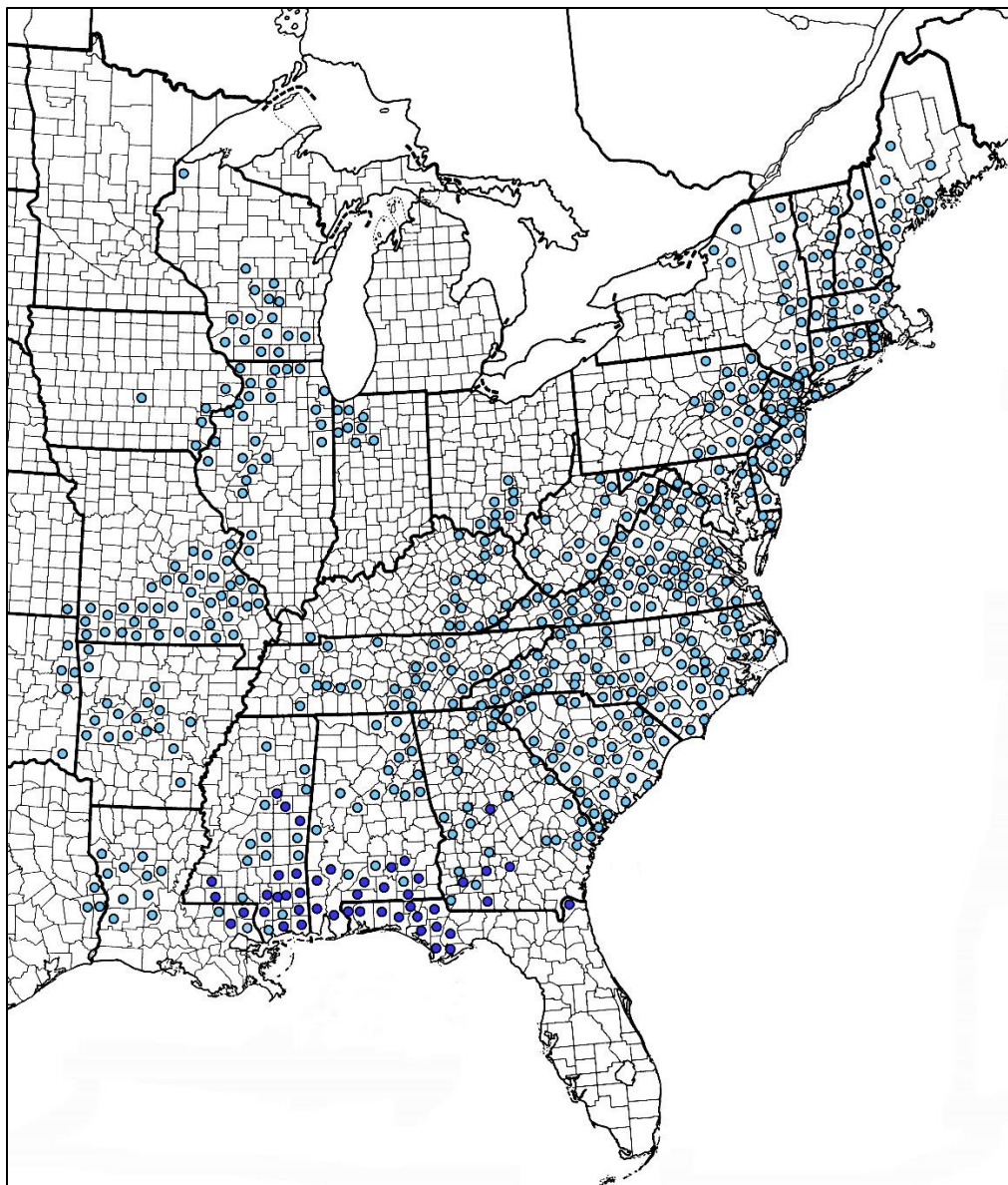


Figure 2. Distribution of *Ionactis* in the eastern USA. Records from various sources. Dark blue symbols are records of *I. repens* for which vouchers have been seen (cf. Figure 1).

Ancestral character states of the eastern USA species

Between *Ionactis repens* and *I. linariifolia*, which branching pattern and which habit is the more primitive is speculative. Each of the four western species produces solitary (or few) heads and none of them produces long, scale-leaved rhizomes — *I. alpina* and *I. stenomeris* (Figs. 21 and 22) are closest in overall appearance to the eastern species. Thus, the relatively greater abundance of axillary buds and branching in typical *I. linariifolia* might be interpreted as a derived feature. Similarly, the long rhizomes of *I. repens* may be derived. There is no evidence to suggest that one of the eastern species is derived from the other.

The rhizomes characteristic of *Ionactis repens* perhaps are an adaptation to habitats of loose sand, where the species usually occurs. On the other hand, typical *I. linariifolia* occurs in a wider range of habitats but also occurs in sandy habitats (e.g., in Louisiana and Texas, the Atlantic coastal plain). At least the rhizomatous habit of *I. repens* does not appear to be merely a phenotypic response.

Nesom: *Ionactis repens*, sp. nov.



Figure 3. *Ionactis repens*. Washington Co., Alabama, Kral 38273. Holotype (BRIT).

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Figure 4. *Ionactis repens*. Escambia Co., Alabama, *Diamond 20307* (BRIT).



Figure 5. *Ionactis repens*. Conecuh Co., Alabama, *Diamond 8943* (AUA).

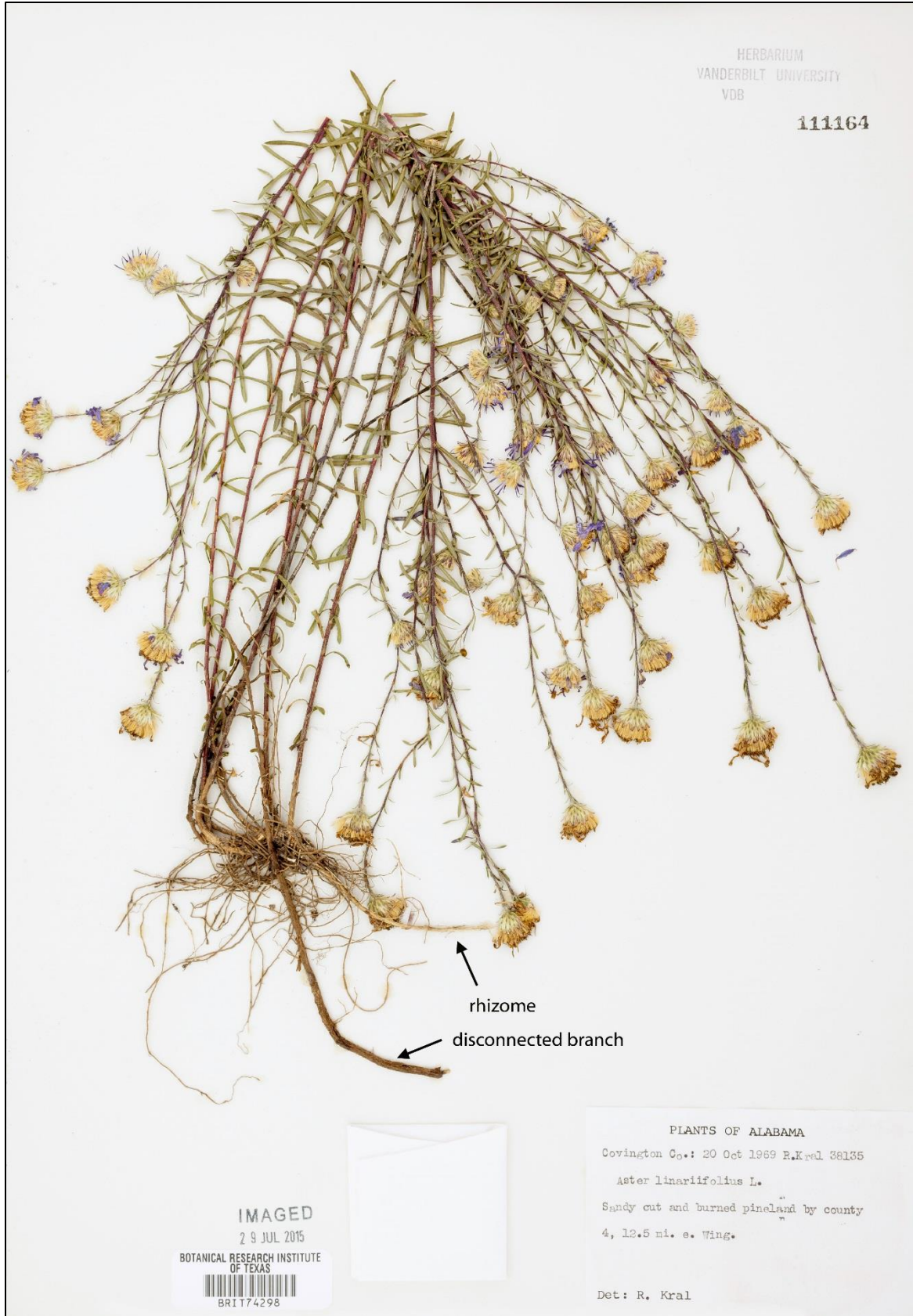


Figure 6. *Ionactis repens*. Covington Co., Alabama, Kral 38135 (BRIT).



Figure 7. *Ionactis repens*. Baker Co., Georgia, Thorne 7312 (GEO).



Figure 8. *Ionactis repens*. Gulf Co., Florida, Gholson 3606 (BRIT).



Figure 9. *Ionactis repens*. Calhoun Co., Florida, Orzell & Bridges 38273 (USF).

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Figure 10. *Ionactis repens*. Nassau Co., Florida, Beckner s.n. (FLAS).



Figure 11. *Ionactis repens*. Base of plants from collections shown in Figs. 3-10. Arrows point to rhizomes.



Figure 12. *Ionactis linariifolia*. Dekalb Co., Alabama, McDaniel 22974 (GA).



Figure 13. *Ionactis linariifolia*. Dawson Co., Georgia, Cronquist 4784 (GEO).



Figure 14. *Ionactis linariifolia*. Rapides Par., Louisiana, Bruser 357 (LSU).

Nesom: *Ionactis repens*, sp. nov.Figure 15. *Ionactis linariifolia*. Jasper Co., Texas, Orzell & Bridges 8725 (TEX).



Figure 16. *Ionactis linariifolia*. Saline Co., Arkansas, Witsell 03-1012 (ANHC).



Figure 17. *Ionactis linearifolia*. Jefferson Co., Missouri, Raven 27625 (KANU).



Figure 18. *Ionactis linariifolia*. Chesterfield Co., South Carolina, Daggy 5861 (UNCC).



Figure 19. *Ionactis linariifolia*. Arlington Co., Virginia, Blake s.n. (COLO).

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Figure 20. *Ionactis linariifolia*. Luzerne Co., Pennsylvania, Witte s.n. (CHRB).



Figure 21. *Ionactis alpina*. Box Elder Co., Utah, Neese 11621 (BRY).



Figure 22. *Ionactis stenomeris*. Silver Bow Co., Montana, Lackschewitz 9738 (COLO).

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