

## A New Species of *Berosus* from Florida (Coleoptera, Hydrophilidae)

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### Abstract

A new species, *Berosus arnetti*, is described from roadside ponds in Liberty County, Florida. SEM photographs of the new species and a new couplet for a modified key to the Southeastern U.S. species are provided.

### Introduction

This new *Berosus* was discovered during an examination of the extensive collection of the Florida State Collection of Arthropods, Division of Plant Industry, Gainesville, Florida. The species is known from three localities along a two mile stretch of roadside aquatic habitats adjacent to Highway 67 in Liberty County and is described here to make the species known to others working on Florida water beetles.

*Berosus arnetti* Van Tassell, new species.  
(Figs. 1-12, from male and female paratypes, same locality data as Holotype)

This taxon is medium-sized, round-oval, orange-testaceous and moderately coarsely punctate above, head and scutellum metallic black, pronotum with two long, straight vittae closely spaced on center, underside piceous, male pronotum and elytra shining, female sides of pronotum and elytra alutaceous, striae intervals three, five and seven with a series of larger, setigerous punctures, female elytra each with a minute tooth near sutural angle, male emargination of fifth visible sternum with small projection nearly obscuring two minute, closely-set teeth, male genitalia with apices of parameres

attenuated and diamond-shaped in dorsal view (Fig. 2).

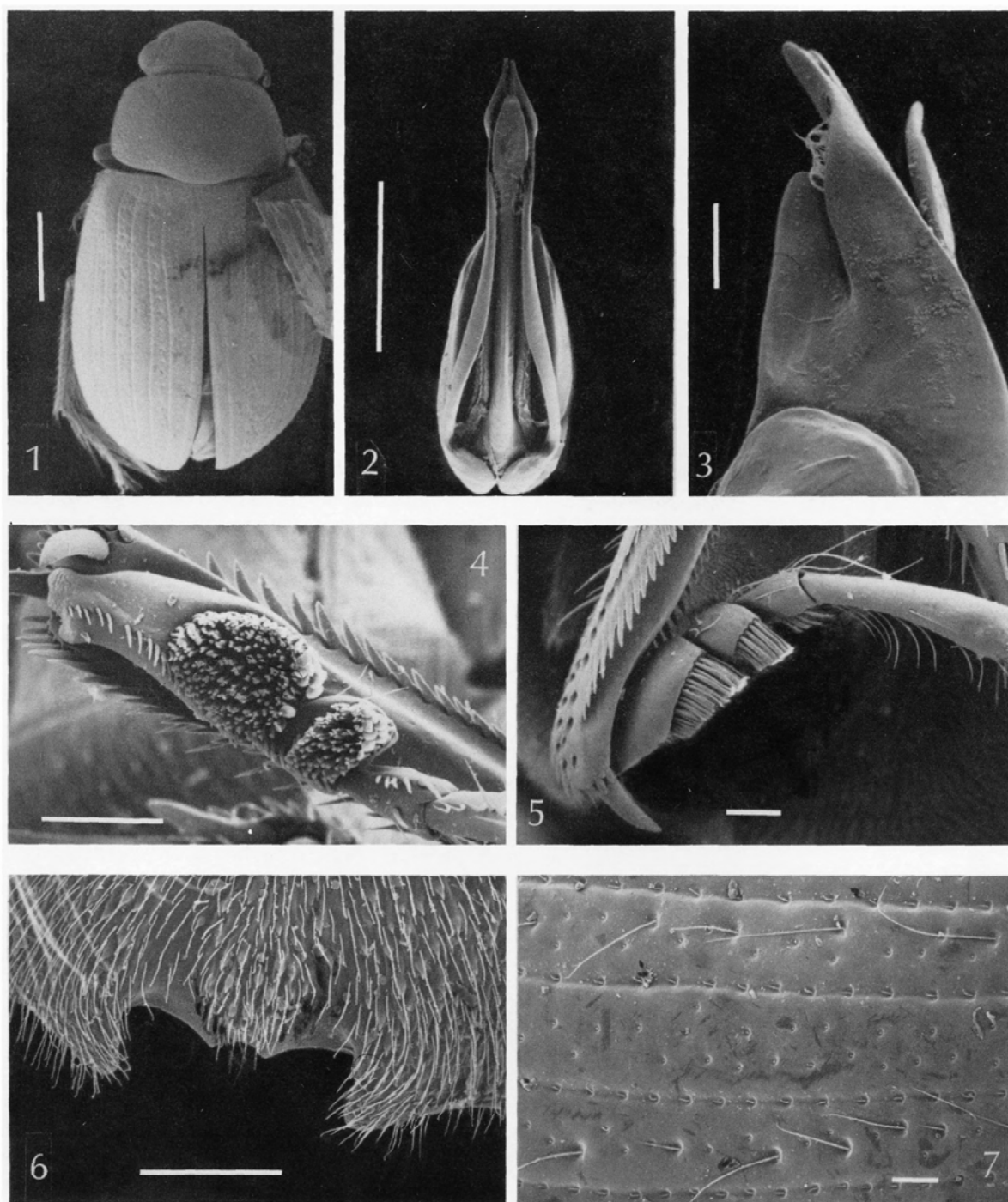
**Holotype.**- FLORIDA, Liberty Co., Stream 6.9 mi. S. of Bristol. Frank N. Young, VIII-23-1951. To be deposited in the Florida Collection of Arthropods, Division of Plant Industry, Gainesville, Florida.

**Description of the Holotype.**- Male. Length, 5.8 mm., width, 2.7 mm.

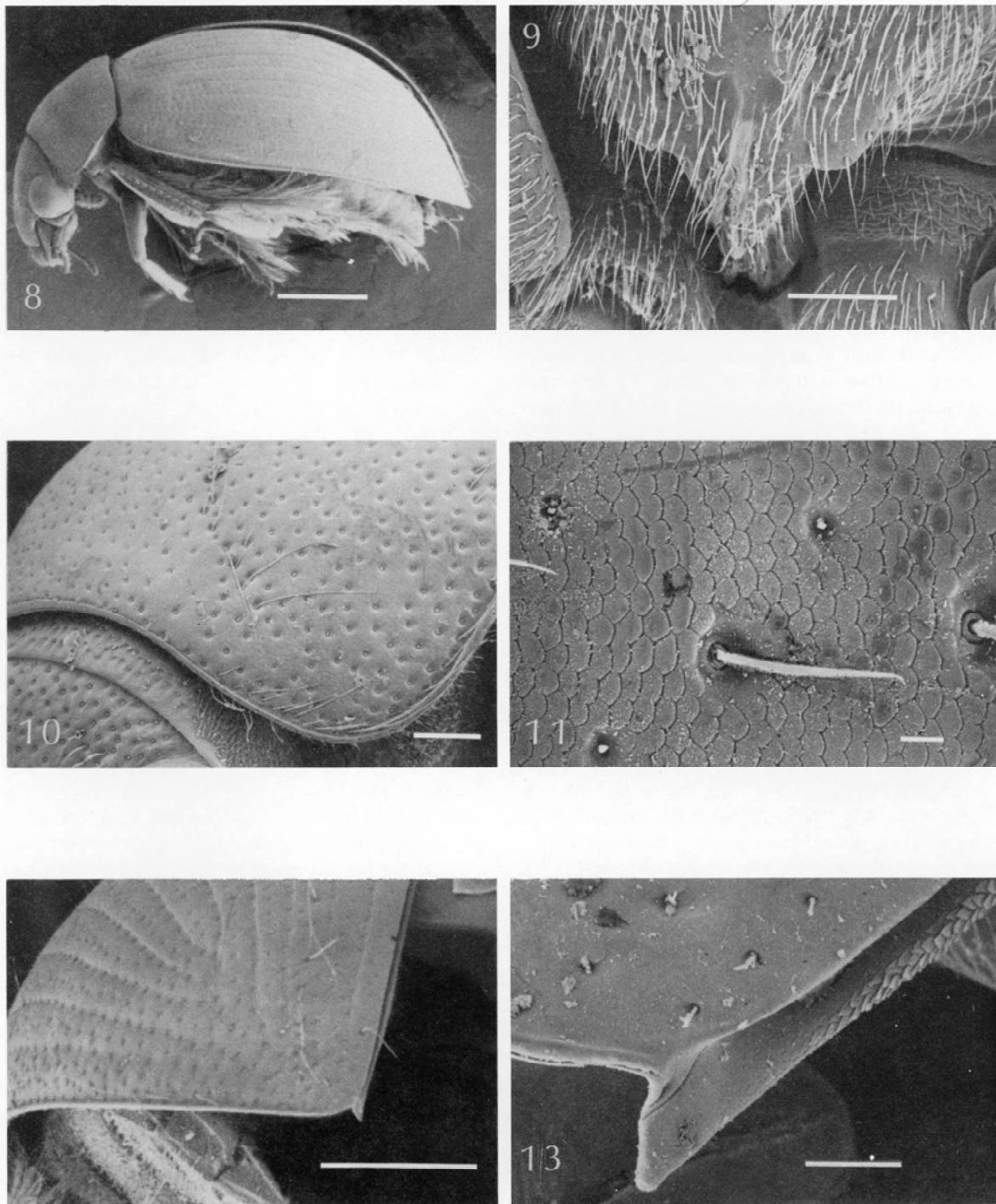
**Head:** Dorsal surface of capsule black with faint metallic green and red reflections; closely punctate, punctures slightly smaller and closer anteriorly; glabrous except for a narrow series of hairs near eyes; labrum very finely punctate with dense, silvery pubescence; antennae testaceous, club slightly darker, pubescent; maxillae red-brown, palpi testaceous, apices dark brown. labial palpi testaceous.

**Pronotum:** Orange-testaceous with two close central, piceous vittae extending nearly the entire length of pronotum, each nearly as wide as scutellum, anterior margins slightly wider and slightly longer medially; moderately densely punctate with an oblique series of setigerous punctures near lateral anterior margins, punctures brown, except on vittae, somewhat closer on vittae; moderately convex, anterior margin nearly straight in dorsal view, anterior angles curving slightly forward in lateral view, margins finely setigerous.

**Elytra:** Orange-testaceous, with piceous striae, brown punctures and brown spots or streaks placed on intervals as follows: second interval with a small spot at apical one-third,



Figures 1-6. SEM photographs of *Berosus arnetti*, n. sp., paratype, male. 1. Dorsal view of male, line = 1.0 mm. 2. Aedeagus, dorsal view, line = 0.5 mm. 3. Aedeagus, lateral view of apex, line = 150 m. 4. Left protarsus, expanded basal segments, ventral view, line = 100 m. 5. Left protarsus, lateral view, line = 130 m. 6. Emargination of fifth visible sternum, line = 100 m. 7. Right elytron, intervals three, four and five, line = 100 m.



Figures 7-12. SEM photographs of *Berosus arnetti*, n. sp., paratype, female. 8. Lateral view, line = 1.0 mm. 9. Metasternal process, line = 100 m. 10. Anterior margin of pronotum, line = 100 m. 11. Left elytron, alutaceous sculpturing, line = 10 m. 12. Left elytral apex, line = 0.5 mm. 13. Left elytral apex, line = 50 m.

third with larger spots just ahead of middle and at apical one-third, fourth with one spot at middle, fifth with spots just past middle and at apical one-fourth both confluent with narrow streak connecting pigmentation of punctures, sixth with humeral spot, eighth, ninth and tenth with a confluent spot at middle, in pleural area; striae deeply impressed to base, less deeply at apices; punctures of intervals moderately large and deep, with an additional series of much larger, setigerous punctures (Fig. 7) on intervals three, five, seven and a few on nine, eleventh interval with smaller, closer setigerous punctures, lateral margins with a series of setigerous punctures extending nearly to suture.

**Sternum:** red-brown to piceous, inflexed margins of pronotum orange-testaceous; mesosternal crest red-brown, ventral margin piceous, moderately large and stout, sinuous, with small, low anterior tooth; integument shining, moderately granular-pubescent, with close, shallow punctures, each bearing a fine, moderately long seta (Fig. 6), less dense than on labrum; metasternal process (Fig. 9) with small triangular posterior projection, lateral teeth barely discernible, posterior edges nearly straight, forming an obtuse angle; first visible abdominal sternum without projecting carina, posterior margin of fifth visible sternum (Fig. 6) with two minute teeth in emargination, nearly obscured by a small, blunt, ventrally projecting process.

**Legs:** Profemora, protarsi, distal shining areas of meso- and meta-femora testaceous, meso- and meta-femora, procoxae, tibiae, basal granular-pubescent areas of meso- and meta-femora reddish-brown; protarsus with basal two segments expanded, with ventral pad of hairs on basal segment lengthening gradually to three times as long anteriorly (Fig. 5), outer hairs expanded at apex to form small disc (Fig. 4); meso- and meta- tibiae densely spinose.

**Male genitalia** (Figs. 2-3): In dorsal view, median lobe flattened and slightly expanded distally, strongly compressed laterally with basal half carinate, parameres narrowed in distal third, but with apices expanded, then attenuated, giving a somewhat diamond-shaped appearance; in lateral view, median lobe arcu-

ate, apex pointed and reflexed at apex, parameres stoutly toothed ventrally, with a series of setae arising just below ridge formed by expansion.

**Allotype.**- Female; locality same as Holotype.

**Description of the Allotype:** Size, Length, 5.9 mm.; Width, 2.7 mm. Similar to male except sides of pronotum and elytra alutaceous (Fig. 11), apices of elytra each with a minute, sharp spine at sutural angle (Figs. 12-13) and fifth visible abdominal sternum without distal median projection, two teeth of emargination sharper, more distinct.

**Paratypes:** 11; 3 males, 3 females from FLORIDA, Liberty Co., Pond, 4.9 mi. S. of Bristol; 1 male, 1 female, 4.9 mi. S. of Bristol, on Fla. 67 (pool); 2 males, 1 female, Liberty Co., Stream, 6.9 Mi. S. of Bristol, Frank N. Young, August 23, 1951.

**Variation in paratypes:** Length, 4.0-4.8 mm. long, 2.4-2.9 mm. wide; pronotal vittae in some specimens is slightly narrowed anteriorly and the width of the separation of the vittae varies slightly, appearing almost united in two specimens; elytral markings vary slightly in color from red-brown to dark brown and the markings are almost confluent in a few specimens; the mesosternal crest varies slightly in sharpness of anterior tooth; metasternal process has slightly more distinct lateral teeth in some; female elytra less strongly alutaceous in two specimens.

**Larva:** Unknown.

**Biotype:** According to the collector, Dr. Frank N. Young, (pers. com.) the habitats were somewhat temporary, the pond having live oaks and small pines around the edge with little grass or debris. He was unable to locate the same habitats again a few years later.

**Distribution:** Known only from the type series, Florida, Liberty Co., 4.9-6.9 miles South of Bristol (Map 1).



Map 1. Distribution of *Berosus arnetti*.

## Discussion

The size, shape and punctuation of this taxon most resembles *B. fraternus* LeConte, which is not known to occur in Florida. The latter can be distinguished by having much narrower, curved pronotal vittae, lightly impressed elytral striae, a smaller, less clearly defined plectral spot on the elytra, female elytra without minute apical teeth at suture and by the parameres of the male aedeagus not toothed ventrally and not sub-apically expanded in dorsal view. The strength of alutaceous sculpturing of the female elytra is also variable in *B. fraternus*, a feature noted by D'Orchymont, (1946) and identified by him as common in some specimens of *B. signaticollis* (Charpentier) from France as well. Both *B. striatus* (Say) and *B. corrini* Wooldridge lack alutaceous sculpturing of the female elytra, are more compressed laterally with more tapering elytra, have an elytral spot just posterior to the scutellar striole on interval two, lack the series of much larger setigerous punctures on intervals three, five and seven and neither have the parameres of the male aedeagus acuminate. At least three other species occur in Liberty County. Young (1954) records *B. striatus* from Liberty Co;

Wooldridge records *B. corrini* from Liberty Co., south of Telogia. I have also seen, in the Florida Collection of Arthropods, five specimens of *B. ordinatus* LeConte from Liberty Co., 5.6 mi. and 6 mi. S. of Wilma, collected by Frank Young, but this species is easily distinguished by its more tapering, slightly prolonged, divergent elytral apices and more uniformly-sized, scabrous punctures of the elytral intervals.

The following couplet should be substituted for couplet six in both Young (1954) and Wooldridge (1965), their couplet six then becoming couplet seven:

- 6(5). Metasternal process with lateral teeth barely projecting, obtuse or at most, right-angled . . .  
 . . . . . *arnetti*  
 6. Metasternal process with lateral teeth acute, projecting . . . . . 7

## Acknowledgements

Thanks are due to Ross H. Arnett, Jr. for his kindness in making research space and equipment available for my use in his home. This species is named after him as a leader in the study of North American Coleoptera. Mary Arnett's gracious hospitality made several visits both more productive and enjoyable. I also thank Brian Armstrong for assistance in attempting to locate the type locality. Frank N. Young first alerted me to the possibility that this series was new and provided field notes on the habitats. Margaret Hogan, Center for Electron Optics, M.S.U., took the S.E.M. photographs. Thanks to Brenda Beck for her help during my visits to the Florida Collection of Arthropods and to the curator of Coleoptera, Dr. Michael C. Thomas, for the loan of material for study.

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