

Research Note

A REVISION OF THE GENUS ENICOCEPHALUS (HEMIPTERA: ENICOCEPHALIDAE)^{1, 2}

The Enicocephalidae are small predaceous hemipterans which occur under bark, in leaf litter, and sometimes in mating swarms. They have membranous wings, swollen fore tibia, and a constriction behind the eyes that gives the head a two lobed appearance. Additional information concerning enicocephalid morphology and behavior is discussed by Kritsky.³

The genus *Enicocephalus* occurs in the Caribbean Islands, South America, and Central America. It is the most colorful of the nine Western Hemisphere enicocephalid genera, many of the Caribbean species being bright red with black wings. *Enicocephalus* can be easily separated from the other Western Hemisphere genera by its single claw on the fore tarsus and a knob at the posterior end of the scutellum. For a key to the Western Hemisphere Enicocephalidae genera refer to Kritsky.⁴

Genus *Enicocephalus* Westwood

Enicocephalus Westwood, 1837:22⁵

Chinella Usinger, 1945:337,⁶ **new synonym.**

Type-species by original designation *Enicocephalus flavicollis* Westwood 1837:23. Medium sized enicocephalid, 3.0–5.5 mm. Head with deep postocular transverse impression; posterior lobe divided, ocellus placed on each lobe (Plate I, fig. 1). Rostrum short, eyes moderate size. Pronotum distinctly divided into three lobes, intermediate lobe with deep median sulcus and two impressions on each side. Scutellum with knob-like process at posterior end. Foreleg generally stout; tarsus with one claw and four

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² The author expresses appreciation to Dr. Lewis J. Stannard for his help and suggestions; also to José A. Mari Mutt, Dr. Thomas Farr, Dr. R. C. Froeschner, and Dr. Richard Baronowski. This study was completed while the author was associated with the Department of Entomology, University of Illinois, and the Illinois Natural History Survey.

³ Kritsky, G., 1977, Observations on the morphology and behavior of the Enicocephalidae (Hemiptera), Ent. News 88: 105–110.

⁴ Kritsky, G., 1977, Two new genera of Enicocephalidae (Hemiptera), Ent. News 88: 161–168.

⁵ Westwood, J. O., 1837, Descriptions of several new species of exotic Hemipterous insects, Trans. Ent. Soc. London 2: 18–24.

⁶ Usinger, R. L., 1945, Classification of the Enicocephalidae (Hemiptera Reduvidae), Ann. Ent. Soc. Am. 38: 321–342.

spines, one hook-shaped and addressed to tarsus, other three spines curved (Plate I, fig. 3). Apical end of tibia with five long spines; the outermost spine short, three spines close together, and innermost spine curved away from tarsus (Plate I, fig. 3). Middle and hind tarsi, each two segmented. Forewings with basal cell present and discal cell closed. Male genitalia without distinct parameres, posterior apophysis of the pygophore opening below the anus. Female larger, more stout than male (Plate I, fig. 2). Eyes smaller, posterior lobe of head wider, middle lobe of pronotum larger and forelegs more robust. Female genitalia simple with transverse crack opening below the anus.

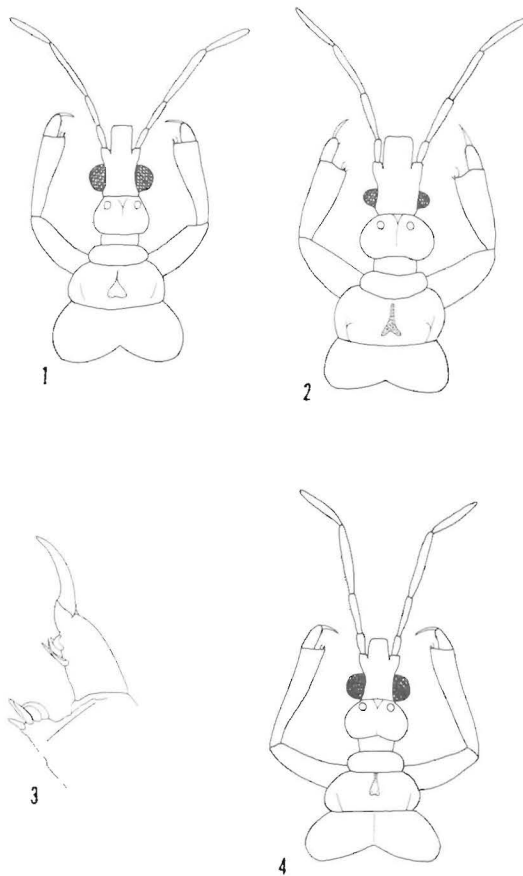


Plate I, fig. 1. *Enicocephalus yvonneae* male; 2. *E. yvonneae* female; 3. *E. cubanus* foreleg spination; 4. *E. cubanus* male.

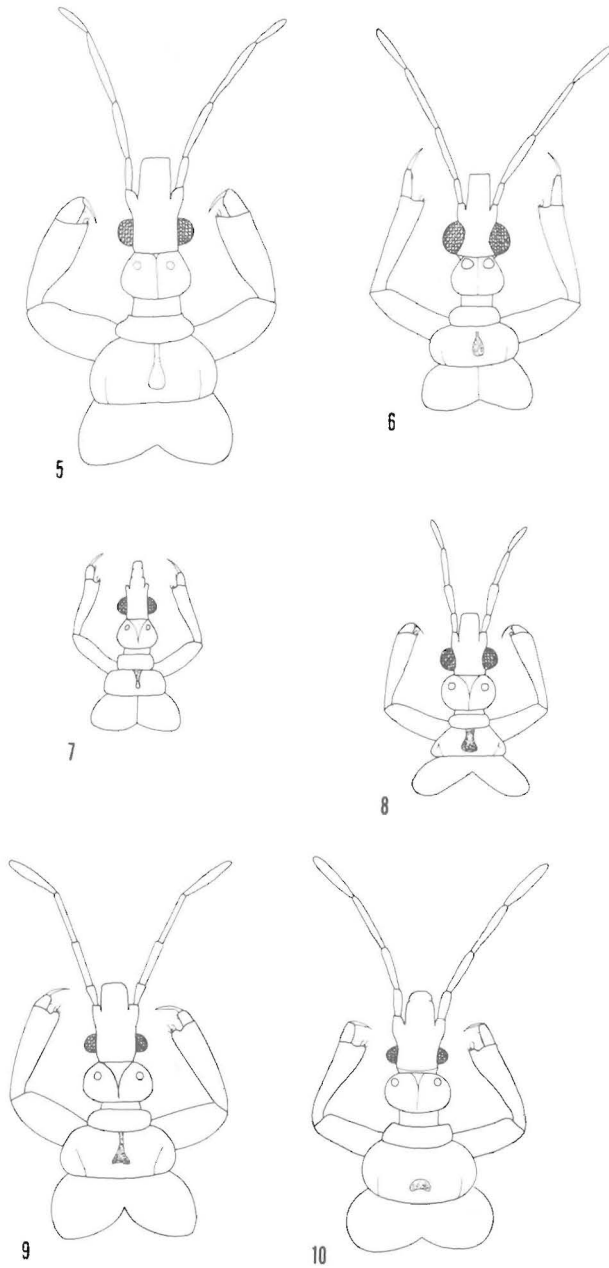


Plate II, fig. 5. *Enicocephalus marimutti* female; 6. *E. usingeri* male; 7. *E. semirufus* male; 8. *E. emarginatus* male; 9. *E. pilosus* female; 10. *E. tauberi* female.

The two species which constitute *Chinella*—*pilosus* and *emarginatus*—differ from the rest of the species of *Enicocephalus* by having an open discal and absent basal cell in the forewing venation. The examination by the author of specimens taken from swarms indicates that these cells are open in about 8% of the individuals. Moreover, the original material of *pilosus* and *emarginatus* consisted of one specimen each. Recently, additional material has been collected on the *Chinella* species which possess these veins. Therefore, I am proposing that *Chinella* is a synonym of *Enicocephalus*.

Key to the Species of *Enicocephalus*

1. Red body with black wings 2
Body not red with black wings 7
2. Posterior lobe of head with distinctly emarginate posterior margin in males (Plate I, fig. 4), and deeply emarginate in females .. *cubanus*
Posterior lobe of head not as above 3
3. Posterior lobe of head as wide or wider than anterior lobe 4
Posterior lobe of head not as wide as anterior lobe 6
4. Greater than 5 mm (Plate II, fig. 5) *marimutti*
Smaller than 5 mm 5
5. Body entirely red, legs stout (Plate I, fig. 1) *yvonneae*
Body with legs, pronotum darker; legs very slender (Plate II, fig. 7) *semirufus*
6. Posterior margin of pronotum not strongly emarginate, forelegs dark brownish red (Plate II, fig. 6) *usingeri*
Posterior margin strongly emarginate, forelegs yellow-orange *dominicus*
7. Anterior and intermediate lobe of pronotum yellow, remainder of body brown *flavicollis*
Body entirely brown or dark brown 8
8. Posterior lobe of pronotum very small and narrow, intermediate lobe of pronotum trapezoidal-shaped (Plate II, fig. 8) *emarginatus*
Not as above 9
9. Posterior margin of pronotum deeply emarginate, densely covered with setae (Plate II, fig. 9) *pilosus*
Posterior margin shallowly emarginate, sparsely covered with setae (Plate II, fig. 10) *tauberi*

Enicocephalus cubanus Bruner, 1924:54,⁷ (Plate I, fig. 4).

Type-locality—Provincia de Oriente, Cuba.

Length 3.5–4.2 mm. Densely clothed with short setae. Body red, antennae brown, hemelytra dull black to apex of scutellum.

⁷ Bruner, S. C., 1924, A new *Enicocephalus*, Bull. Brooklyn Ent. Soc. 19: 39, 1924.

Head 0.90 mm long; posterior lobe as wide or wider than anterior lobe; convex, with deep transverse impression, and posterior margin emarginate. Ocelli of moderate size. Length of antennal segments: I, 0.15 mm; II, 0.27 mm; III, 0.43 mm; IV, 0.38 mm.

Intermediate lobe of pronotum not as wide but as long as posterior lobe, median sulcus narrow. Posterior margin emarginate.

Foreleg narrow in male; femur length to width ratio 4.50; tibia length to width ratio 4.63.

Female larger than male, posterior margin of the posterior lobe of head deeply emarginate; middle lobe of pronotum larger than that of the male; forelegs more stout than male's.

Additional material is known from Harahueca, Ote., Cuba; collected by S. C. Bruner on July 14-18, 1927.

Enicocephalus marimutti, **new species** (Plate II, fig. 5).

Large enicocephalid 5.25 mm. Moderately clothed with short setae. Body red, antenna brown, hemelytra dull black to apex of scutellum.

Head 1.17 mm long; posterior lobe as wide as anterior lobe, deep transverse impression, ocelli of moderate size. Length of antennal segments: I, 0.19 mm; II, 0.38 mm; III, 0.51 mm; IV, 0.20 mm.

Pronotum large; anterior lobe with slight collar, intermediate lobe with transverse impression as long as posterior lobe, posterior lobe moderately emarginate.

Foreleg stout; femur length to width ratio 2.64, tibia length to width ratio 2.64.

Holotype: female, Haiti, Fond Verrettes to Refuge; May 28, 1950 (collected by H. B. Mills in a berlese sample, collection sample number 49666). The type is deposited in the Illinois Natural History Survey Insect Collection. It is named after José Mari Mutt.

Enicocephalus yvonneae, **new species** (Plate I, figs. 1 and 2).

Medium sized, 3.75 mm long. Densely clothed with short setae. Body red, antennae brown, hemelytra dull black to apex of scutellum.

Head 0.85 mm long; posterior lobe as wide as anterior lobe not as convex in male as in female, moderate transverse impression; ocelli of moderate size. Length of antennal segments: I, 0.14 mm; II, 0.21 mm; III, 0.43 mm; IV, 0.43 mm.

Intermediate lobe of pronotum not as wide as anterior lobe, with large median sulcus. Posterior lobe emarginate.

Forelegs slender; femur length to width ratio 4.50, tibia length to width ratio 4.63.

Female 4.00 mm long, posterior lobe of head wider than that of the male; middle lobe of pronotum as wide as posterior lobe; forelegs stouter than male's.

Holotype: female, Jamaica, St. Andrew Parish, Harberton, about 1 mile southeast of Content, December 29, 1957 (collected by T. H. Farr). The type is deposited in the Illinois Natural History Survey Insect Collections. This species is named for Yvonne Lea Kritsky.

Enicocephalus semirufus Barber, 1839:382,⁸ (Plate II, fig. 7).

Type locality—Adjuntas, Puerto Rico.

Length 3.85 mm. Densely covered with short setae. Posterior lobe of head, anterior and posterior lobe of pronotum, scutellum and wing bases red; rostrum and antenna pale yellow; remainder of body dull black.

Head 0.72 mm long; posterior lobe as wide as anterior lobe, not strongly convex, with a transverse impression. Ocelli of moderate size. Length of antennal segments: I, 0.12 mm; II, 0.28 mm; III, 0.40 mm; IV, 0.36 mm.

Pronotum with middle lobe not as wide as posterior lobe, with narrow median sulcus. Posterior lobe slightly emarginate.

Foreleg narrow; femur length to width ratio 4.60, tibia length to width ratio 4.00.

Enicocephalus usingeri Maldonado, 1948:159,⁹ (Plate II, fig. 6).

Type-locality—El Yunque National Forest, Puerto Rico.

Length 4.50 mm. Covered with short setae. Posterior lobe of head, pronotum, scutellum, wing bases, and abdomen orange-red. Anterior lobe of head, antennae, and wings black. Forelegs dark brown.

Head 1.06 mm long. Posterior lobe not as wide as anterior lobe with a slight transverse impression. Eyes and ocelli very large. Length of antennal segments: I, 0.16 mm; II, 0.34 mm; III, 0.45 mm; IV, 0.32 mm.

Pronotum with intermediate lobe almost as large as posterior lobe, with moderate-sized median sulcus. Posterior margin shallowly emarginate.

Forelegs slender; femur length to width ratio 3.18, tibia length to width ratio 4.00.

Enicocephalus dominicus Bruner, 1924:39.¹⁰

Type-locality—Long Ditton, Dominica.

Length 4 mm. Body covered with short setae. Body red; except anten-

⁸ Barber, H. G., 1939, Insects of Porto Rico and the Virgin Islands-Hemiptera-Heteroptera (excepting the Miridae and Corixidae), New York Acad. Sci., Sci., Surv. Porto Rico and Virgin Islands 14: 263-441.

⁹ Maldonado Capriles, J., 1948, A new *Enicocephalus* from Puerto Rico, Proc. Ent. Soc. Wash. 50: 159-160.

¹⁰ Bruner, S. C., 1924, Una nueva especie de la familia Enicocephalidae, Mem. Soc. Cubana Hist. Nat. "Felipe Poey" 6: 53-59.

nae smoky, terminal antennal segment yellow, rostrum and legs dull orange-yellow.

Head with posterior lobe narrower than anterior lobe. Eyes and ocelli large.

Posterior lobe of pronotum wider than intermediate lobe, posterior margin deeply emarginate.

Forelegs slender.

Material of *E. dominicus* was available for study, but the original description described diagnostic characters allowing for its inclusion in the key.

Enicocephalus flavicollis Westwood, 1837:23.⁵

Type-locality—Saint Vincent Island.

Length 3 mm. Sparsely covered with long setae. Body brown; except anterior and intermediate lobe of pronotum, legs, and terminal end of antenna yellow.

Head with posterior lobe convex, with transverse impression. Eyes and ocelli small.

Posterior lobe of pronotum wider than intermediate lobe, posterior margin emarginate.

Forelegs slender.

Material of *E. flavicollis* was also unavailable for examination but Jeannel¹¹ redescribed the type which is in the British Museum, describing the diagnostic characters.

Enicocephalus emarginatus (Champion), 1898:161,¹² (Plate II, fig. 8).

Type-locality—El Reposo, Guatemala.

Length 3.75 mm. Body covered with short setae. Body brown, wings brownish hyaline.

Head 0.91 mm long. Posterior lobe as wide as anterior lobe with deep transverse impression. Eyes and ocelli of moderate size. Length of antennal segments: I, 0.11 mm; II, 0.19 mm; III, 0.29 mm; IV, 0.29 mm.

Pronotum with small trapezoidal-shaped intermediate lobe with wide median sulcus. Posterior margin of posterior lobe deeply emarginate.

Forelegs slender; femur length to width ratio 3.63, tibia length to width ratio 3.71.

Additional material is known from Panama, Barro Colorado Island, collected by W. D. and S. S. Duckworth on May 1-9, 1964; Portobelo,

¹¹ Jeannel, R., 1942, Les Henicocephalides, Monographie d'un groupe d'Hémiptères hématophages, Ann. Soc. Ent. France 110 (1941): 273-368.

¹² Champion, G. C., 1881-1901, "Biologia Centrali Americana, Heteroptera," London, 2 Vols. II, pp. 158-162.

collected by E. A. Schwartz on February 25, 1911; Costa Rica, Hamburg Farm, Sta. Clara Pr., collected by F. Neverman on September 9, 1926.

Enicocephalus pilosus (Champion) 1898:160,¹² (Plate II, fig. 9).

Type-locality—Cerro Zunil, Guatemala.

Length 5.00 mm. Body densely covered with short setae. Body very dark brown, wings smoky.

Head 1.06 mm long. Posterior lobe convex, as wide or wider than anterior lobe, with deep transverse impression. Eyes and ocelli of moderate size. Length of antennal segments: I, 0.21 mm; II, 0.38 mm; III, 0.40 mm; IV, 0.40 mm.

Intermediate lobe of pronotum slightly shorter and narrower than posterior lobe, with large sulcus. Posterior lobe deeply emarginate.

Forelegs slender; femur length to width ratio 3.16, tibia length to width ratio 3.50.

Additional material is known from Costa Rica, Puntarenas Monteverde area, June 14, 1973; 1400–1700 m, Erwin and Hevel Central American Expedition.

Enicocephalus tauberi Jeannel, 1943:127,¹³ (Plate II, fig. 10).

Type-locality—Titicaca, Bolivia.

Length 3.50–4.00 mm. Sparsely covered with short setae. Body brown.

Head 1.00 mm long. Posterior lobe convex, as wide as anterior lobe, with a deep transverse impression. Eyes and ocelli of moderate size. Length of antennal segments: I, 0.19 mm; II, 0.32 mm; III, 0.58 mm; IV, 0.58 mm.

Intermediate lobe of pronotum as long or longer than posterior lobe, with small median sulcus. Posterior lobe shallowly emarginate.

Forelegs slender; femur length to width ratio 4.50, tibia length to width ratio 4.55.

Additional material is known from Brazil, Rondon, lat. 24°38' S, long. 54°07' W, collected by Fritz Planumann during July 1952.

The different Caribbean species illustrate how island isolation encourages the evolution of a group. *E. cubanus* and *E. flavicollis* represent the closest geographical links with the continental species. The red body and black wing forms probably represent a single migration from Central America. The direction of the migration can be deduced by comparing *E. cubanus* and *E. usingeri* with the continental species. *E. cubanus* is more similar to the continental species than is *E. usingeri*. In fact, as one moves from Cuba across Hispaniola to Puerto Rico, one finds that the

¹³ Jeannel, R., 1944, Nouveaux Henicocephalides sudaméricains, Bull. Soc. Ent. France, 48 (1943): 125–28.

posterior lobe of the head gets smaller and the eyes and ocelli become larger. *E. flavicollis* probably also represents a link to the continent, possibly being a migrant from South America to the Lesser Antilles. It has a convex posterior lobe of head, different coloration, and large posterior lobe unlike that of the Puerto Rican species.

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