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## First description of macropterous male and female of *Cryphocricos latus* (Heteroptera: Naucoridae) Usinger

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The macropterous male and female of *Cryphocricos latus* are herein described for the first time; both were collected in Alajuela, Costa Rica. Notes to separate this species from other macropterous species of the genus are given.

**Keywords:** full-winged; creeping water bug; Costa Rica; Central America; Nepomorpha; Hemiptera

### Introduction

The American genus *Cryphocricos* Signoret is widely distributed from Texas to Argentina, with 14 species described so far (Sites and Álvarez-Arango 2010). For the Central American region only three species have been reported. The Entomological Collection Database at the California Academy of Sciences reported *Cryphocricos mexicanus* Usinger and *Cryphocricos latus* Usinger from Honduras, and Usinger (1947) reports *Cryphocricos obscuratus* Usinger from Panama and *C. latus* from Costa Rica, the latter being used by Stout (1981, 1982) for biological studies. Of these three species, only *C. mexicanus* has had its macropterous form described.

### Methodology

The methodology used in this paper follows the same format and methodology used by Usinger (1947), with the exception that measurements were taken using the computer software MOTIC IMAGE PLUS 2.0. Measurements are given in millimetres, when establishing a comparison between measurements mean values are used. Standard deviation values < 0.01 are listed as 0.00. All male and female specimens were preserved in 70% ethanol, then pinned to take the measurements. Genital structures are not presented in this paper because they lack taxonomic value in this genus (Usinger 1947; López-Ruf 1991).

The macropterous specimens on which the descriptions are based were detected during a revision of the Aquatic Entomology Collection at the Museum of Zoology, University of Costa Rica (MZUCR). 19 macropterous specimens of *C. latus* (14 females and 5 males) were collected in March 2000 by M. Springer in the San Carlos River before it merges with the San Juan River (10°44'56.45" N,

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84°11'12.22" W), Alajuela province, Costa Rica. We have also seen macropterous specimens of *C. latus* from the following localities: SAN JOSÉ: Pérez Zeledón, Río General, 9°21'48.21" N, 83°39'50.52" W; 685 m above sea level (a.s.l.), 15 November 2003, Col. R. Lara and Y. Gutiérrez, 3F. (MZUCR). PUNTARENAS: Esparza, Río Barranquilla, 10°4'58.58" N, 84°37'40.72" W; 400 m a.s.l., 2006, Col. F. Ruiz, E. Vargas, M. Springer and P. Gutiérrez, 1 female (MZUCR); Térraba, Río La Unión, 8°50'23.16" N, 82°53'40.80" W; 990 m a.s.l., 24 August 2006. Col. R. Lara, 1 male. (MZUCR). ALAJUELA: Río San Carlos, 10°28'27.41" N, 84°27'59.35" W; 62 m a.s.l., 18 July 2000, Col. T.E.C., 8 males and 1 female (MZUCR). LIMÓN: Talamanca, Quebrada Amubri, 9°30'45.70" N, 82°56'55.33" W; 85 m a.s.l., April 2000. Col. S. Griffith and co-workers, 9 females (MZUCR); Talamanca, Quebrada Karbri, 9°30'29.43" N; 82°58'29.60" W, 135 m a.s.l., 17 April 2000, Col. J. Barquero, W. Bent and H. Torres, 3 females and 1 male (MZUCR); Talamanca, Quebrada Karbri, 9°29'21.99" N, 82°59'38.12" W; 418 m a.s.l., 17 April 2000, Col. J. Barquero, W. Bent and D. Lyon, 1 female (MZUCR); Talamanca, Río Bris, 9°31'8.10" N, 82°52'21.09" W; 100 m a.s.l., 25 April 2000, Col. D. Penrose, B. McLarney and L. Selles, 1 male (MZUCR).

The macropterous specimens were collected from the same locality as were brachypterous specimens and differ in body proportions (Table 1, Figures 1 and 2).

Table 1. Proportions for macropterous males and macropterous females of *Cryphocricos latus*. Proportions for the brachypterous forms are taken from Usinger (1947).

Proportions	Macropterous male	Macropterous female	Brachypterous Usinger (1947)
Total length/Total width	2.04	2.07	2.02
Width of head/Length of head	1.36	1.49	1.36
Width of labrum/Length of labrum	0.70	0.57	0.65
Length of pronotum/Length of head	1.23	1.31	1.14
Width of pronotum/Length of pronotum	2.67	2.71	2.48
Width of scutellum/Length of scutellum	1.58	1.59	2.15
Length of scutellum/Hemelytral commissure	3.13	3.60	1.05
Width of embolium/Width of hemelytron	0.09	0.11	0.14
Width of front femora/Length of head	1.05	1.11	1.04
Antennal segments (I–IV)	5 : 5 : 2 : 10	5 : 5 : 2 : 10	5 : 5 : 2 : 10
Lateral projections of pronotum	16	15	16



Figure 1. Macropterous female and male specimens of *Cryphocricos latus* Usinger, 1947, from Pacuar River, Puntarenas Province. Collected by J. Picado in March 2006.



Figure 2. Brachypterous female and male specimens of *Cryphocricos latus* Usinger, 1947, from Amubri Brook, Talamanca, Limón province. Collected by Griffith and co-workers in April 2000.

**Results and discussion*****Measurements of the macropterous specimens (male/female)***

Maximum length (from apex of head to apex of hemelytra at rest):  $7.80 \pm 0.19/8.33 \pm 0.22$ ; maximum width of body:  $3.82 \pm 0.17/4.02 \pm 0.11$ ; length of head:  $1.04 \pm 0.05/0.97 \pm 0.08$ ; width of head:  $1.41 \pm 0.02/1.45 \pm 0.04$ ; interocular space at nearest point:  $0.65 \pm 0.01/0.67 \pm 0.03$ ; width of eye:  $0.35 \pm 0.02/0.31 \pm 0.07$ ; length of labrum:  $0.23 \pm 0.03/0.19 \pm 0.01$ ; width of labrum:  $0.33 \pm 0.05/0.32 \pm 0.05$ ; length of pronotum:  $1.27 \pm 0.04/1.28 \pm 0.13$ ; width of pronotum:  $3.39 \pm 0.03/3.46 \pm 0.07$ ; length of scutellum:  $1.51 \pm 0.07/1.54 \pm 0.05$ ; width of scutellum:  $2.38 \pm 0.07/2.46 \pm 0.09$ ; hemelytral commissure:  $0.48 \pm 0.02/0.43 \pm 0.06$ ; length of embolium:  $2.15 \pm 0.02/2.21 \pm 0.11$ ; width of embolium:  $0.23 \pm 0.05/0.29 \pm 0.05$ ; length of hemelytron (from base of clavus to apex of membrane):  $5.52 \pm 0.14/5.34 \pm 0.04$ ; width of hemelytron:  $2.43 \pm 0.13/2.72 \pm 0.08$ ; length of front femora:  $2.11 \pm 0.06/2.24 \pm 0.05$ ; width of front femora:  $1.09 \pm 0.06/1.08 \pm 0.07$ ; length of antennal segment (AS) I:  $0.08 \pm 0.01/0.06 \pm 0.00$ ; length of AS II:  $0.08 \pm 0.00/0.07 \pm 0.01$ ; length of AS III:  $0.04 \pm 0.00/0.04 \pm 0.00$ ; length of AS IV:  $0.17 \pm 0.03/0.19 \pm 0.01$ ; number of lateral projections:  $16 \pm 1.70/15 \pm 0.95$ .

***Description of macropterous male***

Only differences from the description of the brachypterous forms are given here. Length 7.80 mm, maximum width 3.82 mm (Figure 1).

Pronotum almost  $1\frac{1}{4}$  times longer than length of head on median line, proportion 1.23. Pronotum more than  $2\frac{1}{2}$  times as wide as long, proportion 2.67. Lateral margins nearly straight, slightly curved anteriorly and being briefly angulated at point of contact with eyes. Posterolateral angles rounded, divergent, exceeding posterior (relatively straight) margin of pronotum; slightly covering base of clavus. Shallow depression present, starting on last third of lateral margins and extending along last fifth of the length of pronotum, always following the contour of the latter.

Scutellum slightly wider than  $1\frac{1}{2}$  times the length, proportion 1.58. Lateral and anterior side of scutellum weakly sinuated. Feebly elevated in centre with a weak depression anteriorly in middle and basal angles. Hemelytral commissure almost  $3\frac{1}{4}$  times smaller than length of scutellum on its median line, proportion 3.15.

Hemelytra complete, almost reaching tip of abdomen. Lateral margin of embolium briefly rounded basally, then straight and parallel to just before distal apices where they become rounded. Embolium less than one-seventh as wide as total width of hemelytron, proportion 0.09. Claval suture and claval vein complete. Membrane with shallow wrinkled pattern. Connexival angles of fourth abdominal segment almost right-angled or scarcely produced and rounded.

Dorsal coloration black, coated with white incrustations and black granules. Incrustations less dense on scutellum, smaller on hemelytra and absent on femora and membranes (incrustation is the term used by Usinger, 1947 and appears to be part of the insect because it cannot be removed). Granules relatively dense on scutellum and femora, absent on membranes. Clavus, corium and embolium black, membrane darker.

### **Description of macropterous female**

Length 8.33 mm., maximum width 4.02 mm. Females are very similar to the males but differ from them in having the pronotum more than  $1\frac{1}{4}$  times longer than length of head on median line, proportion 1.31. The claval commissure is more than  $3\frac{1}{2}$  times shorter than length of scutellum on its median line, proportion 3.60. The subgenital plate is emarginated, with a notch in the middle.

### **Comparative notes**

Macropterous forms of *C. latus* are relatively larger than brachypterous specimens, following the same tendency described by Usinger (1947) for other species of the genus. Among the macropterous species of *Cryphocricos* reported for Central America, *C. latus* is smaller than the macropterous form of *C. mexicanus*, and their sizes do not seem to overlap. Regarding macropterous forms of *C. obscuratus*, which still remains undiscovered, we tentatively propose that, when found, at least the female will be smaller than that of *C. latus*.

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