

## A new *Fulvius* species from Azores Islands (Heteroptera: Miridae: Cylapinae)

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### Abstract

The new species *Fulvius borgesii* is described from Azores Islands. The male and female genital structures are illustrated.

**Key words:** Heteroptera, Miridae, Cylapinae, Fulvini, *Fulvius*, new species, Azores Islands

### Introduction

*Fulvius* Stål, 1862 is the largest genus within the Cylapinae (Insecta: Heteroptera: Miridae), with upward of 60 species in the World (Gorczyca, 1997, 2000 ; Ferreira & Henry, 2002). Despite recent efforts to document the species of the genus, various taxa - particularly from the New World - remain undescribed. Recently, our colleague P. A. V. Borges sent to the second author a small series of *Fulvius* sp. impossible to attribute to an already known species, from Terceira, Azores Islands. In the present work, we provide the description of both sexes of *Fulvius borgesii* n. sp. to accommodate these specimens.

The Arthropoda biodiversity of Azores was recently reviewed (Borges *et al.*, 2005). Eighteen Miridae species, including two endemics and fifteen assumed native (J. Ribes & Borges *in* Borges *et al.*, 2005: 192), in four subfamilies (Bryocorinae, Mirinae, Orthotylinae, and Phylinae), are listed from the archipelago. *Taylorilygus apicalis* (FIEBER, 1861) was very probably introduced.

The genus *Fulvius* and the subfamily Cylapinae are recorded here for the first time from Azores Islands. *Fulvius borgesii* n. sp. was probably recently introduced. Its probable origin is briefly discussed.

The terminology of the genital structures follows, with slight modifications: Chérot (2002), Davis (1955), Kelton (1959), Slater (1950), and Stonedahl (1988). The measurements are in mm.

## Systematics

### *Fulvius borgesii* n. sp.

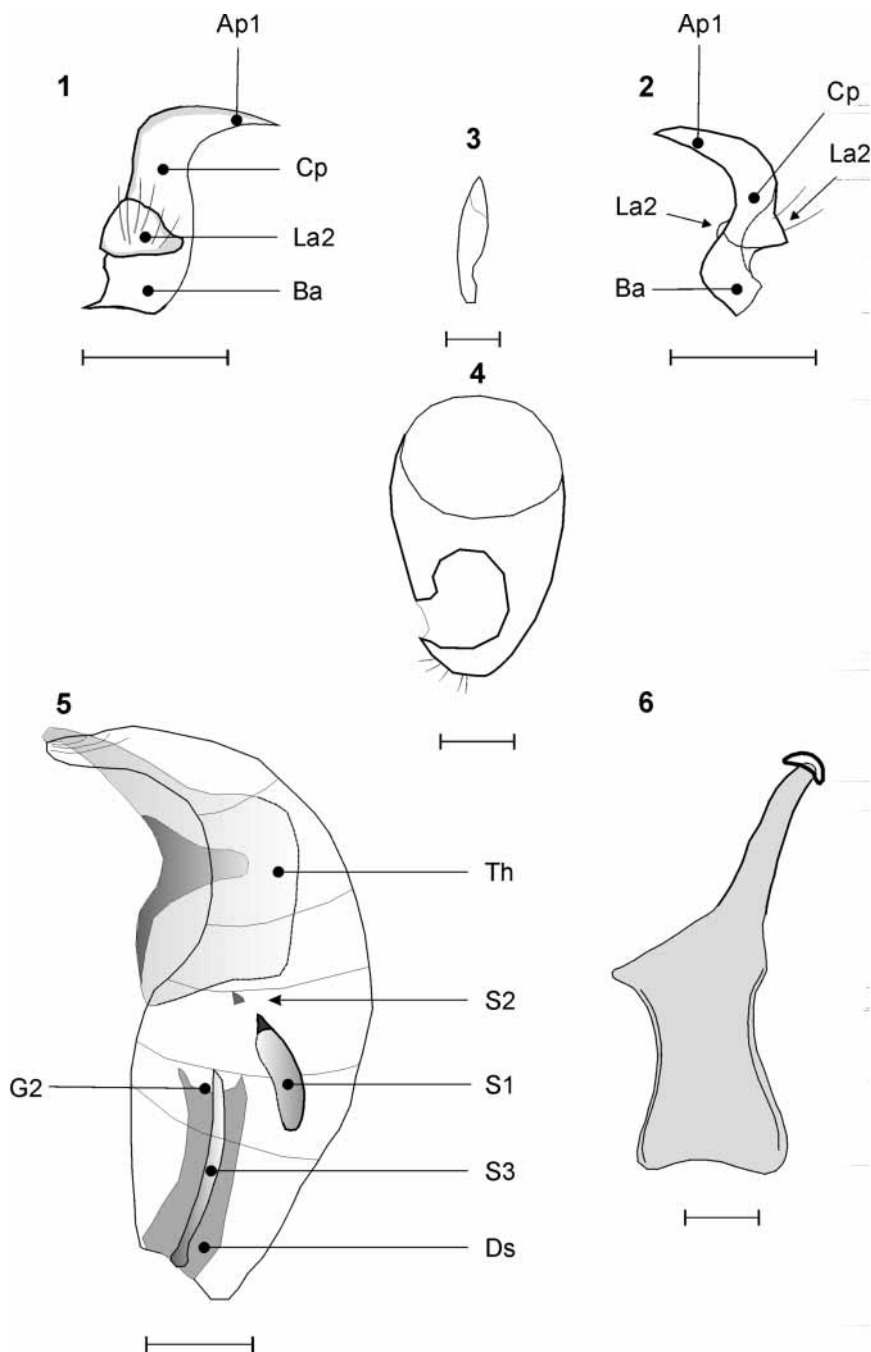
Holotype (♂): AÇORES, Terceira, site S3B, Porto Judeu, São Sebastião (42 m.), UTM 490966-4278171, 01-08.x.2003, *P.A.V. Borges* (Arruda Furtado collection, Universidade dos Açores, Azores Island). Paratypes: 5♂♂, 1♀: AÇORES, Terceira, Porto Judeu, São Sebastião (42 m.), UTM 490966 - 4278171, 01-08.x.2003, *P.A.V. Borges* (Arruda Furtado collection, Universidade dos Açores, Azores Island; Silesian University, Bankowa, Poland; Museo Nacional de Ciencias Naturales, Madrid, Spain, Museu de Zoologia, Barcelona, Spain and Institut royal des Sciences naturelles de Belgique, Brussels, Belgium); 1♀: AÇORES, Terceira, São Sebastião, Porto-Novo, 01-08.x.2003 ( Coll. J. Ribes). All in banana plantation at low altitude («em pomares»; *Borges pers. com.*).

### Description

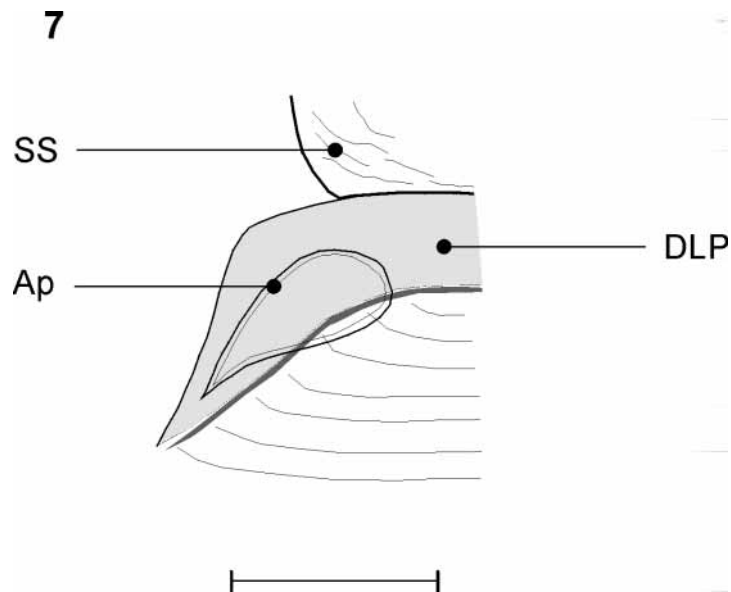
Male (paratype): total length: 3.36; total width: 1.16; head length (dorsal view): 0.55; head width across eyes: 0.55; vertex width: 0.22; length of antennal segments: I: 0.57; II: 1.17; III: 0.57; IV: 0.63; length of pronotum: 0.46; posterior width of pronotum: 1.10; length of (left) cuneus: 0.55; width of (left) cuneus: 0.35.

Female (paratype): total length: 3.26 (membrane damaged); total width: 1.33; head length (dorsal view): 1.02; head width across eyes: 0.53; vertex width: 0.26; length of antennal segments: I: 0.43; II: 0.96; III: - (damaged); IV: - (damaged); length of pronotum: 0.46; posterior width of pronotum: 1.14; length of (left) cuneus: 0.54; width of (left) cuneus: 0.31.

General body color black with whitish areas. Head black, eyes dark brown, their inner margin red brown. First antennal segment brown, second antennal segment black with a brown ring at base, distally clear yellow, third and fourth segments black to dark brown. Rostrum yellow brown, reaching middle of abdomen. Pronotum and scutellum black, with short, narrow, suberect white pilosity, the scutellum with a medial carina. Mesoscutum uncovered, with lateral fossae. Hemelytra black to dark brown, with short, narrow, suberect, white pilosity. Median parts of exocoria and coria, basal part of cunei, and apical part of clavi yellow to whitish. Membrane dark brown. Procoxae red brown. Meso- and metacoxae dark brown basally, yellow apically. Femora brown. Tibiae basally brown, distally yellow, with numerous spinulae. Tarsi yellow.



**FIGURES 1–6.** *Fulvius borgesii* n. sp. Male genital structures. 1–2, left paramere, respectively in ventral and latero-dorsal views (Ap1: primary apophysis, Ba: base, Cp: body, La2: lobe of ventral surface), scales = 0.1 mm.; 3, right paramere in ventral view, scale = 0.05 mm.; 4, pygophore in dorsal view, scale = 0.1 mm.; 5, endophallus in latero-dorsal view (Ds: ductus seminis, G2: secondary gonopore, S1: sclerotized area, S2: sclerites 2, S3: sclerites 3, Th: theca), scale = 0.1 mm.; 6, theca in latero-ventral view, scale = 0.05 mm.



**FIGURE 7.** *Fulvius borgesii* n. sp. Female genital structures: left parieto-vaginal ring in dorsal view (Ap: parieto-vaginal ring, DLP: dorso-labiate plate, SS: seminal sac), scale = 0.05 mm.

Genital structures. Left paramere stout, curved; base and body (Ba and Cp, Figs 1–2) wide; primary apophysis (Ap1) pointed; ventral surface with a large secondary lobe (La2) bearing numerous setae. Right paramere (Fig. 3) very small, apex of primary apophysis blunted. Endophallus (Figs 5–6) complex, with a sclerotized field on the lobe surface (Fig. 5, S1) and two sclerites (S2 and S3, Fig. 5), one pointed, above the secondary gonopore and apex of *ductus seminis* (G2 and Ds respectively) and the second triangular, more posterior. Theca (Fig. 5, Th. and Fig 6) very large. Seminal depository large, lacking glandular circumference, its connection to median part of vagina wide. Parieto-vaginal rings (Fig. 7, Ap) relatively small, narrow, obviously separated, their anterior margins convex, their posterior margins concave, their outer margins acute, devoid of any prolongation, and their inner margins (ImAp) convex. No medial sclerites. Dorso-labiate plate (DLP) large, anterior and posterior margins slightly thickened. Ventro-labiate plate absent. Dorsal wall very slightly sclerotized. Vaginal projection *sensu* Rosenzweig (1997) and MiRs *sensu* Chérot (2002) absent. Vermiform gland indistinct. Lateral oviducts large, not conflating in a common dorsal sac, partially hiding in dorsal view the parieto-vaginal rings. Posterior wall membranous.

## Discussion

*Fulvius borgesii* n. sp. is easily separated from the other *Fulvius* species by its typical left paramere, with a small lobe on the ventral surface, by its very small right paramere, by its

endophallic sclerites and sclerotized area and by its large, strongly sclerotized theca. The habitus, the obviously asymmetrical parameres and endophallic structures separate the new species from all Afrotropical (Gorczyca, 2000), Oriental and Palaearctic species (Carvalho & Lorenzato, 1978; Kerzhner, 1988; Sadoska-Woda & Gorczyca, 2003, 2005; Yasunaga, 2000). These characters states are similar to those of several South or Central American species (Carvalho & Costa, 1994; Ferreira & Henry, 2002). *F. borgesii* n. sp. keys roughly to *F. dubius* or *F. satipoensis* “groups” in Carvalho & Costa’s (1994: 64–68) work; however, it differs from these species by the genital structures and by the bicolored metacoxa. This latter character state is similar to *Fulvius paranensis* Ferreira & Henry, 2002, an apparently closely related species. However, the secondary gonopore of *F. borgesii* is devoid of lateral elongated lobes (unlike *F. paranensis*), and its endophallus includes two sclerites and a sclerotized field absent in *F. paranensis*.

By its very asymmetrical parameres and sclerotized theca, *F. borgesii* n. sp. seems to belong to American fauna. In the Old World *Fulvius* species, the left and right parameres are frequently similar in dimensions (cf. for example Gorczyca, 2002, p. 14, Figs 1–8; Sadoska-Woda & Gorczyca, 2005, p. 15, Figs 2–3), *F. constanti* Gorczyca, 2004 and *F. thailandicus* Sadoska-Woda & Gorczyca, 2003 being exceptions (the habitus, theca, endophallic sclerites, and female genital structures separate these species from *F. borgesii* n. sp.). The theca are also more reduced. Unfortunately, in the present state of knowledge, it is practically impossible to assert more accurately the new species’s relationships within the genus *Fulvius* or its origin, even if an introduction is very likely.

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