

Taxonomic notes on *Callicentrus* Stål and description of new species (Hemiptera, Cicadomorpha, Membracidae) ¹

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ABSTRACT. The synonyms assigned to some species of *Callicentrus* Stål, 1869 are revised, resulting: for *Callicentrus bonasia* (Fabricius, 1775) and *Centrotus flavivitta* Walker, 1851 the respective synonyms are removed. The species *Centrotus aurifascia* Walker, 1851, *C. jucundus* Walker, 1851, and *C. platycerus* Walker, 1851 are reinstated in *Callicentrus*. Three new species are described, all from Jamaica: *Callicentrus delicatus* **sp. nov.**, *C. ramosi* **sp. nov.**, and *C. rubripes* **sp. nov.** All of the treated species are figured.

KEY WORDS. Auchenorrhyncha, Centrotinae, Homoptera, nomenclatural acts, taxonomy.

RESUMO. Notas taxonômicas em *Callicentrus* Stål e descrição de novas espécies (Hemiptera, Cicadomorpha, Membracidae). Os sinônimos assinalados para algumas espécies de *Callicentrus* Stål, 1869 são revistos, resultando: para *Callicentrus bonasia* (Fabricius, 1775) e *Centrotus flavivitta* Walker, 1851, os respectivos sinônimos são removidos. As espécies *Centrotus aurifascia* Walker, 1851, *C. jucundus* Walker, 1851 e *C. platycerus* Walker, 1851 são revalidadas em *Callicentrus*. Três espécies novas, todas da Jamaica, são descritas: *Callicentrus delicatus* **sp. nov.**, *C. ramosi* **sp. nov.** e *C. rubripes* **sp. nov.** Todas as espécies tratadas são figuradas.

PALAVRAS CHAVE. Atos nomenclaturais, Auchenorrhyncha, Centrotinae, Homoptera, taxonomia.

The genus *Callicentrus* was erected by STÅL (1869) to include *Centrotus ignipes* Walker, 1851 and *Centrotus flavivitta* Walker, 1851 within the subfamily "Centrotida". Afterwards, many other nominal species have been added to the genus, all from the Caribbean Islands (RAMOS 1979, 1990).

McKAMEY (1998) catalogued the genus in Nessorhinini Deitz, 1975, including 15 valid species, some of them with synonyms that have been erroneously assigned to by previous authors. About this, he stated (on pg. 11) "... require examination ... all the junior synonyms of *Callicentrus bonasia* (Fabricius) except *Centrotus aurifascia* Walker."

WALLACE & DEITZ (2004) published an important work on phylogeny and systematics of Centrotinae, with many and excellent illustrations; *Callicentrus ignipes* (Walker, 1851), the type species, is figured.

In the present paper, the synonyms were examined and, with aid of photographs from the type specimens, some were removed and others reinstated; three new species are also described.

Abbreviations. (BMNH) The Natural History Museum, London, UK; (DZUP) Departamento de Zoologia, Universidade Federal do Paraná, Curitiba, Brazil; (MZLU) Museum of Zoology, Lund University, Lund, Sweden; (ZMUC) Universitets Zoologisk Museum, Copenhagen, Denmark.

Callicentrus Stål, 1869

Callicentrus Stål, 1869: 290; McKamey, 1998: 216 (cat.); Wallace & Deitz, 2004: 212.

Type species: *Centrotus ignipes* Walker, 1851, by subsequent designation of Funkhouser, 1927.

Pyramba Buckton, 1903: 248; McKamey, 1998: 216 (cat.).

Type species: *Centrotus aurifascia* Walker, 1851, by monotypy.

Comments. STÅL (1869) described the genus in the subfamily "Centrotida" (soon after corrected to Centrotinae A. & S.), besides the scutellum be completely covered by pronotum. Two species were included, *Centrotus ignipes* Walker and *C. flavivitta* Walker.

BUCKTON (1903) created the genus *Pyramba* for a species he called *P. aurifascies*, commenting that it possibly could be identical with *Centrotus aurifascia* Walker.

McKAMEY (1998) considered *P. aurifascies* as a *nomen nudum* and *Centrotus aurifascia* Walker, 1851 the type species by monotypy.

DEITZ (1975) included *Callicentrus*, together with other centrotine genera, almost all, with scutellum concealed into the subfamily Nessorhininae. Currently, however, the nessorhinine genera went back to Centrotinae as before, but consisting in distinct tribe, Nessorhinini Deitz, 1975.

RAMOS (1979, 1990) re-characterized the genus and added eleven more new species, all from the Caribbean Islands (Dominican Republic and Jamaica).

Callicentrus bonasia (Fabricius, 1775)

Fig. 1

Membracis bonasia Fabricius, 1775: 677.

Callicentrus bonasia; McKamey, 1998: 216 (cat.).

Comments. In the MCKAMEY'S (1998) catalogue, five synonyms are included: *Smilia xanthographa* Germar, 1835, *Ceresa aculeata* Fairmaire, 1846, *Hemiptycha chilensis* Spinola, 1852, *Pyranthe frustratoria* Berg, 1883, and *Centrotus aurifascia* Walker, 1851. All these species, but the last, are from South America. The two species, respectively described by Spinola and Berg, will be treated in another paper. *Smilia xanthographa* and *Ceresa aculeata* do not belong in Nessorhinini; they are considered, provisionally, as valid species as in FUNKHOUSER (1927), *Sundarion xanthographa* (Germar, 1835) and *Ceresa aculeata* (Fairmaire, 1846). *Centrotus aurifascia* Walker is reinstated.

Material examined. "JAMAICA: St Andrew; 8 / km N Irish Town, 1000 m."; 1 female (MZLU).

A photograph of a syntype of *Membracis bonasia* Fabricius, 1775 (ZMUC).

Callicentrus aurifascia (Walker, 1851) sp. reval.

Fig. 5

Centrotus aurifascia Walker, 1851: 618; Broomfield, 1971: 333 (lectotype design.); McKamey, 1998: 216 (cat.) (= *C. bonasia* Fabricius, 1775) (error).

Comments. It is morphologically very similar to *C. bonasia*. The photographs, however, show the following differences: pronotum with yellow markings, one occupying great part of metopidium, and a stripe at each side of posterior process near scutellum. The tegmina are hyaline, infuscated along the costal margin to apical angle where it becomes gradually enlarged. In *C. bonasia* there is no yellow marking on metopidium. The lateral yellow stripe is similar. The tegmina are also hyaline but practically without darkening along costal margin.

In FUNKHOUSER (1927) it is catalogued as a good species, however, in METCALF & WADE (1965) and also in MCKAMEY (1998) it appears in synonymy of *C. bonasia*.

Material examined. "JAMAICA: St Andrew; 8 / km N Irish Town, 1000 m."; 1 male (MZLU).

Photograph of lectotype male of *Centrotus aurifascia* Walker, 1851 (BMNH).

Callicentrus cribratus (Walker, 1851)

Fig. 6

Centrotus cribratus Walker, 1851: 619.

Callicentrus cribratus; McKamey, 1998: 217 (= *Centrotus jucundus* Walker, 1851) (error).

Comments. MCKAMEY (1998) included *Centrotus jucundus*

Walker as its junior synonym. It is considered, however, different species based on the photographs of the type specimens (Figs 3 and 6). *Callicentrus cribratus* (Walker) is larger in size and also are the supra-humeral horns, more or less spatuliform. See comments under *C. jucundus* (Walker).

Callicentrus flavivitta (Walker, 1851)

Fig. 2

Centrotus flavivitta Walker, 1851: 617; Broomfield, 1971: 350 (lectotype design.).

Callicentrus flavivitta; McKamey, 1998: 217 (cat.).

Comments. Examining the photographs of both the type specimens, *Membracis bonasia* Fabricius and *Centrotus flavivitta* Walker, it can be seen that they belong to different species, though very closely related. *C. flavivitta* possesses strong and well recurved supra-humeral horns; in *C. bonasia*, on the other hand, the supra-humeral horns are shorter and only slightly recurved. *C. flavivitta* is also similar to *C. aurifascia* differing mainly by the tegmina almost hyaline.

Material examined. A photograph of lectotype female of *Centrotus flavivitta* Walker, 1851 (BMNH).

Callicentrus jucundus (Walker, 1851) sp. reval.

Fig. 3

Centrotus jucundus Walker, 1851: 620; Broomfield, 1971: 357; McKamey, 1998: 217 (cat.) (= *C. cribratus* Walker) (error).

Comments. *Callicentrus jucundus* (Walker) is currently considered as junior synonym of *C. cribratus* (Walker) (METCALF & WADE 1965, MCKAMEY 1998). It is, however, very different especially in the form of the supra-humeral processes. In *C. jucundus* the supra-humeral horns are more or less triangular with acute apex; in *C. cribratus* they are obtuse, somewhat widened distally, with apical posterior angle acutely pointed. The color of pronotum varies from black to tawny.

Material examined. "JAMAICA: St Andrew; 8 / km N Irish Town, 1000 m."; 1 male, 1 female MZLU.

Photographs of both holotypes of *Centrotus jucundus* Walker, 1851 (male) and *Centrotus cribratus* Walker, 1851 (female) (BMNH).

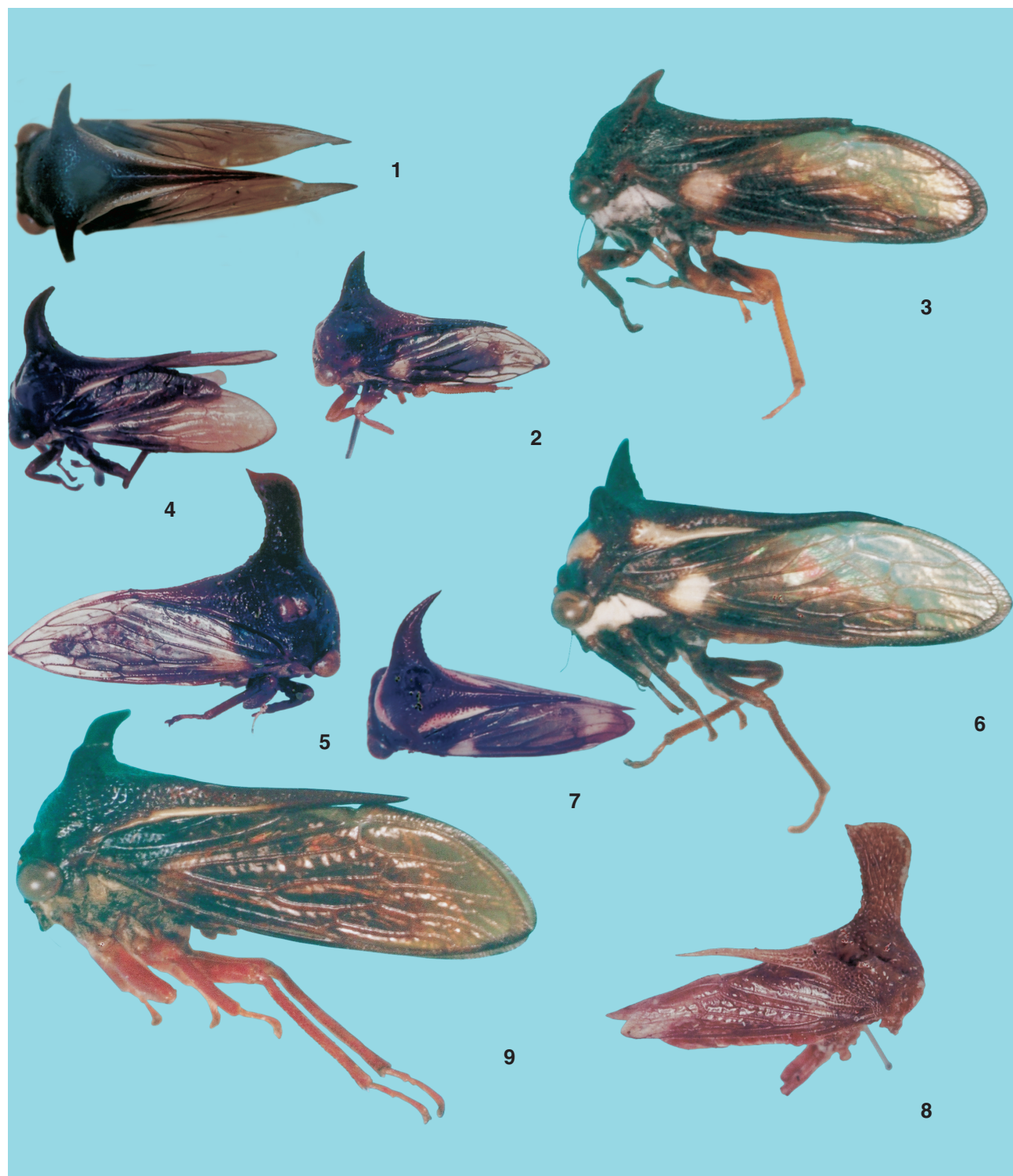
Callicentrus platycerus (Walker, 1851) sp. reval.

Fig. 4

Centrotus platycerus Walker, 1851: 618; Broomfield, 1971: 369; McKamey, 1998: 217 (cat.) (= *C. flavivitta* Walker) (error).

Comments. *Callicentrus platycerus* is quite similar to *C. cribratus* (Walker, 1851) having the supra-humeral horns little shorter and less expanded distally. Both species have no yellow stripes on lateral margins of pronotum. It has been erroneously considered synonym of *C. flavivitta* Walker.

Material examined. A photograph of the holotype female of *Centrotus platycerus* Walker, 1851 (BMNH).



Figures 1-9. (1) *Membracis bonasia*, syntype; (2) *Centrotus flavivitta*, lectotype male; (3) *Centrotus jucundus*, holotype male; (4) *Centrotus platycerus*, holotype female; (5) *Centrotus aurifascia*, lectotype male; (6) *Centrotus cribratus*, holotype female; (7) *Callicentrus delicatus* **sp. nov.**, holotype male; (8) *Callicentrus ramosi* **sp. nov.**, paratype female; (9) *Callicentrus rubripes* **sp. nov.**, holotype male.

Callicentrus delicatus sp. nov.

Fig. 7

Diagnosis. Castaneous-black; tegmina fuscous on basal half, along costal margin, and throughout apical limbus to apex of clavus, leaving a large hyaline oblique area near apex. Supra-humeral horns relatively short, triangular, and slightly recurved.

Measurements (in mm). Male. Total length 5.08; distance between apices of supra-humeral horns 2.32; distance between humeral angles 1.72; width of head 1.72.

Holotype male. Castaneous-black; legs, supra-humeral process, posterior process, underside of abdomen, yellowish-brown. Head, thorax, especially pleura, covered with pruinose hairs. Tegmina infuscated at basal half, along costal margin and throughout apical limbus to apex of clavus; an oblique transparent area near apex, and another small near base, through which are visible the pruinose hairs of metapleuron.

Head triangular, as wide as distance between humeral angles. Eyes globose and well produced. Vertex convex, punctured; superior margin sinuose, with a smooth callosity above each ocellus. Ocelli conspicuous, closer to eyes than to each other, located just above an imaginary line that passes through the center of eyes. Clypeus diamond-shaped, twice longer than wide, apex blunt, slightly curved forward. Rostrum relatively long, reaching metacoxae.

Pronotum roughly punctured. Supra-humeral processes short, triangular, slightly recurved, with posterior carina feebly serrate; distance between apices little more than the interocular width. Posterior process slender, aculate, longitudinally sulcate above lateral margins, terminating just beyond apex of clavus.

Tegmina entirely free, with two discoidal and five apical cells; one s, two r-m, and one m-cu cross-veins.

Female. Unknown.

Holotype male. "JAMAICA:S:t Andrew; 8 / km N Irish Town, 1000 m./ 8.VI.1989 leg. M. Sörensson / & B. Mårtensson" (MZLU). (The tip of posterior process is broken).

Comments. This new species is close to *C. bonasia* (Fabricius) and to *C. jucundus* (Walker), more to the last one because of lack of yellow maculae on pronotum, and short supra-humeral horns. *C. delicatus* sp. nov. differs by having the tegmina infuscated, except a large oblique area before apex hyaline.

Callicentrus ramosi sp. nov.

Fig. 8

Diagnosis. Castaneous-black with yellow maculae: two on metopidium and one on each side of posterior process. Tegmina hyaline with costal margins to apex slightly infuscated.

Measurements (in mm). Male/female. Total length 6.28/7.00; length of pronotum 4.32/5.20; distance between apices of supra-humeral horns 2.80/3.80; distance between humeral angles 2.24/2.48; width of head 2.24/2.48.

Holotype male. Similar to the preceding species, differing in the following characters: pronotum, thorax, and abdo-

men, castaneous-black; metopidium with two yellow maculae obliquely disposed, more or less in V; lateral margins of posterior process with yellow narrow stripe not attaining apex. Supra-humeral processes short; posterior carina micro-serrate.

Female. Similar to male; little larger in size. Yellow maculae on pronotum more evident and well defined. Supra-humeral horns more developed, the distance between apices about 2.5 times the interocular width.

Holotype male. "JAMAICA:S:t Andrew; 8 / km N Irish Town, 1000 m./ 8.VI.1989 leg. M. Sörensson / & B. Mårtensson" (MZLU). Paratypes: 1 male (DZUP) and 1 female with same label data (MZLU).

Comments. This is a delicate species, closely related to the preceding. The main differences are: metopidium with two yellow, oval, patches disposed more or less in V; posterior process also with yellow markings, in a form of narrow stripe along the margins, not reaching apex.

The species is dedicated to Dr. J. A. Ramos for his important taxonomic works on Membracidae, especially from the Caribbean Islands.

Callicentrus rubripes sp. nov.

Fig. 9

Diagnosis. Black to castaneous-black; posterior process slightly reddish; lateral margins with a narrow yellow stripe; tegmina entirely fuscous; legs reddish. Supra-humeral processes parallel-sided to near recurved apex.

Measurements (in mm). Male. Total length 8.00; length of pronotum 6.28; distance between apices of supra-humeral horns 4.08; distance between humeral angles 2.76; width of head 2.76.

Holotype male. Head, pronotum, thorax below, and abdomen, black, to castaneous-black. Posterior process reddish-castaneous, with a narrow yellow stripe on lateral margins from humeral angles to just beyond middle. Legs reddish, except pro- and mesocoxae. Tegmina entirely fuscous; membrane somewhat crumpled.

Pronotum with supra-humeral processes well developed, parallel-sided to near apex, then recurved and angulate; posterior carina serrate; distance between apices about 2.5 times the interocular width.

Female. Unknown.

Holotype male. "JAMAICA:S:t Andrew; 8 / km N Irish Town, 1000 m./ 8.VI.1989 leg. M. Sörensson / & B. Mårtensson" (MZLU).

Comments. This species is very different from the others. The supra-humeral horns are more developed, with apex abruptly recurved. The tegmina are completely darkened, and the membrane somewhat crumpled. The legs are red. The last two characters are similar to those of *C. ignipes* (Walker).

ACKNOWLEDGMENTS

My sincere thanks to Roy Danielsson for permitting the study of the membracids from the Lund Museum collection.

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Received in 07.IV.2005; accepted in 16.XI.2005.