First Record of the Subfamily Asiracinae and Copicerus irroratus (Hemiptera: Auchenorrhyncha: Delphacidae) in Colombia

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First record of the subfamily Asiracinae and *Copicerus irroratus* (Hemiptera: Auchenorrhyncha: Delphacidae) in Colombia

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In Colombia, studies on delphacid planthoppers (Hemiptera: Auchenorrhyncha: Delphacidae) have included only species of economic importance, namely, *Tagosodes orizicolus* (Muir) (Vélez 1997) and *Peregrinus maidis* (Ashmead) (Varón de Agudelo & Sarria Villa 2007). However, at least 17 additional delphacid species are known from the country (Table 1; all Delphacinae, Delphacini except *Saccharosydne saccharivora* [Westwood] in Saccharosydnini; Bartlett 2014; Bartlett et al. 2014; Kennedy & Bartlett 2014; Tri-trophic Thematic Collection Network [TTCN] 2014), and the actual delphacid fauna probably exceeds 100 species (70 species are known from Costa Rica and vicinity, with twice as many expected; Bartlett & Kunz 2015).

The subfamily Asiracinae Motschulsky includes 6 New World tribes, namely, Asiracini Motschulsky, Idiosystanini Emeljanov, Neopunanini Emeljanov, Platysystatini Emeljanov, Tetrasteirini Emeljanov, and Ugyopini Fennah, but has not been recorded from Colombia. New World Asiracini are *Asiraca* Latreille (1 species, *Asiraca germari* Metcalf) and *Copicerus* Swartz (4 species and 1 subspecies) (Metcalf 1943; Asche 1985; Barringer & Bartlett 2011; Bartlett 2014). Barringer & Bartlett (2011) provided keys to the New World genera of Asiracinae. Here, we report the first collection for Colombia of both the subfamily Asiracinae (Asiracini) and the species *Copicerus irroratus* Swartz.

Table 1. List of delphacid species reported for Colombia to date (sources: Bartlett 2014; Bartlett et al. 2014; Kennedy & Bartlett 2014; TTCN 2014).

Species
Caenodelphax teapae (Fowler, 1905)
Chionomus balboae (Muir & Giffard, 1924)
Chionomus havanae (Muir & Giffard, 1924)
Delphacodes arcuata Beamer, 1948
Delphacodes aterrima Muir, 1926
Delphacodes pacifica (Crawford, 1914)
Delphacodes saccharicola (Muir, 1926)
Flavoclypeus nigrifacies (Muir, 1918)
Metadelphax argentinensis (Muir, 1929)
Metadelphax propinqua (Fieber, 1866)
Peregrinus maidis (Ashmead, 1890)
Perkinsiella saccharicida Kirkaldy, 1903
Saccharosydne saccharivora (Westwood, 1833)
Sparnia praecellens Stål, 1862
Tagosodes cubanus (Crawford, 1914)
Tagosodes orizicolus (Muir, 1926)
Tagosodes wallacei (Muir & Giffard, 1924)
Toya idonea (Beamer, 1947)
Toya nigra (Crawford, 1914)

The study area is located in the Villamaría Municipality (5.045556°N, 75.515278°W; 451 km^2; 1,920 m asl), approximately 4 km from Manizales in the Caldas Department (Fig. 1). Villamaría presents a highly fragmented rural landscape with areas alternating between livestock and field and horticultural crops, such as fruits and vegetables (28,000 ha; Fig. 2). The selected study area includes a higher proportion of horticultural systems and medicinal herb cultivation (C. A. Llano & G. Guevara, personal observation).

A single female specimen of *Copicerus irroratus* Swartz, 1802 was found on leaves of *Sechium edule* (Jacq.) Swartz, 1800 (Cucurbitales: Cucurbitaceae) growing on riparian vegetation of a small agricultural microcatchment (Fig. 3). This specimen was collected using a standard sweep net and was deposited in the Laboratorio de Colecciones at Universidad de Caldas (Manizales, Colombia). Photographs (Figs. 4 and 5) were taken from the dry specimen under a light stereomicroscope equipped with a digital camera attachment. Diagnostic morphological terminology follows that of Asche (1985, 1990) and Bartlett et al. (2014).

Recognizing species of *Copicerus* is problematic, despite their distinctive appearance, as the genus has never been revised (Barringer & Bartlett 2011). *Copicerus* can be recognized as belonging to the Asiracinae (sensu Urban et al. 2010) by the spine-like (not flattened) calcar, lacking teeth along the posterior margin (Asche 1985, 1990; Emeljanov 1995); and to the tribe Asiracini by its large size (approx. 6+ mm) and very long, flattened, and foliaceous antennae extending beyond the apex of the mesonotum (e.g., Fig. 2; Barringer & Bartlett 2011). Except for the obscure *Asiraca germari* Metcalf, which is doubtfully placed in the genus *Asiraca* (see Barringer & Bartlett 2011), *Copicerus* is the only New World genus of Asiracini.

The *Copicerus* specimen from Colombia has features consistent with specimens and figures of those previously identified as *C. irroratus* (e.g., Asche 1985, Figs. 4, 105, 149, 186; Barringer & Bartlett 2011, Figs. 1B, 2B, 3B; Bartlett et al. 2014, Figs. 25A, 25E, 41A), and with photographs of the holotype obtained from the Museum of Evolution, Uppsala University, Sweden. *Copicerus irroratus* was described from Jamaica but has a range from northern South America (Ecuador, Guyana, Venezuela) to the mid-Atlantic states of the USA (Bartlett 2014; Bartlett et al. 2014).

A key to species of *Copicerus* is here provided based on photographs of types of *C. irroratus*, *Holotus obscurus* Guérin-Méneville (Museo di Zoologia di Napoli, Naples, Italy), *Copicerus swartzi* Stål (Swedish Mu-

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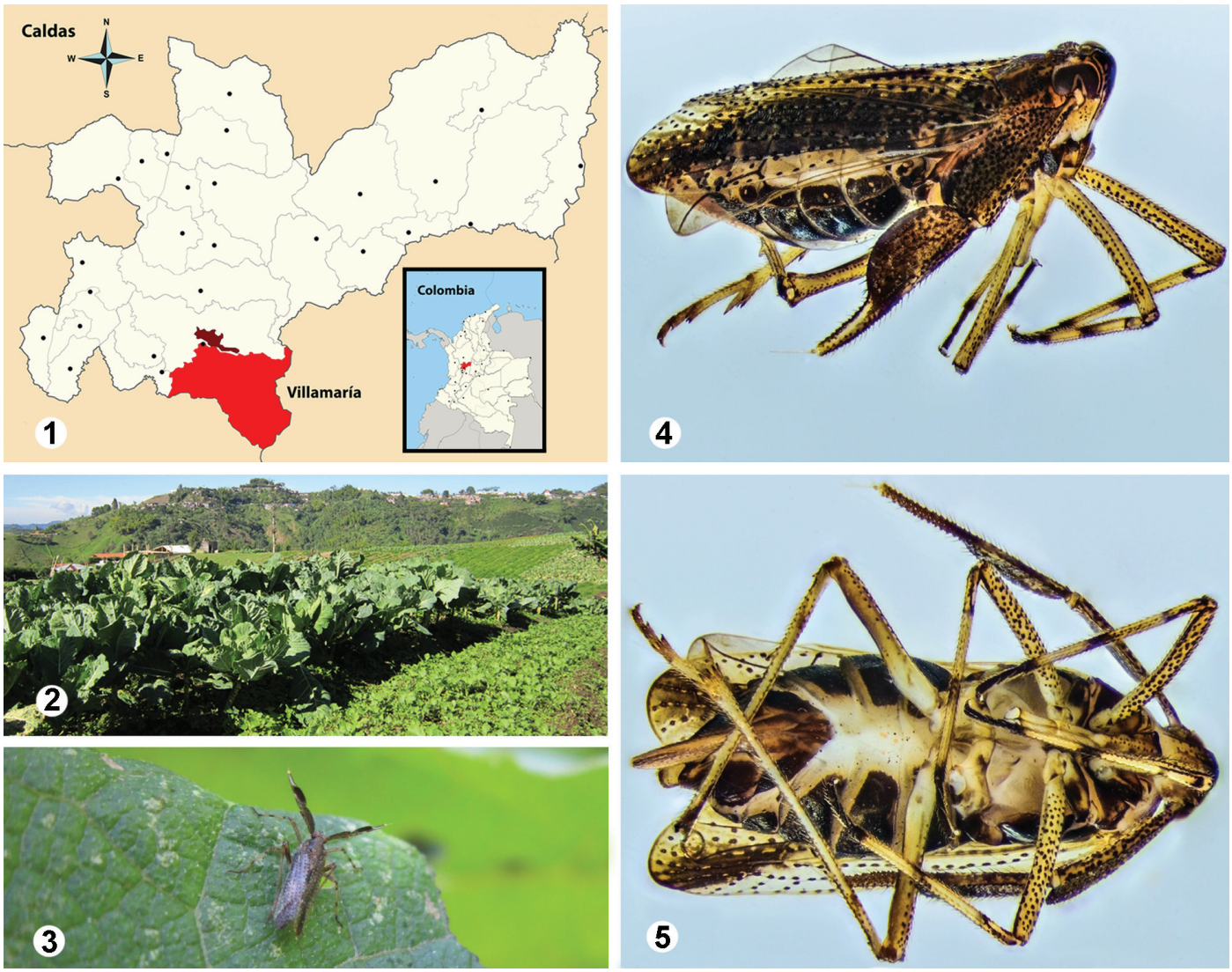

Figs. 1–5. Study area and insect photographs. 1. Location of the Villamaría Municipality in the Caldas Department, Colombia. 2. Photograph of the agricultural section of the study area. 3. *Copicerus irroratus* perched on a leaf of *Sechium edule*. 4. *Copicerus irroratus*, lateral view. 5. *Copicerus irroratus*, ventral view.

seum of Natural History, Stockholm, Sweden), and examination of the type specimen of *Asiraca insignicornis* Lethierry (Muséum National d'Histoire Naturelle de Paris, France). This key is preliminary because the diagnostic reliability of coloration in *Copicerus* has not yet been verified by genitalic dissections (only the genitalia of *C. irroratus* have been described; Asche 1985, Figs. 380, 401, 423, 435). Features of the type specimens will be documented in a revision of *Copicerus* that is currently underway.

Taxonomic Key to *Copicerus* Species

1.— Frons with 2 black transverse bands (or large dark patches), contrasted with tan or pale brown at frontoclypeal suture and between black bands (at lower margin of compound eye); mesothorax tan medially, dark brown laterally . . . . . *Copicerus swartzi* Stål

1'.— Frons variously brown speckled or dark dorsally and paler ventrally; mesothorax varied 2

2.— Prothorax often speckled brown and slightly to distinctly darker laterally; mesothorax bicolored, pale medially, darker laterally; frons variously speckled (sparsely to densely) . . . . . *C. irroratus* Swartz

2'.— Pro- and mesothorax uniformly colored (except mesoscutellum may be paler); frons uniformly colored or speckled 3

3.— Frons uniformly colored; scutellum of mesothorax pale . . . . . *C. obscurus* (Guérin-Méneville)

3'.— Frons sparsely speckled dorsally, uniformly pale below level of compound eyes . . . . . *C. insignicornis* Lethierry

The life histories of *Copicerus* species have never been investigated. Immatures are known (e.g., Bartlett 2014) but have not been investigated in vivo. Delphacids generally feed on graminoids (e.g., Poaceae, Juncaceae, and Cyperaceae), but some groups are associated

with dicots such as Asteraceae (Wilson et al. 1994; Urban et al. 2010). However, the Asiracinae are the basal branch of Delphacidae (Urban et al. 2010) with uncertain plant associations. Within the Asiracini, reliable host associations are available only for the widespread Palearctic species *Asiraca clavicornis* (F.), which is polyphagous on dicots (Wilson et al. 1994; Nickel 2003). Our observation of *C. irroratus* on *S. edule* is consistent with the notion that *Copicerus* may also be associated with dicots, but it is unclear whether *Copicerus* was feeding or transient on *Sechium*. No clear host association has otherwise been made for any *Copicerus* species; it was not included in the planthopper host compilation by Wilson et al. (1994), and only 3 of 106 *C. irroratus* specimens in the TTCN database (TTCN 2014) provide host associations (namely, *Carya* sp., Juglandaceae in USA: Mississippi; *Oryza sativa* L., Poaceae in Mexico: Durango; and *Poa*, Poaceae in USA: Pennsylvania), providing a conflicting picture of possible host associations.

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Summary

The planthopper subfamily Asiracinae (Hemiptera: Auchenorrhyncha: Delphacidae) and the species *Copicerus irroratus* Swartz are reported for the first time for Colombia from an agricultural landscape at the Andean region (Villamaría, Caldas). Relevant diagnostic and biological features of the species are discussed. A key to the species of *Copicerus* is also provided.

Key Words: Fulgoroidea; planthopper

Sumario

Se reporta por primera vez para Colombia un espécimen de la subfamilia Asiracinae (Hemiptera: Auchenorrhyncha: Delphacidae), *Copicerus irroratus* Swartz en un paisaje agrícola de la región Andina del país (Villamaría, Caldas). Se resaltan algunas características diagnósticas y biológicas de la especie. Adicionalmente, se propone una clave para las especies de *Copicerus*.

Palabras Clave: Fulgoroidea; saltahojas (cigarritas/chicharritas)

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