

A revision of *Euchilofulvius* (Heteroptera: Miridae: Cylapinae)

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Abstract. The Oriental genus *Euchilofulvius* Poppius is revised. New data concerning *Euchilofulvius tibialis* Poppius, the first description of the male and pictures of parameres are given. Two new species are described and illustrated: *Euchilofulvius heissi* and *E. zdzislawi*. A key to the species and a brief discussion on the systematic position of the genus are also provided.

INTRODUCTION

The genus *Euchilofulvius* Poppius, 1909 was erected for a single specimen collected on Mentawai Island, Indonesia. Hitherto only one species, *Euchilofulvius tibialis* Poppius, has been known and since Poppius' paper no new records on the genus and species have been published. All data on the genus were based on that female specimen described by Poppius and deposited in Museum of Natural History "Giacomo Doria" in Genova.

Material examined from the Tiroler Landesmuseum contained three specimens of *E. tibialis*: two females and one male collected in Malaysia and Brunei. There were also males from India and Sumatra representing two new species of the genus. The descriptions of the genus and species are given below.

Genus *Euchilofulvius* Poppius, 1909

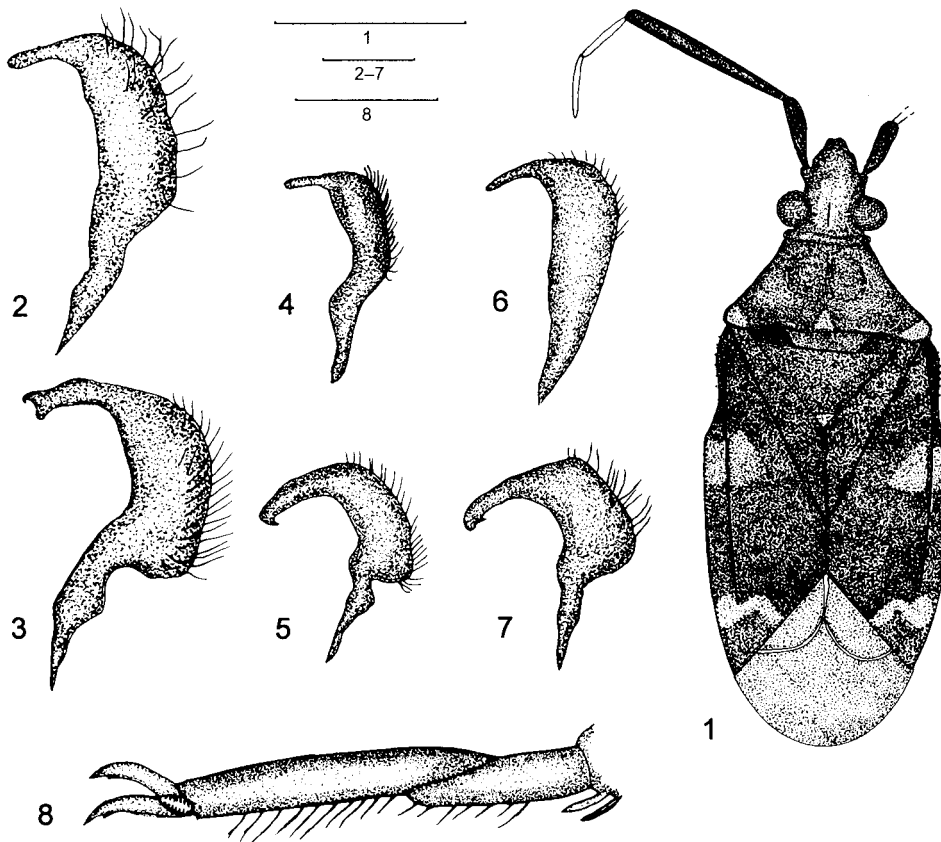
Euchilofulvius Poppius, 1909: 28; Reuter, 1910: 154; Bergroth, 1920: 74; Carvalho, 1952: 48, 1955: 19, 1957: 14, 1980: 643; Schuh, 1995: 25.

Type species: *Euchilofulvius tibialis* Poppius, 1909, original designation.

DIAGNOSIS. Differs from other representatives of Fulviini in the characteristic narrowed base of embolium (Fig. 1) with small tubercles, characteristically thickened metafemora, very short third and fourth antennal segments, characteristic translucent patches on hemelytra and legs, and dense, white, scale-like setae covering the body surface.

REDESCRIPTION. Small insects 2.8–4.6 mm, body flattened, smooth, elongated. Head triangular, horizontal, eyes relatively small in dorsal view, removed from pronotal collar, in lateral view elongated, reaching gula. Vertex sulcate or with depression in the middle. Antennae rather short, inserted on well developed antenniferous tubercles removed from margins of eyes. Second segment longest, almost as long as all other segments together, thickened at apex. Rostrum thin, bent, four-segmented.

Pronotum trapezoid, smooth, a little convex and raised posteriorly, humeral angles rounded, slightly raised, calli convex. Mesoscutum exposed or partly covered by



Figs 1-8. 1 - *Euchilofulvius tibialis*, female, dorsal habitus. 2, 4, 6 - right parameres. 3, 5, 7 - left parameres: 2-3 - *E. zdzislawi*; 4-5 - *E. tibialis*; 6-7 - *E. heissi*. 8 - *E. zdzislawi*, right hind tarsus. Scale bars: 1 - 1 mm; 2-8 - 0.1 mm.

pronotum, with curved, oblique carina on each side, scutellum flat. Ostiolar peritreme very small.

Hemelytra flat with characteristic white or translucent patches near where embolium widens and with W-like patch at base of cuneus. Embolium very narrow at base (Fig. 1), gradually widened towards cuneus, with small sclerotized tubercles of possible stridulatory function (Carvalho, 1980). Cuneal fracture slightly marked. Membrane well developed, single-celled, venation usually indistinct.

Legs with characteristic translucent or white patches near the apex of metafemora. Metafemora characteristically thickened from base to two thirds of length, then narrowed towards apex, with two or three visible trichobothria in the distal part. Metatibia long and covered with setae, some of which are scale-like. Setae of the same form cover the metafemora. Tarsi two segmented very slender, short, claws slender, toothed subapically (Fig. 8).

Genital segment covered with setae, parameres similar in all known species, right paramere slender with long, curved, apical process, left robust in middle part (Figs 2–7), both covered with setae. Aedeagus membranous, similar in all examined specimens.

Key to species

- 1 Body brown, antennae brown to pale brown, tibiae unicolorous, pale or brown 2
- Body dark brown to black, 1st and 2nd segments of antennae and the basal half of tibiae dark brown *E. tibialis* Poppius
- 2 Small insect no longer than 3.5 mm, parameres small (Figs 6, 7) *E. heissi* sp. n.
- Length of body more than 4.5 mm, parameres robust (Figs 2, 3) *E. zdzislawi* sp. n.

Euchilofulvius tibialis Poppius, 1909

Euchilofulvius tibialis Poppius, 1909: 28; Bergroth, 1920; Carvalho, 1952, 1957, 1980; Schuh, 1995.

DIAGNOSIS. The species can be easily distinguished by dark brown to black colour, white and very wide, scale-like setae, almost fused calli, the shape of parameres (Figs 4, 5) as well as the colour pattern on tibiae: proximal half dark brown to black, distal half pale.

REDESCRIPTION. Body dark brown to almost entirely black, covered with white, scale-like setae. Length: 3 mm male, 3.12–3.28 mm female; body width: 0.85 mm male, 1.2 mm female. Head triangular, covered with white setae, with longitudinal, distinct sulcus crossing vertex. Length 0.5 mm (seen from above), width 0.52 mm, the diameter of eye 0.13 mm, height of head 0.39 mm. Eyes rufous, elongated, reaching gula in lateral view. Rostrum dark brown, extending to mesocoxae, second segment pale, length of segments almost equal: 0.33 : 0.44 : 0.39 : 0.36 mm. First and second segment of antennae brown to dark brown, thickened gradually towards apex, sparingly covered with very short setae. Third and fourth segments pale and thin. Length of segments (in mm), female: 0.33–0.36 : 0.70–0.74 : 0.26 : 0.26–0.30, male: 0.40 : 0.95 (third and fourth segments broken).

Pronotum convex, dark brown to black with paler strip in the middle of the posterior margin and small paler patches in the posterior angles, covered with setae, calli almost fused. Length of pronotum 0.52 mm, anterior margin 0.40 mm, posterior margin 0.9 mm, lateral margins 0.54 mm. Mesoscutum and scutellum dark brown to black, covered with scale-like setae, scutellum with a small pale spot at apex.

Hemelytra brown to almost black, cuneus slightly paler, apex of clavus pale, membrane dark grey with pale venation; underside of body dark or red-brown.

Legs long, forecoxae darkened, meso- and metacoxae and trochanters pale, femora dark brown, tinged with red below, pale at base and with pale patches near the apex, metafemora with an additional bigger pale patch below, covered with setae and scale-like setae and bearing two long trichobothria. Tibiae with rows of short setae, the basal half dark brown to almost black, with small, pale patch at base, the rest pale. In male specimen there is a bigger pale area at base. Tarsi pale, slender, covered with setae, first segment very short.

Parameres small, right paramere very thin, left curved (Figs 4, 5).

TYPE MATERIAL EXAMINED. Holotype ♀: “holotypus”; “Mentawai, Si Oban IV–VIII, Modigliani 94”; “Museo Civ., Genova” [orange label]; “*Euchilofulvius tibialis* g. n. et sp” [handwritten, old label]; “*Euchilofulvius tibialis* sp. n. B. Poppius 1909” [handwritten but recent label]. In Museum of Natural History “Giacomo Doria”, Genova, Italy.

OTHER MATERIAL EXAMINED. 1 ♀: Malaysia, Pahang-Taman Neg, Kuala Terengganu, 5.iii.1995, leg. Heiss & Perner, in author's coll.; 1 ♀: Brunei – Muara, Bandar Seri Begawan, 10.v.1995, leg. Heiss, in Tiroler Landesmuseum, Innsbruck, Austria; 1 ♂: Malaysia, Penang, on *Hevea* sp., xi.1984, leg. Heiss in author's coll.

DISTRIBUTION. Indonesia: Mentawai Island; Brunei; Malaysia.

REMARKS. The holotype differs from other specimens from Brunei and Malaysia in colour which is brown to dark brown in the holotype and almost entirely black in other specimens, and by the slightly shorter first antennal segment: 0.33 mm in holotype and 0.36 mm in remaining females.

Euchilofulvius heissi sp. n.

DIAGNOSIS. This species is distinguished by its size and colour pattern, upwardly projecting calli which form two small cones as well as the shape of the parameres (Figs 6, 7).

DESCRIPTION. Male. Smallest known representative of the genus. Body elongate, brown with paler patches, bearing white scale-like setae. Body length 2.8–3 mm, width 0.8 mm. Head pale brown to dark brown, slightly paler before eyes, vertex medially depressed. Mandibular plate and clypeus rufous. Eyes relatively small in dorsal view. Length of the head 0.5 mm, width 0.44 mm, height 0.28 mm, diameter of eyes 0.13 mm. Rostrum pale to brownish, extending to metacoxae, first segment darker. First antennal segment brown, paler at base and apex, second entirely brown, thickened towards the apex, both bearing scale-like setae. Third and fourth segments pale, thin and very short. Length of antennal segments in mm: 0.39 : 0.78 : 0.23 : 0.35.

Pronotal collar and pronotum brown to dark brown. There are paler patches on the calli and on the posterior lobe of pronotum, contiguous with the posterior margin. Calli and the anterior lobe of pronotum raised distinctly. Length of pronotum 0.46 mm (excluding pronotal collar), anterior margin 0.39 mm, posterior margin 0.78 mm, lateral margins 0.52 mm. Mesoscutum partly covered by pronotum, rufous brown to dark brown, scutellum brown to dark brown, pale at the apex.

Hemelytra brown, with white patches, covered with white scale-like setae, clavus brown to dark brown, embolium pale, in central and distal part rufous with big white patch contiguous with cuneus. Cuneus rufous or rufous brown, pale at apex. Membrane dark grey, venation dark, indistinct.

Underside of body brown to reddish with paler genital capsule.

Pro- and mesocoxae brown, metacoxae pale; trochanters pale, femora pale brown to dark brown, paler and with a red patch at the apex, covered with short setae and scale-like setae. Tibiae white to pale brown with rows of short setae. Metafemora bearing two well-visible, long trichobothria. Tarsi pale, short.

Parameres pale, similar in size to *E. tibialis*, covered with long setae (Figs 6, 7).

Female unknown.

TYPE MATERIAL. Holotype ♂: India, Goa, Umg. Varca, 21.–24.ii.1994, Heiss. Paratype ♂: same data as holotype. Holotype in the Department of Entomology, Upper Silesian Museum, Bytom, Poland; paratype in Tiroler Landesmuseum, Innsbruck, Austria.

ETYMOLOGY. Named in honour of Ernst Heiss with cordial thanks for his help.

DISTRIBUTION. India. Known only from the type locality.

Euchilofulvius zdzislawi sp. n.

DIAGNOSIS. This species can be easily distinguished from the other representatives of the genus by its larger size, pale brown posterior lobe of pronotum as well as the shape and size of parameres (Figs 2, 3).

DESCRIPTION. Male. Body elongated, robust, almost entirely covered with white scale-like setae, ground colour brown with paler areas. Length of body 4.6 mm, width 1.6 mm. Head pale brown, only clypeus and mandibular plate darkened. Vertex brown, with longitudinal depression in the middle, with broad margin behind eyes. Length of the head 0.6 mm, width 0.62 mm, diameter of eye 0.2 mm, height of head 0.4 mm. Eyes large, occupying almost the entire extent of lateral sides of head. Rostrum thin, hardly reaching metacoxae, brown, only second segment pale. Antennae brown, first segment bearing scale-like setae, second covered with short, dense setae shorter than its diameter. First and second segments thickened, third and fourth very short and thin. Length of antennal segments in mm: 0.46 : 1.22 : 0.52 (3rd and 4th segment are deformed, so their length is given together).

Pronotal collar thin, pale brown, darkened on sides. Pronotum pale brown, strongly darkened on lateral sides of calli, with two small dark spots behind calli. Calli relatively small, not fused, posterior lobe of pronotum unicolored, pale brown. Length of pronotum 0.54 mm (excluding pronotal collar), anterior margin 0.44 mm, posterior margin 1.3 mm, lateral margins 0.78 mm. Propleuron very dark, almost black. Mesoscutum dark brown, scutellum dark brown with pale apex.

Hemelytra brown, clavus dark brown, darker than corium, covered with white shining setae; corium with pale patches. Embolium entirely pale brown tinged with red in distal part, cuneus red-brown, pale at apex. Membrane dark, venation paler, distinct.

Underside of body brown to dark brown.

Legs brown, forecoxae brown, slightly tinged with red, trochanter and the apex of forefemora paler, meso- and metacoxae, meso- and metatrochanters pale; tibiae brown, slightly paler at apex, metatibiae very long, with rows of setae and with scale-like setae, metafemora also bearing setae, scale-like setae and three well visible, short trichobothria. Tarsi short and slender (Fig. 8).

Parameres brown, covered with long setae, robuster than in other species (Figs 2, 3).

Female unknown.

TYPE MATERIAL. Holotype ♂: N Sumatra, Brastagi – Toba, 20.vii.1980, Heiss, housed in the Department of Entomology, Upper Silesian Museum, Bytom, Poland.

ETYMOLOGY. The species is dedicated to my father Zdzisław.

DISTRIBUTION. Sumatra. Known only from the type locality.

DISCUSSION. The genus *Euchilofulvius* belongs to the tribe Fulviini according to Carvalho (1957) who, in his catalogue, recognised three tribes within the subfamily Cylapinae: Bothriomirini, Cylapini and Fulviini. Now, it appears that at least the Fulviini are probably not monophyletic (Schuh, 1995) and the rank of the taxa is also questionable. Schmitz & Štys (1973) raised the tribe Fulviini to the subfamily level. In fact, at least two groups might be recognised within this tribe on the basis of tarsal morphology, pretarsal structure or characters of the genitalia (Gorczyca, in prep.). *Euchilofulvius* is probably allied to *Fulvius* and related genera which may be recognised, e.g., by the horizontal head and very characteristic tarsi (Fig. 8) but, as mentioned above, it differs from them in the

characteristically narrowed embolium with stridulatory structures of the forewing edge-hind femur mechanism. This type is most widely distributed in Heteroptera (Schuh & Slater, 1995) with stridulitrum on the margin of hemelytra and plectrum on metafemora.

Recently, a new genus of Cylapinae has been found from Madagascar (Gorczyca, in press) which has a similarly narrowed embolium with stridulatory mechanism, a similar form of parameres and is probably allied to *Euchilofulvius*. The new genus differs from *Euchilofulvius*, e.g., by the calli projecting upwards in the form of two very long pointed cones, claws not toothed subapically and markedly elongated head.

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