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On the *Euchilofulvius*-complex (*Heteroptera: Miridae: Cylapinae*)

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ABSTRACT. A new genus and species: *Euchilofulviella ernsti* gen. n. sp. n. is described and from Fiji. *Lepidofulvius* POPPIUS is proposed as a subgenus of *Euchilofulvius* Poppius, stat. nov. A key to the genera of *Euchilofulvius*-group, a key to the subgenera of *Euchilofulvius* as well as keys to the species of the subgenus *Euchilofulvius* s. str. and the genus *Schmitzofulvius* GORCZYCA are presented. *Euchilofulvius* (*E.*) *antennatus* sp. n. is described. Redescriptions of the genus *Euchilofulvius* POPP., *Euchilofulvius* (*Lepidofulvius*) *carinatus* (POPP.), comb. nov. and new localities of *Euchilofulvius tibialis* POPPIUS are given.

Key words: Entomology, taxonomy, *Heteroptera*, *Miridae*, *Cylapinae*, new genus, new species, new combination.

INTRODUCTION

In recent papers on *Euchilofulvius* POPPIUS two new species were described from India and Sumatra (GORCZYCA 1998a). Simultaneously, comparative notes on *Euchilofulvius* and *Schmitzofulvius* were presented because within the subfamily *Cylapinae* only these two genera have embolium narrowed at base and long metafemora thickened in the apical third with possibly stridulatory function (CARVALHO 1980; GORCZYCA 1998b). A similar mechanism has been found in *Lepidofulvius* POPPIUS. In his original paper POPPIUS (1913) gave an enigmatic diagnosis: the genus was close to *Euchilofulvius* but differed in the antennae, embolium and scutellum. In his key to the genera of *Miridae* of the World (CARVALHO 1955) gave different characters for *Lepidofulvius*: the length of rostrum and embolium narrowed at apex. Examination of the type of *Lepidofulvius*

2. Forefemora distinctly enlarged, eyes almost contiguous with pronotal collar, second antennal segment shorter than third and fourth together
 *Euchilofulviella* gen. n.
- . Forefemora similar to mesofemora, eyes removed from pronotal collar, second antennal segment longer than third and fourth together
 *Euchilofulvius* POPPIUS

Genus *Eucholofulvius* POPPIUS

Euchilofulvius POPPIUS, 1909: 28; Reuter, 1910: 154; BERGROTH, 1920: 74; CARVALHO, 1952: 48, 1955: 19, 1957: 14, 1980: 643; SCHUH, 1995: 25; GORCZYCA, 1988a: 93, 1998b: 8 (type species: *Euchilofulvius tibialis* POPPIUS, 1909, original designation).

DIAGNOSIS

It differs from other representatives of the group in the flat body, eyes slightly removed from pronotal collar, very short third and fourth antennal segments, claws toothed subapically, 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 a depression in the middle. Antennae rather short, inserted on well developed antenniferous tubercles removed from the margins of eyes. Second segment longest, almost as long as all other segments together, thickened at apex. Rostrum thin, bent.

Pronotum trapezoid, smooth, slightly convex and raised posteriorly, humeral angles rounded, slightly raised, calli convex. Mesoscutum exposed or partly covered by pronotum, with curved, oblique carina on each side, scutellum flat. Ostiolar peritreme very small.

Hemelytra flat with characteristic white or translucent patches near the point where embolium widens and with W-like patch at base of cuneus (fig. 1). Embolium very narrow at base, gradually widened towards cuneus, with small sclerotized tubercles of possibly 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 their 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. Similar setae cover metafemora. Tarsi two-segmented very slender, short, claws slender, toothed subapically.

Genital segment covered with setae, parameres similar in all known species, right paramere slender with a long, curved, apical process, left robust in the middle part both covered with setae; aedeagus membranous.

KEY TO SUBGENERA OF *EUCHILOFULVIUS* POPPIUS

1. Second antennal segment thin in two thirds, distinctly thickened towards the apex *Lepidofulvius*
- Second antennal segment thick at base and gradually thickened towards the apex *Euchilofulvius*

Subgenus *Euchilofulvius* s. str.

Type of subgenus: *Euchilofulvius tibialis* POPPIUS, 1909

DIAGNOSIS

Second antennal segment gradually thickened towards the apex (fig. 1), the posterior margin of pronotum shorter than or equal to the second antennal segment.

KEY TO SPECIES OF THE SUBGENUS *EUCHILOFULVIUS*

1. Body brown, antennae brown to pale brown, tibiae unicoloured, pale or brown 2.
- Body dark brown to black, 1st and 2nd segments of antennae and the basal half of tibiae dark brown *tibialis* POPPIUS
2. Small insects no longer than 3.5 mm, corium and embolium pale at base 3.
- Length of body more than 4.5 mm, corium and embolium brown at base *zdzislawi* GORCZYCA
3. Scutellum pale at apex and with longitudinal, pale stripe, second antennal segment distinctly longer than the posterior margin of pronotum *antennatus* sp. n.
- Scutellum pale at apex without longitudinal stripe, second antennal segment almost equal to the posterior margin of pronotum *heissi* GORCZYCA

***Euchilofulvius (Euchilofulvius) antennatus* sp. n.**

DIAGNOSIS

The new species is similar to *E. heissi* but can be distinguished by darker pronotum, scutellum with short, pale, longitudinal stripe and the long second antennal segment.

DESCRIPTION

Male. Body pale brown with paler and reddish areas; length of the body 2.6 mm, width 0.90 mm. Head brown, unicoloured, slightly paler before the eyes, only mandibular and maxillary plates tinged with red. Vertex with a longitudinal sulcus in the middle. Length of head 0.52 mm, width 0.46, diameter of eye 0.13 mm. Antennae dark brown, unicoloured, covered with dense, short, pale setae. Length of antennal segments in mm: 0.41: 1.00 (remaining segments broken). Rostrum invisible in the examined specimen.

Pronotum brown, unicoloured, paler along the posterior margin and slightly paler on calli. Length of pronotum 0.46 mm, anterior margin 0.35 mm, lateral margins 0.44 mm, posterior margin 0.78 mm. Mesoscutum and scutellum brown, scutellum pale at apex and with a short, pale, longitudinal stripe.

Hemelytra brown with pale and red patches, clavus brown with pale claval vein in the middle, embolium pale brown, red in the second half. Cuneus brown, tinged with red, pale at apex. Corium pale brown, with translucent patches typical of the genus. Membrane dark grey, venation indistinct.

Underside of the body dark brown, abdomen chestnut, coxae brown, white at apex. Forefemora brown, pale at apex, with a red patch in the apical part. Foretibiae brown, tinged with red. Remaining legs broken in the examined specimen.

Female unknown.

TYPE MATERIAL

Holotype (male): Coll. R. I. Sc. N. B., Sulawesi Utara, Dumoga - Bone Nat. Park, subcamp Barney's (300), 7-XI-1985, Station; 085; Project Wallace, leg. R. BOSMANS & J. VAN STALLE, I. G. n: 26.977; *Fulvius* STÅL, JMC CARVALHO det. 1987. Housed in the Institut Royal des Sciences Naturelles de Belgique, Brussels, Belgium.

DISTRIBUTION

Indonesia: Sulawesi, Utara.

Euchilofulvius (Euchilofulvius) heissi GORCZYCA

Euchilofulvius heissi GORCZYCA, 1998a: 96.

TYPE MATERIAL EXAMINED

Holotype (male): India. Goa, Umg. Varca, 21-24. 2. 94, HEISS; holotype [red label]; *Euchilofulvius heissi* sp. n. det. J. GORCZYCA, 1997; paratype (male): same data as holotype. Holotype in the Department of Natural History, Upper Silesian Museum, Bytom, Poland; paratype in the Tiroler Landesmuseum, Innsbruck, Austria.

Distribution: India: Goa.

***Euchilofulvius (Euchilofulvius) tibialis* POPPIUS**

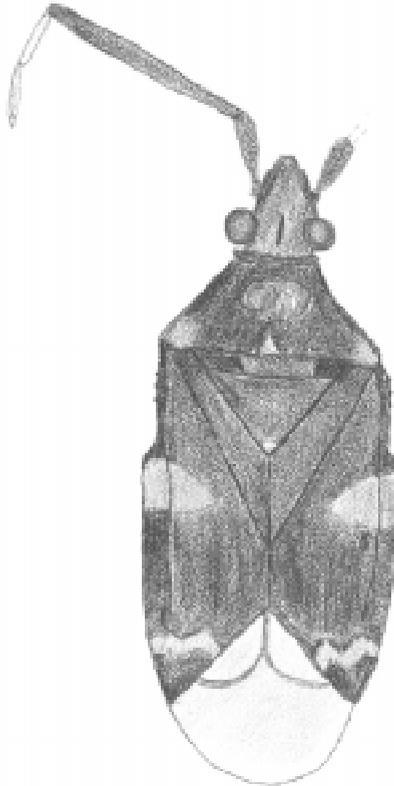
Euchilofulvius tibialis POPPIUS, 1909: 28; BERGROTH, 1920; CARVALHO, 1952, 1957, 1980; SCHUH, 1995; GORCZYCA, 1998a: 95.

TYPE MATERIAL EXAMINED

Holotype (female): 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

One female: Malaysia 95, Pahang-Taman Neg, Kuala Terengganu, 5 III, leg. HEISS + PERNER, *Euchilofulvius tibialis* POPP., det. J. GORCZYCA; in author's coll.; one female: Brunei - Muara, Bandar Seri Begawan, 10. 5. 95, leg. HEISS; *Euchilofulvius tibialis* POPP. det. J. GORCZYCA, 1997; in Tiroler Landesmuseum,



1. *Euchilofulvius tibialis* POPPIUS - female, dorsal habitus

Innsbruck, Austria; one male: Malaysia, Penang an sp. XI 84, leg. HEISS; *Euchilofulvius tibialis* POPP., det. J. GORCZYCA; in author's coll.; two males: North Borneo (SE), Forest Camp, 19 km N. of Kalabakan, 60 m, 16. XI. 1962; Y. HIRASHIMA, Malayse Trap, Bishop; male: N. Borneo: Tawau, Quoin Hill, Forest Camp 1, 3-5 km WSW of Cocoa Res. Sta., 9-20. VII. 1962; Y. HIRASHIMA, Collector, Bishop; male: Borneo (Brit. N.), Sandakan Bay (SW), Sapagaya Lumber, Camp 2-20 m. XI - 6 - 57; J. L. GRESSITT, Light Trap, Bishop Museum. One male in author's collection, the rest in the Department of Entomology Collection, Bernice P. Bishop Museum, Honolulu, HI USA; male: Thailand, Suratthani Prow. Nat. Park Khao Sok; 40 km NW of Takuapa, 3-18. XI. 1995, M. MOSTOVSKI leg.; at light, in author's collection; two males: 125 W m. v. light; Brunei: Temburong District, ridge NE of Kuala Belalong. In the Natural History Museum, London, England.

Distribution: Indonesia: Mentawai Island; Brunei; Malaysia; Thailand.

***Euchilofulvius (Euchilofulvius) dzislawi* GORCZYCA**

Euchilofulvius dzislawi GORCZYCA, 1998a: 97.

TYPE MATERIAL EXAMINED

Holotype (male): N - Sumatra, Brastagi - Toba 20 VII 80 Heiss, holotype [red label]; *Euchilofulvius dzislawi* sp. n. det. J. GORCZYCA, 1997. Housed in the Department of Natural History, Upper Silesian Museum, Bytom, Poland.

Distribution: Sumatra.

Subgenus *Lepidofulvius* POPPIUS, stat. nov.

Lepidofulvius POPPIUS, 1913: 243; BERGROTH, 1920: 75; CARVALHO, 1952: 48, 1955: 19, 1957: 20; SCHUH, 1995: 30 (type of subgenus: *Lepidofulvius carinatus* POPPIUS).

DIAGNOSIS

Differs from *Euchilofulvius* s. str. in the second antennal segment thickened in the apical third (fig. 2.), and the posterior margin of pronotum longer than the second antennal segment.

***Euchilofulvius (Lepidofulvius) carinatus* (POPPIUS), comb. nov.**

Lepidofulvius carinatus POPPIUS, 1913: 245; BERGROTH, 1920: 75; CARVALHO, 1952: 48, 1957: 20; SCHUH, 1995: 30.

DIAGNOSIS

One species of the subgenus.

REDESCRIPTION

Body brown with paler patches, length of the body 3.12 mm, width 1.00 mm. Head brown seen from above, reddish brown from sides, vertex with a longitudinal sulcus in the middle. Length of head 0.54 mm (seen from above), width 0.49, diameter of eye 0.13 mm. First antennal segment pale brown, covered with fine, pale setae, second segment pale brown in two thirds then thickened and darkened towards the apex, covered with dense, short setae. Third and fourth segments thin, pale brown, covered with setae (deformed in the examined specimen). Length of antennal segments in mm: 0.33: 0.88: 0.44 (third and fourth together). First segment of rostrum pale, shorter than the length of head from sides, second segment pale, remaining segments not visible in the examined specimen.



2



3



4

2. The first and second antennal segments of the *Euchilofulvius (Lepidofulvius) carinatus* (POPP.); 3. *Schmitzofulvius bigibber* GORCZYCA - holotype, head and pronotum in lateral view; 4. *Euchilofulviella ernsti* sp. n. - metatarsi

Pronotal collar pale brown, pronotum dark brown, paler on calli and along the posterior margin. There are two raised, paler bands connecting calli and the posterior margin of pronotum. Length of pronotum (including pronotal collar) 0.52 mm, the anterior margin 0.41 mm, the lateral margins 0.57 mm, the posterior margin 0.96 mm. Mesoscutum and scutellum chestnut, scutellum pale at apex.

Hemelytra pale brown with pale and reddish patches, clavus pale brown, translucent patches on corium typical of the genus. Embolium pale brown, tinged

with red in the distal part, cuneus reddish, pale at apex, membrane pale grey, venation indistinct.

Underside of the body brown with red and pale areas. Coxae brown, white at apex, femora reddish brown paler at apex, tibiae pale brown, covered with rows of short setae. Tarsi pale, subapical tooth distinct.

TYPE MATERIAL EXAMINED

Holotype (female): Ceylon: Paradeniya., 14-18. XII 1910, A. LUTHER; *Lepidofulvius carinatus* n. gen et sp. [handwritten on old label], B. POPPIUS det.; holotypus [pink label]; Mus. Zool. H:fors, Spec. typ No 9985, *Lepidofulvius carinatus* POPP.; Mus. Zool. Helsinki, Loan No. HE 4434. Housed in the Zoological Museum of University of Helsinki, Finland.

DISTRIBUTION

Sri Lanka.

Euchilofulviella gen. n.

Type species: *Euchilofulviella ernsti* sp. n.

DIAGNOSIS

It can be distinguished from the other genera of this group by the shape of the body, eyes almost contiguous with pronotal collar, thin, long antennae, body covered with common, not scale-like setae, the distinctly enlarged forefemora and claws characteristically curved subapically (fig. 4).

Gender: feminine.

DESCRIPTION

Body stout, covered with short setae. Vertex with a short, longitudinal sulcus in the middle, eyes almost contiguous with pronotal collar. Antennae inserted on tubercles, removed from the margins of eyes. Antennae thin, covered with short setae, second antennal segment shorter than third and fourth together. Rostrum thin, reaching abdomen.

The anterior lobe of pronotum convex, calli almost fused, separated only by a thin, longitudinal sulcus, the humeral angles of pronotum elevated, the posterior margins with an incision. Mesoscutum well exposed, scutellum flat.

Paler or translucent patches on corium are not distinct, they are placed at base, in the middle and the largest white patch, above the cuneus. Cuneus short, clavus with rib-like vein, venation well marked, minor cell invisible.

Forefemora enlarged, metafemora slightly thickened in the apical third, bearing long trichobothria and with a translucent patch in the apical part. Tarsi two-segmented, claws curved and toothed subapically (fig. 4).

Euchilofulviella ernsti sp. n.

ETYMOLOGY

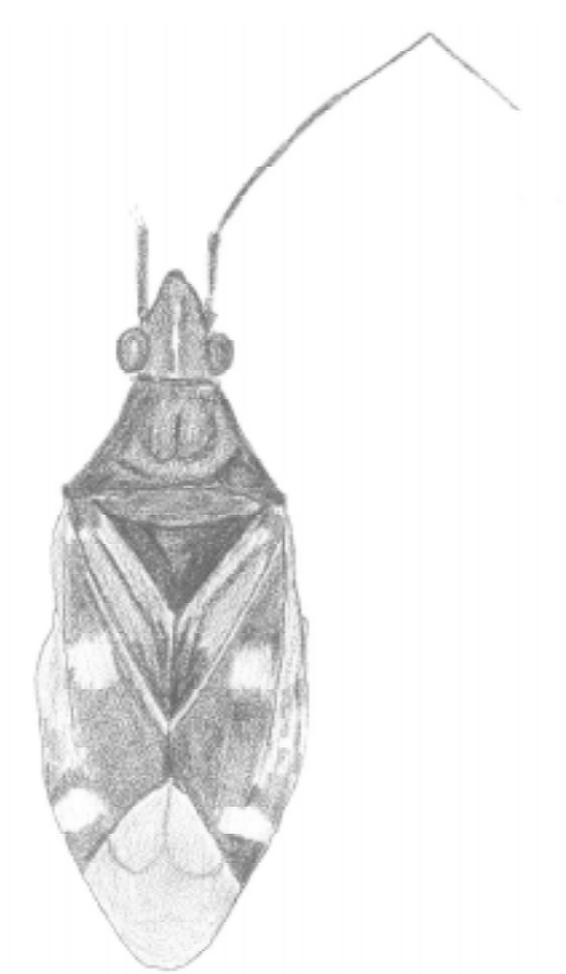
This species is named in honour of Dr. Ernst HEISS (Tiroler Landesmuseum, Innsbruck, Austria).

DIAGNOSIS

See the genus.

DESCRIPTION

Female. Body elongated oval (fig. 5), brown and dark brown; length of the body 3.12 mm, width 1.3 mm. Head dark brown with a paler, longitudinal stripe



5. *Euchilofulviella ernsti* sp. n. - holotype, dorsal habitus

crossing vertex and frons. Clypeus and mandibular plate with small, paler patches. Length of head 0.54 mm, seen from above, width 0.49 mm, diameter of eye 0.13 mm. First antennal segment pale brown, slightly tinged with red at apex, sparingly covered with short setae, second segment thin, slightly thickened towards the apex, dark brown, slightly paler at apex and base, covered with dense, short setae. Third and fourth segments very dark, almost black, thin, covered with dense, pale setae. Length of antennal segments in mm: 0.39: 0.94: 0.47: 0.65. Rostrum thin, brown, not well visible in the examined specimen.

Pronotal collar thin, tinged with red, pronotum dark brown, paler on calli and slightly paler along the posterior margin. Length of pronotum (including pronotal collar) 0.57 mm, the anterior margin 0.46 mm, the lateral margins 0.65 mm, the posterior margin 1.00 mm. Mesoscutum and scutellum dark brown.

Clavus dark brown at base and apex, paler in the middle, claval vein tinged with red. Corium dark brown, covered with short, dark setae, cuneus almost black.

Underside of the body dark brown, fore- and mesofemora dark brown at base then paler tinged with red at apex. Metafemora dark brown at apex, fore- and mesotibiae pale brown, unicoloured, metatibiae paler at base, tarsi pale brown.

Male unknown.

TYPE MATERIAL

Holotype (female): Fiji, Viti Lewu, Sigatoka, 18 XI 89 HEISS. In author's collection.

DISTRIBUTION

Fiji.

Schmitzofulvius GORCZYCA

Schmitzofulvius GORCZYCA, 1998b: 8 (type species: *Schmitzofulvius bigibber* GORCZYCA, original designation)

DIAGNOSIS

Can be distinguished from the other genera of the *Euchilofulvius*-complex in eyes distinctly removed from pronotal collar, cone-like calli (fig. 3) and claws without subapical tooth.

KEY TO THE SPECIES OF *SCHMITZOFULVIUS*

1. Body brown, cone-like cali projecting upwards *bigibber* GORCZYCA
- . Body dark brown almost black, cone-like calli projecting backwards
..... *niger* GORCZYCA

***Schmitzofulvius bigibber* GORCZYCA**

Schmitzofulvius bigibber GORCZYCA, 1998b: 7, 10.

Type material examined: Holotype (male): Analamasotra pr. Perinet, Madag. OLSUFI 'EV(a) [Олсуфьева], XI. (1)930; holotypus; *Leptofulvius* g.n. *bigibber* sp. n., symbol of male [handwritten], G. SCHMITZ det. 1970; holotype; *Schmitzofulvius bigibber* gen. n. sp. n., det. J. GORCZYCA, 1997. Housed in the Zoological Institute RAS, St. Petersburg, Russia.

Distribution: Madagascar.

***Schmitzofulvius niger* GORCZYCA**

Schmitzofulvius niger GORCZYCA, 1998c: in press.

Type material examined: Holotype (male): Holotypus [pink label]; Yangambi, 1952, C. DONIS, z. 1717; coll. R. MAYNE, com. et. Bois Congo, r. 2421; coll. Mus. Congo, Don R. MAYNE; *Fulvius evectus* sp. n. [handwritten], G. SCHMITZ det. 1970; holotype [red label]; *Schmitzofulvius niger* sp. n., det. J. GORCZYCA, 1997. Housed in the Musee Royal de l'Afrique Centrale, Tervuren, Belgium.

Distribution: Zaire.

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