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Notes on the genus *Fulvius* STÅL from the Oriental Region and New Guinea (Heteroptera: Miridae: Cylapinae)

JACEK GORCZYCA

Department of Zoology, University of Silesia, Bankowa 9, 40-007 Katowice, Poland, e-mail:
gorczyca@us.edu.pl

ABSTRACT. A new species *Fulvius pallens* is described, redescriptions and new records of *Fulvius bifenestratus* POPPIUS, *Fulvius dimidiatus* POPPIUS and *F. nigricornis* POPPIUS are given, and new localities of *F. anthocoroides* (REUTER) and *F. bimaculatus* POPPIUS are recorded. The records of *F. nigricornis* POPPIUS from Papua New Guinea referred in fact to another, undescribed species. *Cylapinae* are reported from continental China for the first time. Illustrations of the parameres and tarsi of the species are given.

Key words: entomology, taxonomy, new species, *Fulvius*, *Cylapinae*, *Miridae*, *Heteroptera*, Oriental Region, New Guinea.

INTRODUCTION

Fulvius STÅL is the most speciose and widely distributed genus within the subfamily Cylapinae. Many species of *Fulvius* occur in the Neotropical, Afrotropical and Oriental Regions (CARVALHO & COSTA 1994, SCHUH 1995, GORCZYCA 2000). An analysis of the type material of *Fulvius nigricornis* POPPIUS, *F. dimidiatus* POPPIUS and *F. bifenestratus* POPPIUS, deposited in the collections listed below, made a redescription of these species possible. On the basis of other specimens found in these collections new records of the species as well as of *F. anthocoroides* (REUTER) and *F. bimaculatus* POPPIUS are provided. The records of *F. anthocoroides* from Hong Kong are the first published localities of Cylapinae from continental China. Among the material deposited at the Natural History Museum in London and the Museum in Leiden, specimens representing a new species of the genus *Fulvius* were found. Its description is given below.

ACKNOWLEDGEMENTS

I would like to express my sincere thanks to Valter RAINERI (Museum of Natural History "Giacomo Doria", Genova, Italy) for the loan of the type material of *Fulvius dimidiatus* POPPIUS, *Fulvius bifenestratus* POPPIUS, *Fulvius bimaculatus* POPPIUS and *Fulvius nigricornis* POPPIUS; Karin Kami and Gordon NISHIDA (Department of Entomology Collection, Bernice P. Bishop Museum, Honolulu, HI USA); Tamas VÁSÁRHELYI (HNHM); Patric GROOTAERT (IRSNB); Ugo DALL'ASTA (Musée Royal de l'Afrique Centrale, Tervuren, Belgium); Mick WEBB (the Natural History Museum, London, England); Jan VAN TOL (Nationaal Natuurhistorisch Museum, Leiden, the Netherlands); Larry HULDEN (ZMHU) and Nils Mollar ANDERSEN (Zoological Museum, University of Copenhagen, Denmark) for the loan of specimens and to Ernst HEISS (Tiroler Landesmuseum, Innsbruck, Austria) who kindly put his collection of Cylapinae at my disposal.

ABBREVIATIONS

BPBM - Department of Entomology Collection, Bernice P. Bishop Museum, Honolulu, HI USA;

BMNH - Natural History Museum, London, England;

HNHM - Hungarian Natural History Museum, Budapest, Hungary;

IRSNB - Institut Royal des Sciences Naturelles de Belgique, Bruseles, Belgium;

JGC - author's collection;

MCSN - Museo Civico di Storia Naturale, Genova, Italy;

MRAC - Musée Royal de l'Afrique Centrale, Tervuren, Belgium;

RNH - Nationaal Natuurhistorisch Museum, Leiden, the Netherlands

TLI - Tiroler Landesmuseum, Innsbruck, Austria;

ZMC - Zoological Museum, University Copenhagen, Denmark;

ZMHU - Zoological Museum, Helsinki University, Finland.

TAXONOMY

***Fulvius anthocoroides*-group**

The species of this group are small, elongate, with eyes usually contiguous with pronotal collar and antennae inserted on tubercles contiguous with the margin of eye. First antennal segment is relatively short, shorter than the width of head in top view, hemelytra paler at base, with a pale patch above cuneus; legs relatively short, tarsi short, two-segmented, claws toothed subapically (Fig. 11), left paramere elongate, right paramere with thin apical processes (Figs 2, 4, 6, 8).

REMARKS

Because the systematic position of *F. tagalicus* POPPIUS is at present unclear, this species is not included in this group.

KEY TO THE ORIENTAL SPECIES OF *ANTHOCOROIDES*-GROUP

1. Basal part of hemelytra brown, only occasionally slightly paler than corium, second antennal segment dark only occasionally slightly paler at apex
..... *Fulvius nigricornis* POPPIUS
- Basal part of hemelytra pale 2
2. Apical third of the second antennal segment pale
..... *Fulvius anthocoroides* (REUTER)
- Only apex of the second antennal segment pale 3
3. Distal part of hemelytra dark brown, distal part of embolium only slightly tinged with red, without a red patch above cuneus
..... *Fulvius dimidiatus* POPPIUS
- Distal part of hemelytra pale, only slightly tinged with brown, a red patch above cuneus usually present *Fulvius pallens* n. sp.

***Fulvius anthocoroides* (REUTER)**

Teratodella anthocoroides REUTER, 1875: 8.

Teratodella anthocoroides: REY, 1888: 108; ATKINSON, 1890: 30; KERZHNER & SCHUH, 2001: 269.

Fulvius brevicornis: REUTER, 1895: 135, 138, 1905: 28; POPPIUS, 1909: 30; DISTANT, 1910: 293; POPPIUS, 1912: 168, 1913: 243, 1915: 50; BERGROTH, 1920: 75; IZZARD, 1936: 587; HUSSEY, 1954: 19, 20, 21; CARVALHO, 1955: 222, 1956: 6; 1957: 16; ODHIAMBO, 1967: 1665; CARVALHO & GAGNE, 1968: 153; LINSLEY, 1977: 13; MEDLER, 1980: 94; Schuh, 1995: 27; GORCZYCA, 1997: 563; KERZHNER & SCHUH, 2001: 269.

Fulvius samoanus KNIGHT, 1935: 203.

Teratodella brevicornis: COBBEN, 1968: 160.

Fulvius anthocoroides: WHEELER, 1977: 589; HENRY & WHEELER, 1988: 271; MIYAMOTO & YASUNAGA, 1989: 158; CARVALHO & COSTA, 1994: 65, 74; CASSIS & GROSS, 1995: 148; KERZHNER & JOSIFOV, 1999: 8; GORCZYCA, 2000: 53, 64, 65; YASUNAGA, 2000: 189; CHÉROT et al., 2001: 189; KERZHNER & SCHUH, 2001: 269.

TYPE MATERIAL EXAMINED

Lectotype, male (designated by GORCZYCA 2000): Rouen [handwritten]; *Fulvius brevicornis* REUTER, Typ ! [handwritten]; Mus. Zool. H:fords, Spec. typ. No 9989, *Fulvius brevicornis* REUT [handwritten]; Mus. Zool. Helsinki, N:o 18155, vid. prep. microscop. 673-71; paratypus [pink label]; Lectotypus *Teratodella anthocoroides* design. KERZHNER (ZMHU). Prep. Mus. Congo; *Fulvius brevicornis* REUTER, Type, genitals n. 6737 (ZMHU). Paralectotype (male): Rouen [handwritten, old label]; paratypus [typed], Paralectotypus [handwritten, both written on pink label]; G. SCHMITZ det. 1967, *Fulvius brevicornis* REUTER [handwritten] (MRAC).

OTHER MATERIAL EXAMINED

Female: Seychelles, Mt. Flenri; Mahe, 29: XII 1971, P.J.L. ROCHE; female: Seychelles, Mt. Flenri; Mahe, 14: XI 1971, P.J.L. ROCHE; male: Seychelles, Mt.

Flenri; Mahe, 20: XII 1971, P.J.L. ROCHE; two males: Coll. Mus. Tervuren, Cote d'Ivoire: Bingerville, VIII. 1962, J. DECELLE; *Fulvius brevicornis* Reut., G. SCHMITZ det. 1970; male: Coll. Mus. Congo, Llbondaie, Rev. STEGALL, 1949; *Fulvius brevicornis* REUT., G. SCHMITZ det. 1970; female: Legon, Ghana, 14. VII. 70, D. LESTON; D. LESTON coll. B. M. 1976-509; three females: Nigeria W. St. Ife, 7-8. VII, 14 VIII. 73 LINNAVUORI; two males: Nigeria E.C. St. Naukka, 30. VI. 73, LINNAVUORI; female: Coll. Mus. Tervuren, Malawi: Chintcheche, 23. X. 1977, R. Jacque; two males: Legon, A. D., Ghana, 13. VII. 70, D. LESTON; D. LESTON coll. B. M. 1976-509; male: Tafo, Ghana, 18: VIII: 66; U. V. trap; male: Nigeria: Nigerian Institute for Oilpalm Research near Benin, 13 iii 1972; E. W. CLASSEY, B. M. 1972-190; two specimens in JGC the rest in MRAC. Two females and two males: Seychellen, Mahe, Sans Sauci Rd., XI - 94 HEISS (JGC); male: Legon, A. D. Ghana, 13. VII. 70, D. LESTON; LESTON coll., B. M., 1976-509; in BMNH; two females: Thailand, Chiang Rai, XI. 1987, HEISS; two females and male: Malaysia, Prov. Pahang, Cameron Highlands, Fraser Hill, XI 84, HEISS; male: Malaysia, Prov. Pahang, Fraser Hill, XI 84, HEISS; two females: Malaysia - Pahang, Pulau Tioman, Tekek Rainforest, 16-22. VII. 92 HEISS; two females: Tafuna, A. Samoa, XII - 28 - 56; female: Tapatapao, Upolu, Samoa; 1000 ft.; Under dead bark; E. C. ZIMMERMAN Collector (JGC); three females and male: Tapatapao, Upolu, Samoa; 1000 ft.; Under dead bark; E. C. ZIMMERMAN Collector; male: Hong Kong: N. T., Sai Kung Station, 20. X. 1964; W. J. VOSS & HUI WAI MING Collectors, Bishop Mus.; female: Hong Kong: N. T., Taipokau, 3. VI. 1965, Hand Net; LEE KIT MING & HUI WAI MING, Light Trap, Bishop Museum; male: Tapatapao, Upolu, Samoa; 1000 ft.; Under dead bark; U. H. SWEZEY Collector; female: Tapatapao, Upolu, Samoa; 800 ft.; Beating dead branches; E. C. ZIMMERMAN Collector (BPBM); female: Singapore: Seletar Reservoir, 1°24' N, 103°48' E, 7. xi. 1991. O. MARTIN leg., Zoologisk Museum, Kobenhavn; two females and male: Thailand: Trang province, Hat Chao Mai National Park, 7°19' N 99°27' E, 25-27. x. 1991. O. MARTIN leg., Zoologisk Museum, Kobenhavn; male: Thailand, Sam Ngao at Bhumipol Dam, 6.-8, xi. 1979, Zool. Mus. Copenhagen Exped (ZMC); female: Malaya, Kuala Lumpur, at light, March 9 1927 (BMNH). Male: Malaysia, Prov. Pahang, Fraser Hill, XI 84, HEISS; *Fulvius anthocoroides* (REUTER), det. J. GORCZYCA; female: Malaysia, Pahang, Pulau Tioman, Tekek, Rainforest, 16.-22. VII. 92 Heiss; *Fulvius anthocoroides* (REUTER), det. J. GORCZYCA. In TLI.

Two females and male: India, W. Bengal, Darjeeling Distr., 3 km S of Ghum, leg. Gy. TOPAL; No. 341, beaten material, 19. IV. 1967.; two males: India, Jajpur Keonjhar Distr., Onsa Daitan, leg. Gy. TOPAL; No 51, under bark of trees. All in HNHM; (male): Tanakpur, Kamaon U. P. , India, H. G. C.; *Fulvius anthocoroides* (REUTER), det. J. GORCZYCA, 1998; female: Ceylon (Lewis); From Ind. Mus. DISTANT coll., B. M. 1911 - 383; *Fulvius anthocoroides* (REUTER), det. J. GORCZYCA, 1998. Both in BMNH; female: Brasil: Para: Balem, Rio Guama, Aug. 28, 1973, R. T. SHUH; *Fulvius brevicornis* ? REUTER, det. R. T. SCHUH; two females and male: Brasil, Para: Balem, Rio Guama, Aug. 28, 1973, R. T. SCHUH; det. J. GORCZYCA. In (IRSC).

REMARKS

A redescription of this species has been published recently (GORCZYCA 2000). To avoid repetition, only new records are added above.

DISTRIBUTION

Bonin; Brasil; China: Hong Kong; the Christmas Island; Cuba; the Galapagos Islands; Ghana; India; Malawi; Malaysia; the Mariana Islands; Nigeria; Samoa; Senegal; the Seychelles; Singapore; Sri Lanka; Tajwan; Thailand; Martinique (CARVALHO & GAGNE 1968), Bahamas, Chile, Costa Rica, Jamaica, Panama, Trinidad and Venezuela (CARVALHO & COSTA 1994), Japan (YASUNAGA 2000).

This species, originally known from the Afrotropical and Oriental Regions, was also introduced in North, South and Central America (HUSSEY 1954).

Fulvius pallens n. sp.

TYPE MATERIAL

Holotype (female): Malaya, Negri Semblikum (?), F. M. S., Port Dickson, light, 12. I. 1941; H. M. PENDLEBURY, F. M. S. Museums; Ex. F. M. S. Museum, B. M. 1955-354; paratype (?): N. Borneo, Bettotan, Nr. Sandakan, July, 29th [handwritten], 1927; C.B.K. & H.M.P., F.M.S. *Mu?euma*; F. M. S. Museums; Ex. F. M. S. Museum, B. M. 1955-354. Both in BMNH. Paratype (female): 2164 [handwritten], Malaya, Dungun, Sg. Dua, 25-10-1959, K. D. MENON; On Kopur logs [handwritten]; C.I.E. Coll, A. 4982; *Fulvius* sp. M. S. K. GHOURI det. 1972. In JGC; paratype (male): 23. III. 1924, Depok, Soesyat; Java. Housed in RNH.

DIAGNOSIS

This species is similar to *Fulvius dimidiatus* POPPIUS but it can be distinguished on the basis of pale hemelytra and the structure of male genitalia (Figs 1-2).

DESCRIPTION

Female. Body small, pale with brown areas, length of the body 3.30 mm, width 1.12 mm. Head brown, vertex with two pale, more or less visible spots contiguous with pronotal collar and the margin of eyes, covered with dense setae. Length of head in top view 0.57 mm, width 0.52 mm, diameter of eyes 0.12 mm. The first antennal segment dark brown with a few, dark setae in the apical part. Second segment dark brown, pale only at the apex, covered with short, dark setae, slightly thickened towards the apex. Third segment pale to pale brown, thin. Length of antennal segments in mm: 0.30: 0.75: 0.37 (?). Fourth segment broken in the examined specimens. Rostrum brown, very long, reaching the end of abdomen.

Pronotal collar very thin, brown to dark brown, pronotum unicoloured, brown, covered with dense setae, the anterior lobe with a distinct, longitudinal sulcus in the middle. Length of pronotum 0.42 mm, length of anterior margin 0.45 mm,

lateral margins 0.50 mm, posterior margin 0.87 mm. Mesoscutum and scutellum unicoloured, brown.

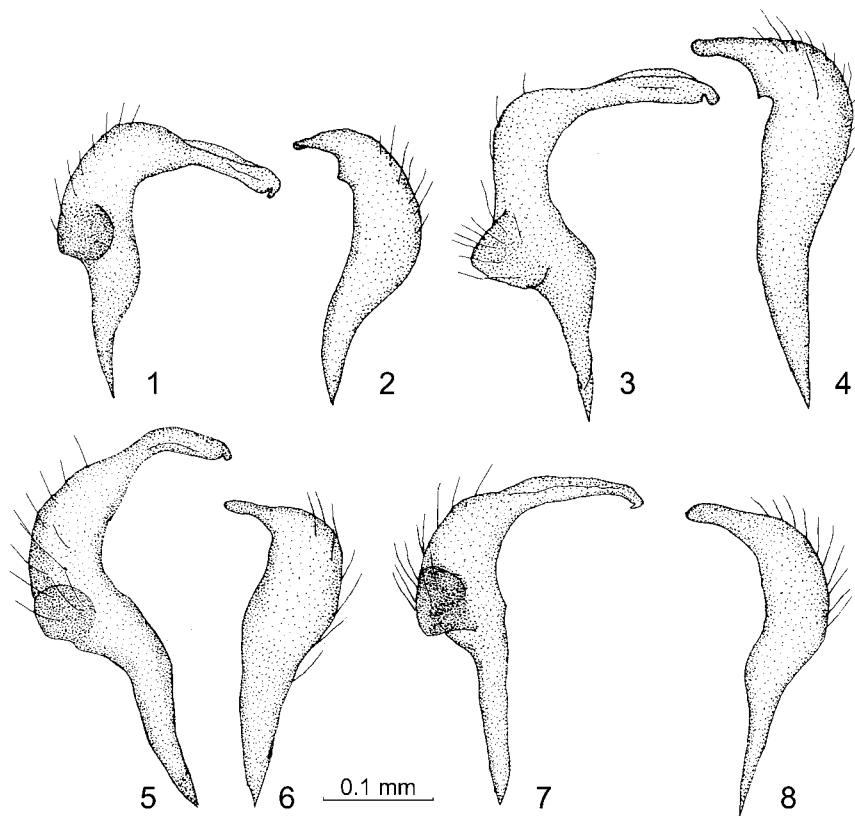
Hemelytra pale, brown only in the distal part, clavus obscured (tinged with brown) in the apical part. Cuneus dark brown, embolium pale, with a small white patch above cuneus and a red patch above it. Membrane and venation pale.

Underside of the body brown or chestnut, sometimes tinged with red, coxae and femora dark brown, trochanters, tibiae and tarsi pale.

Male similar to female but slightly smaller, right paramere small with a subapical tooth (Figs 1-2).

DISTRIBUTION

Indonesia: Java; Malaysia: Borneo, Malay Peninsula.



1-8. Parameres 1-2 - *Fulvius pallens* sp. nov., paratype; 3-4 - *F. dimidiatus* POPP., the specimen from North Borneo; 5-6 - *F. anthocoroides* (REUT.), the specimen from Samoa; 7-8 - *F. nigricornis* POPP., the type specimen

***Fulvius dimidiatus* POPPIUS**

Fulvius dimidiatus POPPIUS, 1909: 30, 33.

Fulvius dimidiatus: POPPIUS, 1915: 50; CARVALHO, 1957: 17, 1980a: 643; SCHUH, 1995: 27; KERZHNER & JOSIFOV, 1999: 8; YASUNAGA, 2000: 189.

TYPE MATERIAL EXAMINED

Holotype (female) - by monotypy: P. Pengang, 600-800 m., II. 89 [1889], LORIA e FEA; Museo Civ. Genova; *Fulvius dimidiatus* n. sp. [handwritten], B. POPPIUS det. Housed in MCSN.

OTHER MATERIAL EXAMINED

Female: Malaya, Negri Semblikum (?), F. M. S., Port Dickson, 12. 1. 1941 *Fulvius dimidiatus* POPPIUS, det. J. GORCZYCA (BMNH); female: Edw. JACOBSON, Gun. TELEMAN, Sum. 1917 (RNH); *Fulvius dimidiatus* POPPIUS, det. J. GORCZYCA; female: Thailand: Yala province, Bang Lang National Park, 6°04' N, 101°11' E, 18-20. x. 1991. O. MARTIN leg. Zoologisk Museum, Kobenhavn; *Fulvius dimidiatus* POPPIUS, det. J. GORCZYCA (ZMC); male: Brithish N. Borneo, Tenompok, 1460 m, Jesselton, 48 km E., 26-31. I. 1959; T. C. MAA Collector, Bishop; *Fulvius dimidiatus* POPPIUS, det. J. GORCZYCA, (BPBM). Two females and male: N - Sumatra, Brastagi - Toba, 20 VII 80, HEISS; *Fulvius dimidiatus* POPPIUS, det. J. GORCZYCA, 1999. Female and male in JGC, one female in TLI.

DIAGNOSIS

This species is very similar to *Fulvius anthocoroides* (REUTER) but it can be distinguished by the colour of the second antennal segment, which is pale only at the apex, and hemelytra, which are pale beyond the basal third, and by the shape of the parameres (Figs 3-4).

REDESCRIPTION

Female. Body length 2.9-3.3 mm, width 1.14-1.20 mm, covered with dense, dark and pale setae. Head brown to dark brown, vertex with two paler spots contiguous with the inner margin of eyes, length of head in top view 0.57 mm, width 0.54 mm, diameter of eye 0.17-0.18 mm. Eyes contiguous or only slightly removed from pronotal collar, antennae inserted on tubercles contiguous with the margin of eye. First antennal segment dark brown, covered with short, dark setae, second segment dark brown in the basal two thirds, pale and sometimes tinged with red in the apical third, covered with dark, dense, relatively thick setae, third and fourth segments thin, brown, covered with pale, protruding setae, longer than the diameter of the segments. Length of antennal segments in mm: 0.26-0.28: 0.78-0.80: 0.36 (0.52 third and fourth together). Rostrum brown, long, reaching at least the mid of abdomen.

Pronotal collar distinct, pronotum dark brown, covered with dense, scale-like setae, the anterior lobe of pronotum raised, with a thin, longitudinal sulcus in the

middle, the posterior margin of pronotum with an incision. Length of pronotum 0.39-0.44 mm, anterior margin 0.44 mm, lateral margins 0.52 mm, posterior margin 0.96-0.98 mm. Mesoscutum and scutellum brown, in some specimens mesoscutum slightly paler than scutellum, scutellum unicoloured, brown.

Hemelytra pale at base, clavus pale in the basal half, then brown, anal veins not marked, embolium thin, pale at base, then brown, in some specimens tinged with red in the distal part. Corium brown (except the basal part), covered with dense setae, with a large pale patch above cuneus, sometimes tinged with red, cuneus unicoloured, brown. Membrane grey to dark grey, venation usually well visible.

Underside of the body brown, coxae and trochanters pale, femora dark brown, pale and slightly tinged with red at apex, tibiae and tarsi pale with a distinct subapical tooth.

Male similar to female, parameres similar to *F. pallens* and *F. anthocoroides* (Figs 1-6), right paramere with a distinct, subapical tooth.

DISTRIBUTION

Indonesia: North Sumatra; Malaysia: North Borneo, Pinang Il.; Thailand; Taiwan (KERZHNER & JOSIFOV 1999), Japan (YASUNAGA 2000).

REMARKS

The specimens from Sumatra are bigger than the others.

Fulvius nigricornis POPPIUS

Fulvius nigricornis POPPIUS, 1909: 30, 37.

Fulvius nigricornis: BERGROTH, 1920: 76; CHINA, 1935: 498; CARVALHO, 1957: 18, 1980: 644, SCHUH, 1995: 28 non *Fulvius nigricornis* CARVALHO & LORENZATO, 1978: 136, Figs 50-53, 88.

TYPE MATERIAL EXAMINED

Female: Mentawai, Si Oban, IV-VIII, MODIGLIANI 94 [1894]; Museo Civ. Genova; *Fulvius nigricornis* n. sp. [handwritten], B. POPPIUS det., three females: Mentawai, Si Oban, IV-VIII, MODIGLIANI 94 [1894]; Museo Civ. Genova; male: Engano, Bua Bua, V, VI, MODIGLIANI, 1891; Museo Civ. Genova. All in MCSN.

OTHER MATERIAL EXAMINED

Male: Padong, Si...? [handwritten]; J/ D. Pasteur, Sumatra, occid [handwritten]; *Fulvius nigricornis* POPPIUS, det. J. GORCZYCA (RNH).

REDESCRIPTION

Female. Body dark brown, covered with pale, scalelike setae, length of the body 3.20-3.25 mm, width 1.0-1.1 mm. Head unicoloured, very dark, eyes contiguous with pronotal collar, antennae inserted on small tubercles slightly removed

from the margin of eye. Length of head in top view 0.55-0.58 mm, width 0.50 mm, diameter of eye 0.11 mm. First antennal segment relatively thick, dark brown, second segment thin at base, then slightly thickened towards the apex, covered with dense, short setae, dark brown, pale only at extreme apex, in some specimens slightly tinged with red in the apical part. Third and fourth segments pale to pale brown, covered with long, thin, pale, protruding setae. Length of the antennal segments in mm: 0.37: 0.75: 0.35: 0.45. Rostrum relatively short, reaching metacoxae, pale to dark brown.

Pronotal collar distinct, relatively broad, very dark. Pronotum, mesoscutum and scutellum dark brown, sometimes partly reddish. The anterior lobe of pronotum weakly marked, with a thin, longitudinal sulcus in the middle. The posterior margin of pronotum with a small incision. Length of pronotum 0.42-0.45 mm (excluding pronotal collar), anterior margin 0.45 mm, lateral margins 0.50 mm, posterior margin 0.92-0.95 mm.

Hemelytra brown, paler than head and pronotum, embolium narrow, widened and tinged with red in the distal part, with a small, white patch contiguous with cuneus. Cuneus small, very dark, sometimes tinged with red. Membrane pale brown, venation pale brown, minor cell invisible.

Underside of the body brown or chestnut, sometimes tinged with red, coxae brown, pale and tinged with red in the distal part. Forelegs brown, remaining legs broken in the examined specimens.

Male similar to female but slightly smaller, second antennal segment unicoloured in the examined specimens, without a pale apex, third and fourth segments pale. Length of the body 2.87 mm, width 0.95 mm, length of head in top view 0.47 mm, width 0.52 mm, diameter of eye 0.15 mm. Length of antennal segments in mm: 0.35: 0.75: 0.27: 0.37. Rostrum pale brown, reaching metacoxae. Length of pronotum (excluding pronotal collar) 0.37 mm, length of anterior margin 0.42 mm, lateral margins 0.47 mm, posterior margin 0.87 mm.

Parameres similar to those in the other species of the group (Figs 7-8).

DISTRIBUTION

Indonesia: Mentawai Islands, Engano Il., Sumatra; Malaysia: Malay Peninsula (CHINA 1935).

REMARKS

The specimens described and figured as *Fulvius nigricornis* POPPIUS from Papua New Guinea (CARVALHO & LORENZATO 1978, Figs 50-53, 88) represent in fact another species.

Fulvius bifenestratus-group

This group can be distinguished by the elongate body, eyes removed from pronotal collar, first antennal segment very long, much longer than the width of

head in top view, hemelytra brown with a pale patch on corium and sometimes on membrane, long tibiae, long, bisegmented tarsi, (eutarsus sometimes divided), claws without a subapical tooth (Fig. 12), left paramere massive, right paramere reduced.

KEY TO THE *BIFENESTRATUS*-GROUP

1. Insects relatively large, length of the body more than 4 mm in female, 3.6 mm in male, a pale patch on the membrane distinct *Fulvius bimaculatus* POPPIUS
- . Smaller insects, length of the body up to 4 mm in females, and up to 3.5 mm in males, a pale patch on the membrane indistinct..... *Fulvius bifenestratus* POPPIUS

***Fulvius bifenestratus* POPPIUS**

Fulvius bifenestratus POPPIUS, 1909: 30, 35.

Fulvius bifenestratus: BERGROTH, 1920: 75; CARVALHO, 1957: 15, 1980: 643; SCHUH, 1995: 26.

TYPE MATERIAL EXAMINED

Holotype (female) - by monotypy: Mentawai, Sipora, Sereinu V-VI, 94 [1894], MODIGLIANI; Museo Civ. Genova; *Fulvius bifenestratus* n. sp. [handwritten], B. POPPIUS det. Housed in MCSN.

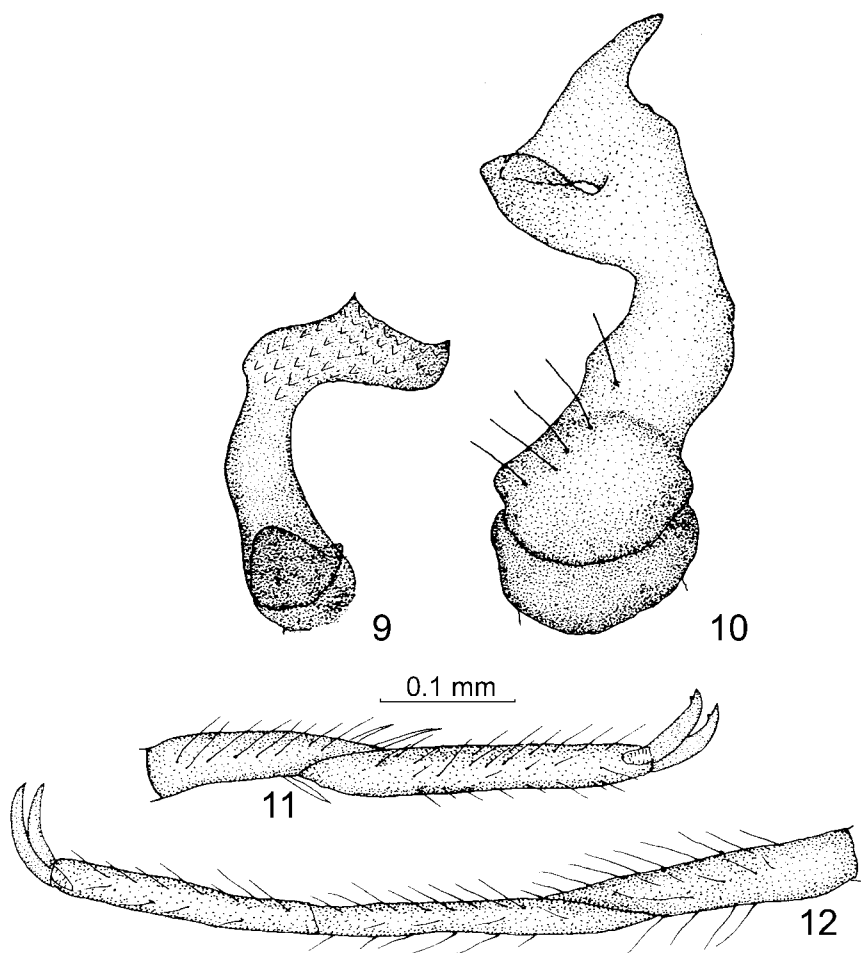
OTHER MATERIAL EXAMINED

Four males and seven females: British N. Borneo, Tawau, Quoin Hill, Cocoa Res. Sta., 5. IX. 1962; Y. HIRASHIMA, Light Trap, Bishop; two females: British N. Borneo, Tawau, Quoin Hill, 3-7. VII. 1962; H. HOLTSMANN, Light Trap, Bishop; male: British N. Borneo, Tawau, Quoin Hill, 3-7. VII. 1962; In Jungle; H. HOLTSMANN, Light Trap, Bishop; male and female: British N. Borneo, Tawau, Quoin Hill, 15-20. VII. 1962; H. HOLTSMANN, Light Trap, Bishop; female: British N. Borneo, Tawau, Quoin Hill, 8-14. VII. 1962; H. HOLTSMANN, Light Trap, Bishop; female: North Borneo (SE), Forest Camp, 19 km, N. of Kalabakan, 60 m, 18. X. 1962; K. J. KUNCHERIA Collector, Bishop; female: North Borneo (SE), Forest Camp, 19 km, N. of Kalabakan, 60 m, 18. X. 1962; Y. HIRASHIMA Collector, Bishop; male: North Borneo (SE), Tawau, Quoin Hill, Cocoa Res. Sta., 13. IX. 1962; Y. HIRASHIMA, Malaise Trap, Bishop; male: British N. Borneo, Tawau, Quoin Hill, Cocoa Res. Sta., 24. IX. 1962; Y. HIRASHIMA, Light Trap, Bishop; male: British N. Borneo, Tawau, Quoin Hill, Cocoa Res. Sta., 4. IX. 1962; Y. HIRASHIMA, Light Trap, Bishop; male: British N. Borneo, Tawau, Quoin Hill, Cocoa Res. Sta., 3. IX. 1962; Y. HIRASHIMA, Light Trap, Bishop; female: P. I., Misamis OR., Mt. Balatukan, 10 km SW of Gingoog, 1000-2000m, 1-5. V. 1960; H. TORREVILLAS Collector. Three males and four females in JGC, the rest of

specimens in the BPBM; female: Rothamsted light trap, site 1, 200m., H. BARLOW; Indonesia: Sulawesi Utara, Dumoga-Bone N. P., February, 1985; female: Light Trap; Sarawak: foot of Mt. Dulit, Junction of rivers, TINJAR & LEJOK, 29. viii. 1932; Oxford Univ. Exp., B.M. HOBBY, A.W. MOORE, B. M. 1933-254. Both in BMNH.

DIAGNOSIS

This species may resemble *Fulvius bimaculatus* POPPIUS but it can be distinguished by smaller size, hemelytra with two small, pale patches (*F. bimaculatus* has a third pale patch at the base of membrane) and the shape of the parameres (Figs 9-10).



9, 10. Left paramere: 9 - *F. bifeneistratus* POPP., specimen from North Borneo; 10 - *F. bimaculatus* POPP. 11-12. Metatarsi, 11 - *F. anthocoroides* (REUT.); 12 - *F. bifeneistratus* POPP.

REDESCRIPTION

Female. Body brown, length of the body 3.90-4.0 mm, width 1.10-1.12 mm. Head dark brown, covered with pale, thin, semi-erect setae, length of head in top view 0.50-0.55 mm, width 0.55 mm, diameter of eye 0.12-0.13 mm. Eyes relatively small, flattened, distinctly removed from pronotal collar, covered with protruding setae. Antennae tapering, inserted on distinct tubercles, almost contiguous with the margin of eye. First segment very long, thick, yellow (holotype) to brown, in some specimens tinged with red in the apical part, covered with fine setae. Second segment thin, pale brown (holotype) to dark brown, paler in the apical part, covered with short setae. Third segment dark, thin. Length of antennal segments in mm: 0.75: 1.40-1.42: 0.80 (broken?), fourth segment broken or damaged in the examined specimens. Rostrum brown, very long, almost reaching the end of abdomen.

Pronotal collar and pronotum dark brown, the anterior lobe of pronotum raised with a distinct longitudinal sulcus in the middle, the posterior margin of pronotum with an incision. Length of pronotum 0.45 mm, length of anterior margin 0.42-0.45 mm, lateral margins 0.57 mm, posterior margin 0.97-1.0 mm. Mesoscutum and scutellum unicoloured, dark brown.

Hemelytra covered with dark, short setae, pale brown to brown with a large pale patch contiguous with claval suture. Embolium very thin, widened in the distal part, cuneus long, thin, the distal part of embolium and cuneus darker, in some specimens tinged with red. Membrane pale to brown, venation not distinct, major cell rounded, minor cell very small.

Underside of the body brown, legs pale brown, the distal part of femora and the basal part of tibiae sometimes slightly tinged with red. Tarsi bisegmented, first segment short, second segment long, divided in the middle (Fig. 12).

Male similar to female, length of body 3.40-3.50 mm, width 0.85-0.87 mm, length of head in top view 0.50 mm, width 0.52 mm, diameter of eye 0.125 mm. Length of antennal segments in mm: 0.75-0.77: 1.72-1.80 (remaining segments broken or damaged in the examined specimens).

Aedeagus membranous, left paramere curved (Fig 9).

DISTRIBUTION

Indonesia: Mentawai Il., Sulawesi; Malaysia: Borneo; Philippines: Mindanao.

REMARKS

The holotype differs from the other representatives in the colour of the antennal segments: the first antennal segment is pale brown, only slightly tinged with red in the apical part, the second segment is slightly darker in the basal two thirds and pale in the apical third. The third segment is thin and very dark.

***Fulvius bimaculatus* POPPIUS**

Fulvius bimaculatus POPPIUS, 1909: 30, 36.

Fulvius bimaculatus: BERGROTH, 1920: 75; CARVALHO, 1957: 15; CARVALHO & LORENZATO, 1978: 135; CARVALHO, 1980: 643; SCHUH, 1995: 26.

TYPE MATERIAL

(Lectotype designated by CARVALHO & LORENZATO): N. Guinea S. E., Moroka, 1300 m, LORIA VII-30 93; Museo Civ. Genova; *Fulvius bimaculatus* n. sp., B. POPPIUS det. (Mus. Civi); paralectotype: (male): . N. Guinea S. E., Moroka, 1300 m, LORIA VII-30 93; Museo Civ. Genova.

OTHER MATERIAL EXAMINED

(Two females and male): Papua: Kokoda, 1200ft., ix 1933, L. E. CHEESMAN, B. M. 1934-321; *Fulvius bimaculatus* POPPIUS, det. J. GORCZYCA, 1998; female: Papua: Kokoda, 1200ft., viii-ix 1933, L. E. CHEESMAN, B. M. 1933-427; *Fulvius bimaculatus* POPPIUS, det. J. GORCZYCA, 1998; male: Papua: Kokoda, 1200 ft., viii 1933, L. E. CHEESMAN, B. M. 1933-427; *Fulvius bimaculatus* POPPIUS, det. J. GORCZYCA, 1998; female: Sten. No. 137.; New Guinea: Morbe Dist., Herzog Mts., Vagau, C. 4 000 ft., 4-17. I. 1965; M. E. BACHUS, B. M. 1965-120; *Fulvius bimaculatus* POPPIUS, det. J. GORCZYCA, 1998; male and two females: W. New Guinea: Mt. Nomo. S. of Mt. Bougainville, 700 ft., ii. 1936; *Fulvius bimaculatus* POPPIUS det. J. GORCZYCA, 1998; female: N. Dutch New Guinea: Waigau. Camp 1., Mt. Nok., 2,500 ft., v. 1938, L. E. CHEESMAN, B. M. 1938-593; *Fulvius bimaculatus* POPPIUS det. J. GORCZYCA, 1998; male: Fluorescent Mv Trap; Papua New Guinea: Morobe Prov. coast, Buso, 30. ix 1979, J. H. MARTIN coll.; Brit. Mus., 1980-150; *Fulvius bimaculatus* POPPIUS det. J. GORCZYCA, 1998; female and male: Dutch New Guinea: Humboldt Bay Dist., Bewani Mts., 400 metres, vii. 1937; W. STÜBER, B. M. 1938-177; *Fulvius bimaculatus* POPPIUS det. J. GORCZYCA, 1998; two females: Dutch New Guinea: Cyclops Mts. Sabron. Camp: 2, 000 ft., vi. 1936, L. E. CHEESMAN, B. M. 1936-271; *Fulvius bimaculatus* POPPIUS det. J. GORCZYCA, 1998; female: Dutch New Guinea, Mt. Cyclops, 4,000 ft. 12. iii. 1936, L. E. CHEESMAN, B. M., 1936-271; *Fulvius bimaculatus* POPPIUS det. J. GORCZYCA, 1998; female: Dutch New Guinea, Cyclops Mts., Sabron, Camp I: 1,200 ft. 22. v. 1936, L. E. CHEESMAN, B. M., 1936-271; *Fulvius bimaculatus* POPPIUS det. J. GORCZYCA, 1999; male: Dutch New Guinea, Cyclops Mts., Sabron, Camp I: 1,200 ft. 15. v. 1936, L. E. CHEESMAN, B. M., 1936-271; *Fulvius bimaculatus* POPPIUS det. J. GORCZYCA; Dutch New Guinea, Cyclops Mts., Sabron, Camp 2: 2,000 ft.. v. 1936, L. E. CHEESMAN, B. M., 1936-271; *Fulvius bimaculatus* POPPIUS det. J. GORCZYCA, 1998; female: Dutch New Guinea, Mt. Cyclops, Camp I: 3,500 ft. iii. 1936, L. E. CHEESMAN, B. M., 1936-271; *Fulvius bimaculatus* POPPIUS det. J. GORCZYCA, 1998. Five specimens in JGC, the rest in BMNH. Male: PNG: New Guinea: NE, Morobe Prov.: Mt. Missim, S side, 2000 m, 15. VI. 1984; permethrin log of *Castanopsis acuminatissima*, mature canopy; W. C. GAGNE & UREP session III, Colis sample #8, tree #330B; *Fulvius bimaculatus* POPPIUS det. J. GORCZYCA, 1999; female: PNG: New Guinea: NE: Madang Prov.: Baku Forest

Stn., 80 m, 4-12. II. 1978; At light; W. C. GAGNE Coll, Bishop Museum, Acc. #1980, 4; *Fulvius bimaculatus* POPPIUS det. J. GORCZYCA, 1999; two males: New Guinea: NE: Morobe Distr.: Kabwun to Ilaka, 4. VIII. 1966; G. A. SAMUELSON Collector, Bishop Museum; *Fulvius bimaculatus* POPPIUS det. J. GORCZYCA; female: New Guinea: NE, Wau, 1200m, 30-31. x. 1964; M. V. LAMP, J. SEDLACEK, Coll., Bishop Museum; *Fulvius bimaculatus* POPPIUS det. J. GORCZYCA; male: New Guinea, Morobe Distr., Wau, 15. VIII. 1972, G. G. E. SCUDDER; MV Light Trap, G. G. E. SCUDDER; Bishop Museum Coll., Acc. 1981-522; *Fulvius bimaculatus* POPPIUS det. J. GORCZYCA, 1999; female: New Guinea: NE, Wau, Morobe Distr., Mt. Missim, 1600 m, 1. V. 1974; Light Trap; Thane Pratt collector, Wau Ecology Inst. (Bishop); Bishop Museum, Accession 1980, 4; *Fulvius bimaculatus* POPPIUS det. J. GORCZYCA, 1999; female: PNG: New Guinea: (NE), W. Sepik Prov., Feramin, 1500 m, 2. VII. 1976; collected at light; W. C. GAGNE coll., Bishop Museum; *Fulvius bimaculatus* POPPIUS det. J. GORCZYCA, 1999. Two specimens in JGC, the rest in BPBM.

DISTRIBUTION

New Guinea.

REMARKS

A redescription of this species was given by CARVALHO & LORENZATO (1978).

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