

STUDIES ON THE FAUNA OF SURINAME
AND OTHER GUYANAS: No. 34.

HETEROPTERA OF SURINAME

I. Largidae and Pyrrhocoridae

by

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This paper is intended as the first of a series concerning the Surinam heteropterous fauna. Although our knowledge of these insects in Suriname is still very incomplete, a survey given in this phase of investigations may well have its justifications. In the first place, it gives us an idea of what is really known about this subject at present, and in the second place, it will perhaps encourage further

investigations. In Suriname there is a great need for compilations which are also of use to the biologist whose work is of a more practical nature. Much attention is therefore given here to the diagnostic characters, and keys are added to identify the species. As literature is difficult to obtain in the Guyanas, I have given a more detailed account of every species instead of referring to any original description only. Moreover, in the case of many species no detailed description has yet been given.

Literature references are not exhaustively treated here; only the most important sources pertaining to the taxonomy dealt with or particularly concerning the Surinam fauna are given.

Measurements are added to each description. If possible, ten specimens of each sex, taken at random, were measured and the extremes given, between which the arithmetic mean is placed in *italics*. These measurements are:

- length = total length including the wings
- width = maximum width of body including the wings
- w/head = width of head including the eyes
- l/pronotum = length of pronotum
- w/pronotum = width of pronotum.

All measurements, also those on the figures, are given in mm. The figures were drawn by the author with the aid of an optical drawing-device. The parameres are shown in two positions, to give a better idea of their three-dimensional form. In the Largidae the entire male genital capsule is shown from the left side. In the Pyrrhocoridae the external female genitalia are shown in posterior view; the male genital capsule is figured in position as seen from the right side and in posterior view respectively.

The material on which this study is based was collected for the most part by the author during his stay in Suriname from 1957 to 1963. Nevertheless, I acknowledge most gratefully the generous cooperation of many friends, of whom I wish to mention specially Dr. D. C. GEIJSKES, Director of "Het Surinaams Museum". Some important material was also found in the collection of the Rijksmuseum van Natuurlijke Historie at Leiden and the department of Entomology of the Zoölogisch Museum, Amsterdam.

This study was made possible by a research grant from the Netherlands Foundation for the Advancement of Tropical Research (WOTRO, formerly WOSUNA), whose financial support is gratefully acknowledged. I am also indebted to Professor Dr. L. D. BRONGERSMA, Director of the Rijksmuseum van Natuurlijke Historie at Leiden, for the hospitality extended by his institute, and to Dr. S. L. TUXEN, Zoological Museum, Copenhagen, for lending me the Fabrician type of *Lygaeus lunatus*.

Author's collection including the type specimens now belongs to the Leiden Museum.

LARGIDAE Amyot & Serville

- Largides* AMYOT & SERVILLE 1843, Hist. Nat. Hém.: xxxviii, 265.
Largidae; DOHRN 1859, Cat. Hém.: 37.
Astemmatinae BERGROTH 1913, Mém. Soc. Ent. Belg. 22: 165.
Euryophthalminae VAN DUZEE 1916, Check List Hem.: 24.
Euryophthalminae; HUSSEY 1929, Gen. Cat. Hem. 3: 10.
Larginae; SCHMIDT 1931, Stett. Ent. Ztg. 92: 2.
Largidae; CHINA 1954, Ent. Mon. Mag. 90: 188.
Largidae; ŠTYS 1964, Acta Zool. Ac. Sc. Hung. 10: 229-262.

KEY TO GENERA

- 1a Eyes pedunculate (eye stalks at least as long as the eyes as seen from above; Fig. 1, 24) 2
 b Eyes barely or not at all pedunculate (Fig. 12, 15, 27) 4
 2a Anterior lobe of pronotum longer than disc (Fig. 24) *Fibrenus*
 b Anterior lobe shorter than disc 3
 3a Posterior corners of pronotum rounded; head and pronotum without many long black setae *Acinocoris*
 b Posterior corners of pronotum acute; head and pronotum having many long black setae (*Astemma*)
 4a Species ant-like, brachypterous (Fig. 28) . *Thaumastaneus*
 b Not so 5
 5a Body broad, its length less than $2\frac{1}{2} \times$ its width . *Largus*
 b Body slender, its length at least $3 \times$ its width 6
 6a Length of pronotum approx. $1.1 \times$ width; eyes big. *Theraneis*
 b Length of pronotum approx. $1.3 \times$ width; eyes small (*Stenomacra*)

Acinocoris Hahn

Acinocoris HAHN 1834, Wanz. Ins. 2: 113.

Largus; HERRICH-SCHÄFFER 1850, Wanz. Ins. 9 Index: 108 (pro parte).

Euryophthalmus; VAN DUZEE 1916, Check List Hem.: 24 (pro parte).

Acinocoris; HUSSEY 1929, Gen. Cat. Hem. 3: 11.

Body slender, eyestalks as long or slightly longer than the eyes and slightly directed upwards. Anterior pronotal lobe a little shorter than the disc; posterior margin of pronotum shining.

KEY TO SPECIES

- 1a Yellow posterior margin of pronotum with an anteriorly directed projection medially; species larger than 7 mm . . . 2
- b Yellow posterior margin straight anteriorly; smaller than 7 mm *stehliki* nov. sp.

- 2a Corium with a yellow streak along the corial cleft and posterior margin *elegans* nov. sp.
- b Corium without a yellow streak *calidus* Fabr.

Acinocoris stehliki nov. sp.

(Fig. 1-3)

Diagnosis: Small, brownish grey, with a straight yellow posterior margin of pronotum and slender eyestalks; apical third of hind femora black.

Head black, shining, densely pilose with adpressed, silvery to light yellow hairs except for the eyes and antenniferous tubercles; neck dull chagreenous; medio-ventral margin of the antenniferous tubercles, and sometimes a small spot behind the vertex, light brown. Antennae black; the under side of the first segment yellow; the middle parts of the next two segments dark brown. Labrum blackish; labium light brownish, except for the last two segments, which are blackish.

Thorax. Ground colour black, covered with the same pubescence as the head. Pronotal callus black, shining, with some small punctures

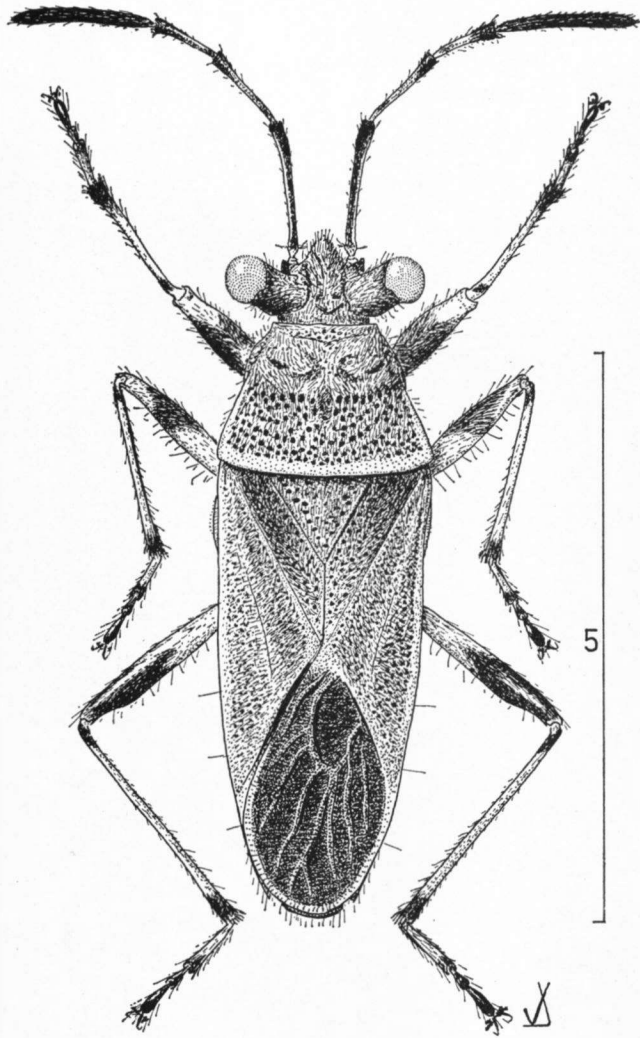


Fig. 1. *Acinocoris stehliki* n. sp., holotype, ♂, from SURINAME.
(Measurements in mm.)

medially and an irregular impression on each side. Disc dull black, evenly beset with a dense and deep punctation, at the sides and the posterior margin with a shining yellowish brown border which is not projected anteriorly in the median sector. Scutellum with the same

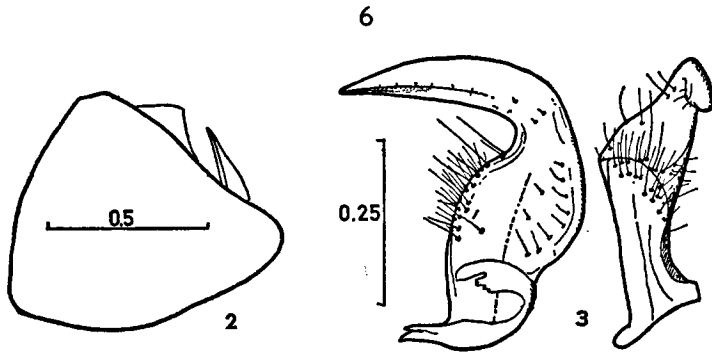


Fig. 2-3. *Acinocoris stehliki*, ♂. - 2. Genital capsule; 3. right paramere.

colour and structure as the disc of the pronotum. Corium dull brown with darker areas on the base of the clavus, laterally of the claval suture and the corial cleft, and with a narrow, yellow, and shining costal margin; fairly densely covered with white to yellowish, adpressed hairs. Membrane dull brownish black with a light greyish margin. Under side of thorax unicolourous dull black with the same pubescence as the head. Metapleural odoriferous gland orifices black with a yellow-orange papilla at the external margin. Coxae and trochanters black, legs brown with dark areas near the end of the femora, on the knees, at the end of the tibiae and tarsal segments; the last one mostly totally black; claws and prefemoral spines black.

Abdomen. Ground colour black, rather dull, densely covered with adpressed, silvery hairs, mixed with long erect, white setae; dorso-lateral edge narrowly yellowish. In the female the sternites provided with a row of light brown markings on both sides, those on the fourth and fifth sternites largest and medially jointed together along the posterior margins. Those on the third and sixth sternites less obviously, joining the posterior margins of the sternites. Seventh sternite sometimes without any markings except for the light yellow margins along the mesial split. In the male the sternites are without any markings except for the posterior margin of the seventh sternite which is light brown laterally. Posterior part of the ninth segment blunt in profile (Fig. 2), posterior margin sharp, concave. Paramere (Fig. 3) very small; shaft short, broad and laterally flattened; apical spur gradually tapering into a slim, sharply pointed and recurved hook.

Measurements	holotype	5 ♂	4 ♀
length	5.58	5.6 -5.80-5.94	6.5 -6.58-7.1
width	1.79	1.79-1.86-1.93	2.25-2.31-2.39
w/head	1.61	1.61-1.64-1.66	1.70-1.75-1.83
l/pronotum	1.24	1.24-1.27-1.38	1.38-1.47-1.52
w/pronotum	1.79	1.75-1.83-1.93	2.07-2.20-2.34

SURINAME: AFOBAKKA, border of Suriname River, on a *Solanum* covered with vines, 25.XI.1962, holotype (♂), allotype (♀) and six paratypes (4 ♂, 2 ♀), author coll. - PALOEMEY, airstrip, V/VII. 1961, 1 ♀ (Mohmin coll.). The types are in author's collection. - Named after the outstanding hemipterist Dr. J. L. STEHLÍK at Brno.

Acinocoris calidus (Fabricius, 1803)

(Fig. 4-6)

Lygaeus calidus FABRICIUS 1803, Syst. Rhyng.: 230, no. 130.

Acinocoris bilineatus WALKER 1873, Cat. Het. 4: 38 (new synonym).

Acinocoris bilineatus; HUSSEY 1929, Gen. Cat. Hem. 3: 11.

Acinocoris surinamensis SCHMIDT 1931, Stett. Ent. Ztg. 92: 10 (new synonym).

Acinocoris bilineatus; BLÖTE 1931, Zool. Med. 14: 97.

Diagnosis: Body blackish; pronotum with a yellow posterior border; corium with a sometimes indistinct, narrow, brownish band along the corial cleft and along the posterior margin; legs yellow with blackish dots and patches.

Head black, shining, usually with a narrow, V-shaped, yellowish spot behind the vertex and densely covered with semi-adpressed, silvery hairs, mixed with some erect setae. Eyes and antennae black to blackish brown, the latter with exception of the first segment which is yellow at the under side and extreme base; the last segment sometimes lighter brown, usually in the male. Rostrum also blackish except for the second segment, which is more or less brownish. Under side of head dull black.

Thorax. Ground colour black with the same pile as the head. Pronotum at the lateral and posterior margin bordered with yellow to yellowish brown; laterally this yellow border is restricted to the posterior half and in the medial part of the posterior margin it is somewhat wedged anteriorly. Collar with an irregular punctuation along its posterior border. Callus with some punctures in the middle parts and along the sides and with an undeeep impression above on each side. The disc deep and densely punctate in the black area's.

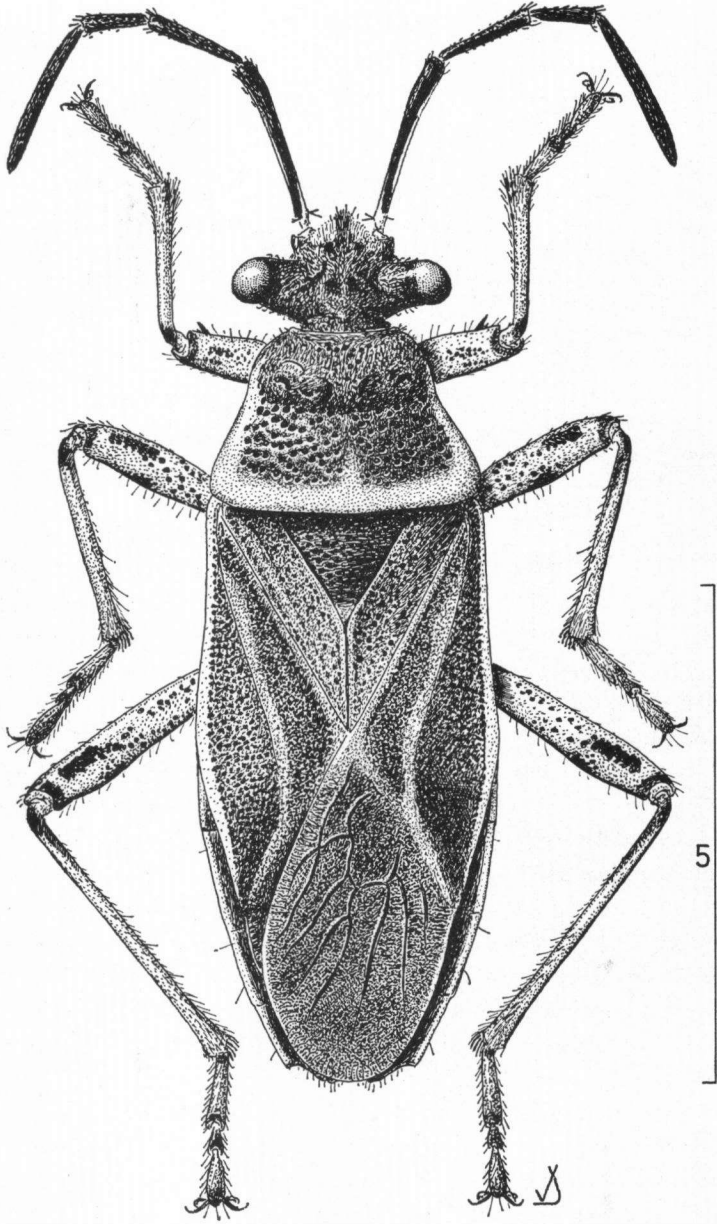


Fig. 4. *Acinocoris calidus* (Fabr.), ♀, from SURINAME.

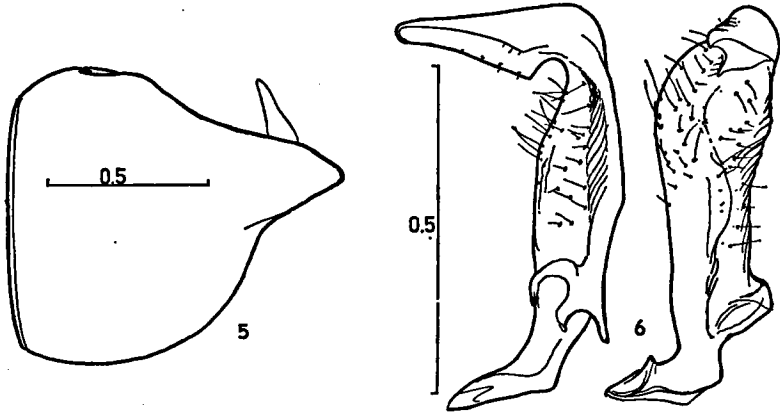


Fig. 5-6. *Acinoöcoris calidus*, ♂. - 5. Genital capsule; 6. right paramere.

Scutellum densely punctate, black, except for the extreme apical, brownish tip. Wings brownish black with light yellow margins and a more or less developed, light brown streak along the corial cleft, the inner margin, and the border between corium and membrane. Corium very finely, adpressed pilose. Under side of the thorax like that of head in colour and structure. Apical borders of coxal lobes somewhat lighter, brownish. Posterior pro-pleural flanges with some punctures along the yellow borders of the pronotum. Metapleural scent-gland orifices small and more laterally situated; the light brown peritremes of the slot pressed together; auricle rounded, yellow. Coxae shining black with adpressed and erect hairs; trochanters brown; femora yellow with dark brown dots mainly on the front side, some dots on the posterior sides, and with a longitudinal patch on the under side. The apex of the femora narrowly dark brown. Spines of the fore femora black. Basis of the yellow tibiae brown to black, distal parts slightly darkened. Tarsi light brown; apices of the segments darkened, claws black.

Abdomen shining black, dorso-laterally bordered with yellow and with a row of yellow patches on both sides of the third and following sternites. In the female the yellow patches on the fourth and fifth segment large, those on the following two, smaller. In the male: patches considerably smaller, the sixth and seventh sternites lacking them totally. In contrast, the seventh sternite

posteriorly bordered with yellow; the eighth and ninth sternites black with a lighter base; posterior part of the latter narrowed dorso-ventrally (Fig. 5), posterior edge sharp, straight or even somewhat concavely sinuated medially. Paramere (Fig. 6): shaft with a row of slanting wrinkles mesially; spur straight, wedge-shaped and almost perpendicularly situated on the shaft.

Measurements	10 ♂	10 ♀
length	7.5 -7.78-8.3	8.2 -8.70-9.1
width	2.42-2.55-2.64	2.75-3.12-3.20
w/head	2.06-2.10-2.18	2.18-2.22-2.29
l/pronotum	1.60-1.67-1.72	1.72-1.81-1.95
w/pronotum	2.30-2.40-2.63	2.61-2.77-2.92

Type. I have seen FABRICIUS' type of *Lygaeus calidus* in the Sehested and Lund collection of the Copenhagen Zoological Museum, and also the type of *Acinocoris bilineatus* Walker in the British Museum (Natural History) at London. WALKER's statement that the rostrum of his type extends to the first ventral segment, proved to be wrong (Mr. J. A. GRANT kindly verified this for me). In this genus a rostrum extended to the venter seems to be so exceptional, that SCHMIDT (1931) treated this species apart and even states: "Sollte die Walkersche Angabe zu Recht bestehen, so würde es sich empfehlen, eine besondere Gattung für diese Art aufzustellen". In my opinion, FABRICIUS' *Lygaeus calidus* and WALKER's *Acinocoris bilineatus* are one and the same species and also conspecific with the Surinam specimens.

SURINAME: PARAMARIBO and environment, IX.1957, 1 ♀, 1 cop., 3 nymphs; 8.XII.1959, 1 ♂, 1 ♀; 29.II.1960, 1 ♀; 28.IV.1960, 1 nymph; 8.I.1962, 1 ♂, 1 ♀. Cultuurtuin, V.1957, on *Annona muricata*, 1 cop.; V.1962, 5 ♂♂, 1 ♀. Kwatta, 5e Rijweg, 29.VIII.1958, under cut herbs, 2 ♂, 1 ♀, 4 nymphs; 1e Rijweg, on flowering *Cassia alata*, many ♂♂, ♀♀, pairs and nymphs; idem, 20.V.1962 and VII.1962. Morgenstond, 30.III.1959, 1 ♂. Clevia, 18.VIII.1958, 1 ♀, 1 cop.; 10/20.IX.1958, 1 ♀ (Sagiman coll.); on rice plant, 12.V.1960, 1 ♀ (Soedirman coll.) - COPPEWIJNE, Kampenburg, 23.VI.1958, 1 ♂. - COPPENAFUNT, on *Hibiscus tiliaceus*, 10.III.1959, 1 cop. - ZANDERIJ, 10 km S, Carolinakreek, 8.V.1963, 1 ♂, 1 ♀. - CORONIE, Totness, 8.VI.1963, 2 nymphs (Mrs. E. v. d. Vecht coll.) - Six other specimens from SURINAME in the collection of the Leiden Museum (named *A. bilineatus* Wlk., det. H. C. Blöte, see BLÖTE, 1931, p. 97).

A common species, breeding on flowering and fruiting *Cassia alata* and likely also on other herbs, as *Cordia macrostachys* and *Annona muricata*.

Acinocoris elegans nov. sp.

(Fig. 7-9)

Diagnosis: Blackish, with a broad yellow posterior margin of pronotum and a curved yellow streak on each corium.

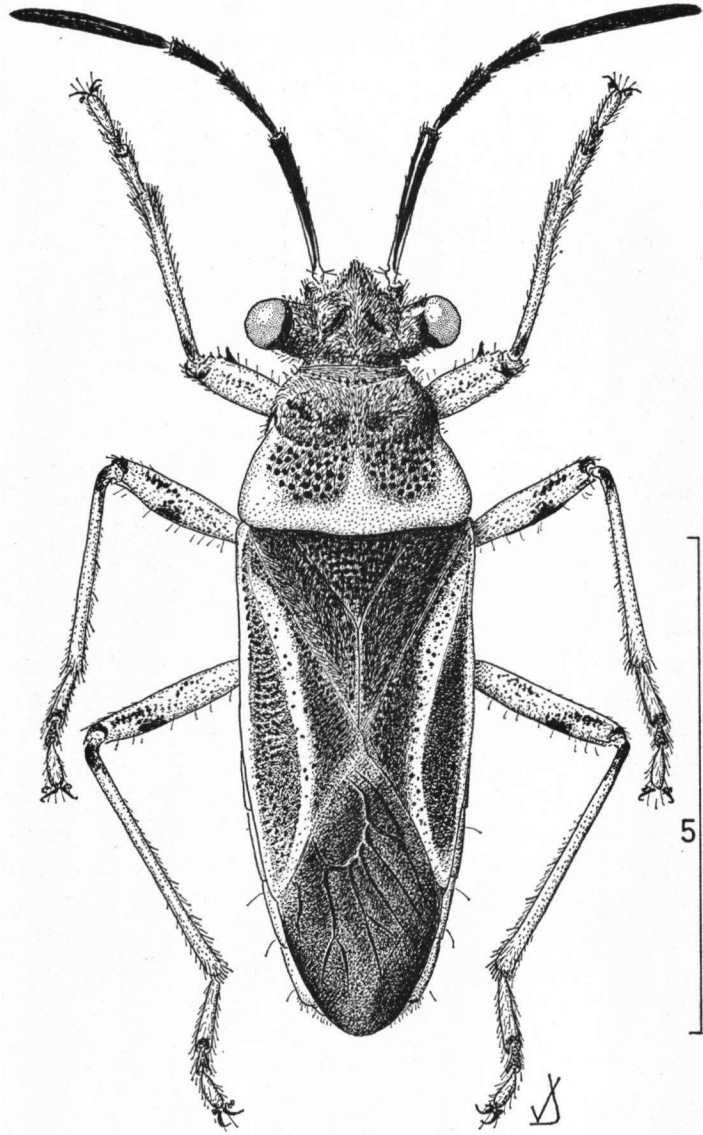


Fig. 7. *Acinocoris elegans* n. sp., holotype, ♂, from SURINAME.

Closely related to *calidus* and very similar in general form, colour and superficial structures, except for the following characters by

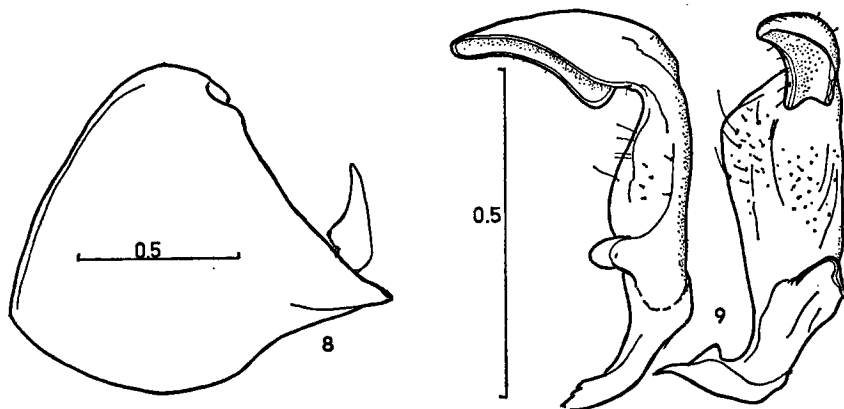


Fig. 8-9. *Acinocoris elegans*, ♂. - 8. Genital capsule; 9. right paramere.

which this species is easily distinguishable from the former species. The yellow lateral and posterior border of the pronotum very broad with a more pronounced central projection and more rounded inner margins at the corners. The black, deeply punctured areas on the disc therefore more restricted and rounded posteriorly. Corium with a yellow curved streak along the inner side of the corial cleft and the posterior margin; the markings on the femora more variable and often obscure. Tibiae and tarsi lighter in colour. The pubescence, especially that on the top of the head and on the pronotum, tends somewhat more to yellow. The yellow patches on the sides of the sternites larger and more rounded laterally. In the female the yellow dot on each side of the seventh sternite connected with the yellowish lateral margins. In the male the medial part of the posterior margin of the ninth segment sharper (Fig. 8), and a little more concave. The hook (terminal spur) of the paramere (Fig. 9) distinctly more curved.

Measurements	holotype	7 ♂	5 ♀
length	7.56	7.1 -7.33-7.6	7.8 -8.32-8.5
width	2.39	2.30-2.38-2.44	2.71-2.95-3.08
w/head	2.10	1.93-2.05-2.16	2.02-2.16-2.26
l/pronotum	1.66	1.47-1.53-1.66	1.56-1.71-1.79
w/pronotum	2.34	2.20-2.26-2.34	2.39-2.58-2.73

SURINAME: AFOBAKKA, border of Suriname River, on *Solanum*, 25.XI. 1962, holotype (♂) and allotype (♀) taken in copula; ten paratypes

(6 ♂, 2 ♀) and nymphs (on alcohol). Same locality, on shrubs, 13.VIII.1961, two female paratypes (author coll.). All type specimens in author's collection.

Largus Hahn, 1831

Largus HAHN, 1831, Wanz. Ins. 1: 13.
Euryophthalmus LAPORTE 1832, Essai Class. Hém.: 38.
Euryophthalmus; HUSSEY 1929, Gen. Cat. Hem. 3: 13.
Largus; SCHMIDT 1931, Stett. Ent. Ztg. 92: 14.
Euryophthalmus; BLÖTE 1931, Zool. Meded. 14: 98-99.
Largus; CHINA 1954, Ent. Mon. Mag. 90: 188.

Body longly to broadly ovate, head small, eyes pedunculate, disc of pronotum large, callus flat.

KEY TO SPECIES

- 1a Metapleura inflated, as wide as long (Fig. 10) 2
 b Metapleura normal, wider than long (Fig. 11) 3
- 2a Pronotal disc orange-red, antenna entirely black
 *crassipes* Stål
 b Disc and last segment of antenna yellow . . . *lineola* (L.)
- 3a Anterior pronotal angles yellow *umbrosus* Distant
 b Anterior angles blackish *geijskesi* nov. sp.

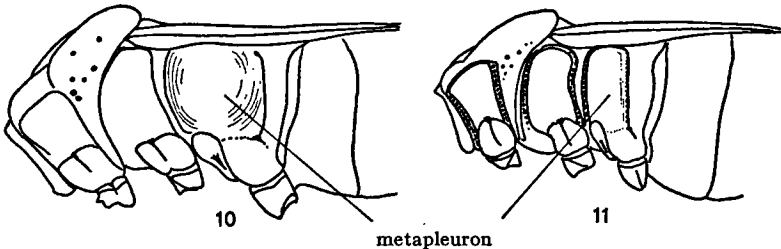


Fig. 10. *Largus crassipes*, lateral view of thorax.
 Fig. 11. *Largus umbrosus*, lateral view of thorax.

Largus geijskesi nov. sp.

(Fig. 12-14)

Diagnosis: Broadly ovate, blackish brown, with a light grey membrane and partly yellow tibiae.

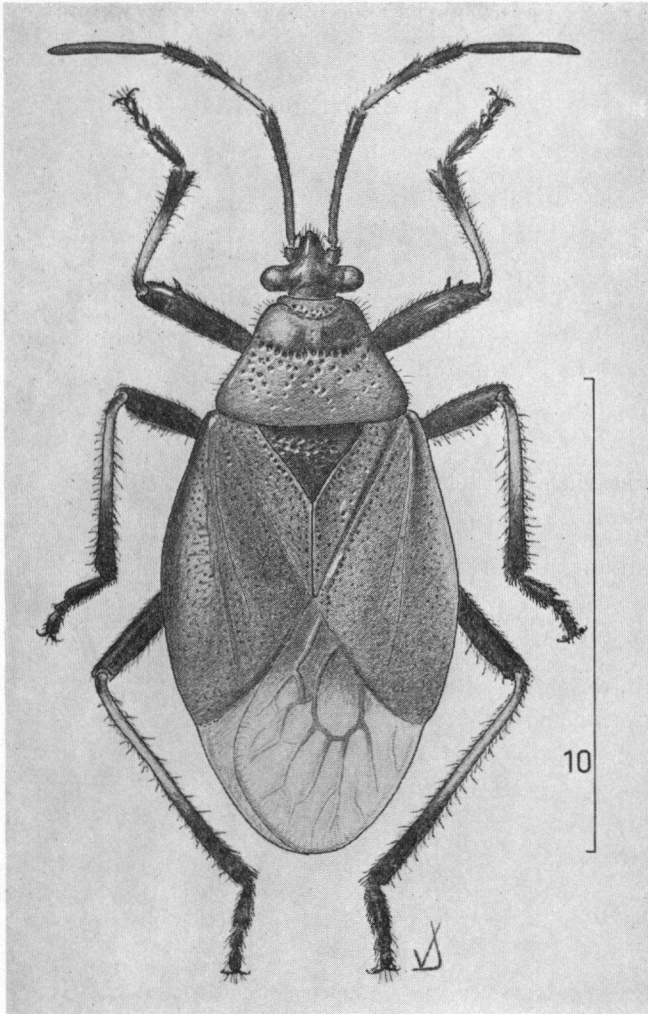


Fig. 12. *Largus geijskesi* n. sp., paratype, ♂, from SURINAME.

Male. Head shining black, transversely wrinkled, with two transverse yellow markings behind the vertex, and covered with fine, semi-adpressed, more or less silvery hairs, intermixed with black setae. Antenna and rostrum black.

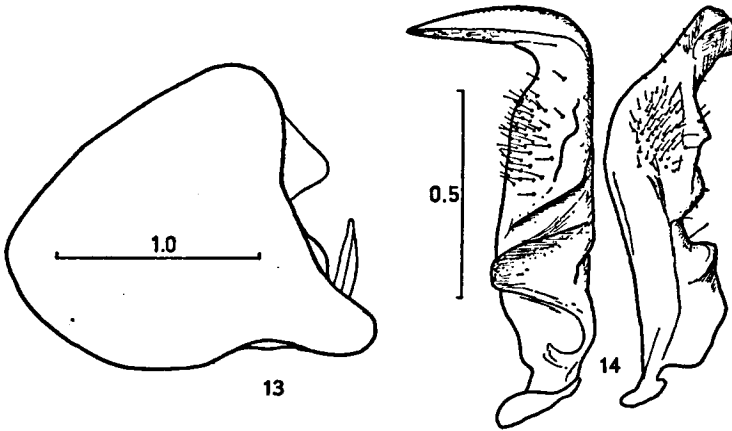


Fig. 13-14. *Largus geijskesi*, ♂. - 13. Genital capsule; 14. right paramere.

Thorax. Pronotum with a dark brown collar, a shining black callus, and a dull, dark brown disc, the posterior part of which turning to light brown, callosal sulci and anterior half of disc with deeply impressed punctures. Scutellum shining black, with a dull, finely shagreened apex, a transverse depression near the base, transversely wrinkled, irregularly punctate, and covered with a fine, dark, semi-adpressed pubescence, mixed with long, curved, black setae. Corium convexely sinuated behind the middle, with broadly raised costal margins; dull dark brown, with brown clavus and apical parts, and light brown to yellowish claval inner margin and base of the corial cleft; with a rather fine, at the apical parts disappearing punctation along the costal margin, anteriorly more dense and deep; densely covered with fine, semi-adpressed, dark hairs, and at the base and along the corial cleft with dark setae. Membrane light greyish with the inner base and apical margin darkened. Under side of thorax almost entirely dark brown to blackish, only the posterior metapleural flanges and a small longitudinal patch on the mesosternum (between the middle coxae) yellow. The dark parts with a dark, sometimes silvery shining pubescence, mixed with long, black setae; the yellow parts covered with whitish hairs; Above the clefts of the fore and middle coxal lobes a small patch (tuft) of silvery, curved hairs. Metapleural

scent-gland orifices with dark grey peritremes and a dull black external follicle, bearing some whitish hairs. Legs black, proximal third part of the tibiae yellowish, except for the blackish knees (left middle tibia of holotype aberrantly brown).

Abdomen brown, broadly yellowish bordered; pleural grooves, short grooves on each side at the base of the third to sixth sternite and the trichobothria black; sixth to ninth sternites yellow with a brown base and a brown median line. Posterior margin of the ninth segment roundly produced, but medially interrupted by an impression. Paramere (Fig. 14) large, mesial ridge of the spur straight, perpendicular to the shaft.

Female similar to the male; base of second antennal segment brownish; seventh sternite yellowish, with a dark brown base and mesial margins; posterior edge concave and apical corners rounded.

The other specimens somewhat variable in colour; from brown to blackish; base of second antennal segment yellow to blackish.

<i>Measurements</i>	holotype	5 ♂	5 ♀
length	13.6	12.7-13.0-13.6	13.8-14.3-15.0
width	7.0	6.15-6.37-7.0	6.62-7.00-7.65
w/head	2.21	2.15-2.20-2.26	2.20-2.28-2.32
l/pronotum	3.14	2.67-2.84-3.14	3.02-3.12-3.25
w/pronotum	4.40	4.06-4.20-4.40	4.52-4.66-4.87
rostrum	4.5	—	—

SURINAME: COBROENI, airstrip, taken at light, 15.VIII.1959 (D. C. Geijskes coll.), holotype (♂); on *Inga*, 11.VIII.1959, allotype (♀, same collector); 8 paratypes from same locality (and also collected by Geijskes): 11.VIII.1959, 1 ♂ immature, on *Inga*; 10.VIII.1959, 1 ♀; 11.VIII.1959, 1 ♀; 15.VIII.1959, at light, 1 ♂; 24.VIII.1959, in forest, 1 ♀; 27.VIII.1959, 1 ♂, 1 ♀ imm.; 5.IX.1959, 1 ♂. Types in author's collection.

Nymphs. Two fifth-instar nymphs, likely belonging to the same species (collected by P. Creutzberg) in the same locality on 17.VIII.1959. They will be described elsewhere.

Largus umbrosus Distant

(Fig. 15-17)

Largus lineola; AMYOT & SERVILLE 1843 (non Linnaeus), Hist. Nat. Ins. Hémipt.: 274.

Largus umbrosus DISTANT 1901, Trans. Ent. Soc. Lond. 1901: 587.

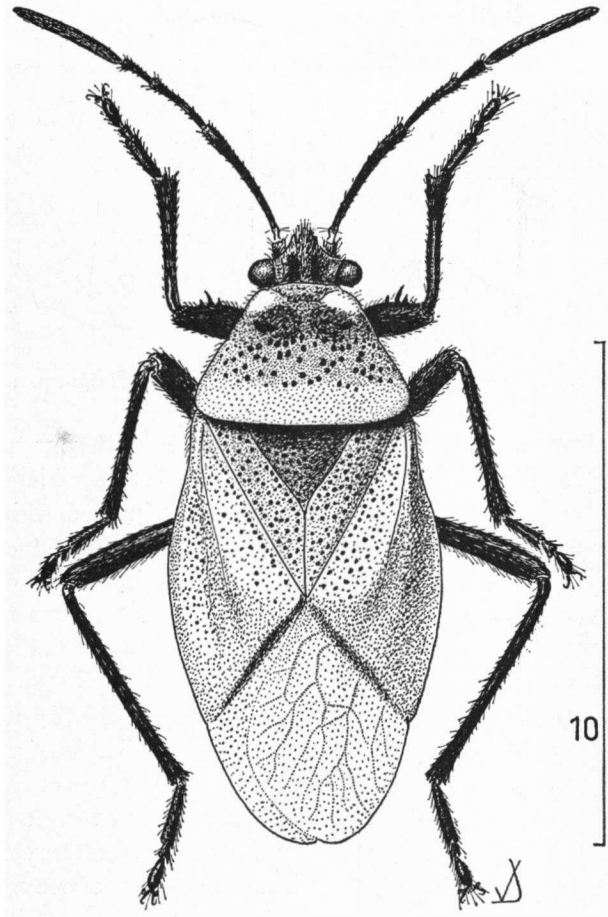


Fig. 15. *Largus umbrosus* Distant, ♀, from SURINAME.

Largus trochanterus (Signoret) var. *surinamensis* SCHMIDT 1931, Stett. Ent. Ztg. 93: 17 (new synonym).

Euryophthalmus trochanterus; BLÖTE 1931, Zool. Med. 14: 99 (partim, Cat. No. 1).

Diagnosis: Yellowish brown, darkly punctate with antennae and legs black, and with anterior pronotal corners and coxal lobes orange-yellow. Length 10–12 mm.

Head variable in colour, from brown with black and yellow markings and a light patch on the vertex, to almost entirely

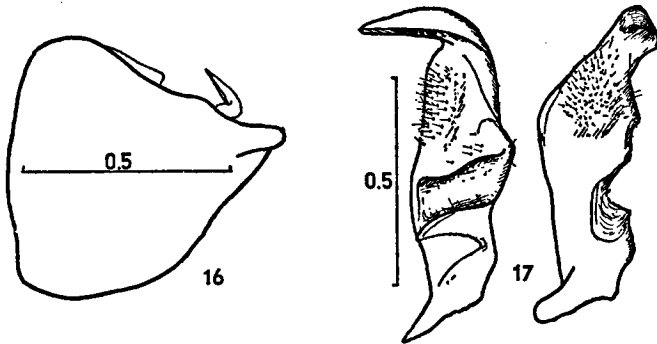


Fig. 16-17. *Largus umbrosus*, ♂. - 16. Genital capsule; 17. right paramere.

blackish. Brown are: frons, vertex, and the antenniferous tubercles; black: two longitudinal streaks on front and vertex, sides of head, eyestalks, tylus, jugum and lorum; yellow: the inner margins of the antenniferous tubercles, tip of the tylus and the bucculae. In the darkest specimens, only the yellow parts remain lighter coloured. Antenna black with a brown base. Rostrum dark brown to black, the first two segments sometimes light brown on the upper side. Head covered with a silvery pubescence.

Thorax. Pronotum: collar brown, callus reddish brown with bright yellow anterior corners and with a pair of blackish, irregularly kidney-shaped markings. Anterior part of the disc brown, gradually turning to yellow in the posterior part. Disc (except for the posterior margin), sides, and collar with black, impressed punctures. Scutellum reddish brown, turning to yellow towards the apex, densely black punctured. Corium yellow to reddish brown (Ridgway colours: light ochraceous buff to tawny); brownish darkened along the base, along the costa, the corial cleft, and the border near the membrane. Clavus and along the claval suture strongly, elsewhere more finely black punctate; distal parts fairly smooth. Membrane greyish black, sometimes with a light brownish cloud. Pronotum, scutellum and corium very finely, adpressed, yellowish white pilose. Under side: collar light brown, sides of sternites brown, bordered with deeply punctured, black grooves. The posterior flanges of pro- and mesopleuron lighter coloured; metapleural flange and coxal lobes bright yellow and yellow-orange respectively (Ridgway

colours: yellow to yellow-orange to orange buff). Margins of the metapleural scent-gland orifices black, the swollen lateral margin (papilla) reddish and covered with a tuft of silvery hairs. Coxae and legs black.

Abdomen. Sternites yellowish brown with dark brown bases and pleura; finely adpressed pilose; colour of these hairs following the colour pattern of the abdomen. In the middle parts this pubescence intermixed with long, erect, light coloured hairs and some dark setae. In the female the seventh sternite almost entirely yellowish brown and the rims of the median cleft brown and somewhat transparent. In the male the sixth sternite almost totally, the seventh for the greater anterior part dark brown. The eighth sternite (mostly hidden) and the ninth (genital) segment (Fig. 16) light coloured. Paramere with a sharply pointed, apical spur, from which the mesial ridge curves downwards proximally (Fig. 17).

<i>Measurements</i>	7 ♂	10 ♀
length	10.2-10.5-10.7	11.7-12.2-12.9
width	4.29-4.47-4.64	5.10-5.40-6.02
w/head	2.08-2.13-2.21	2.08-2.22-2.32
l/pronotum	2.44-2.56-2.67	2.67-2.87-3.14
w/pronotum	3.60-3.71-3.83	4.06-4.40-4.63

Type. I examined in the British Museum (Nat. Hist.) the holotype of *Largus umbrosus* Distant, which perfectly agrees with the Surinam specimens. The locality of DISTANT's type is indicated as "West Indies".

SURINAME: PARAMARIBO, 5.VII.1958, 1 ♀; 4.VI.1959, 1 ♀; 29.IV.1960, 1 ♀; IV.1961, 1 ♂. Clevia, 18.VIII.1958, 1 ♂; 1/6.V.1958, 1 ♀; 22.V.1959, in clumps of *Paspalum virgatum*, 2 ♂, 11 ♀ (one just moulted); 2.V.1960, on *Pueraria phaseoloides*, 1 ♂. - COMMEWIJNE, Mariënborg, 14.IV.1963, on grass, 2 ♀; VI.1963, on *Cordia*, 1 ♂, 3 ♀. Rust en Werk, 15.V.1939, on *Centrosema*, 1 ♂ (Geijskes coll.).

Largus crassipes Stål

(Fig. 18-20)

De Dwarsgelijnde Wantz, La Punaise à pointillages transversées, STOLL 1788,

Wantzen: 18-19, pl. 3, fig. 19.

Cimex lincola; STOLL (nec Linnaeus) 1788, *ibid.* [lapsus for *lineola*].

Cimex punctatus; STOLL (nec De Geer) 1788, *ibid.*

Largus crassipes STÅL 1861, Öfv. Vet. Ak. Förh. 18: 197.

Largus concisus WALKER 1873, Cat. Heter. 6: 38.

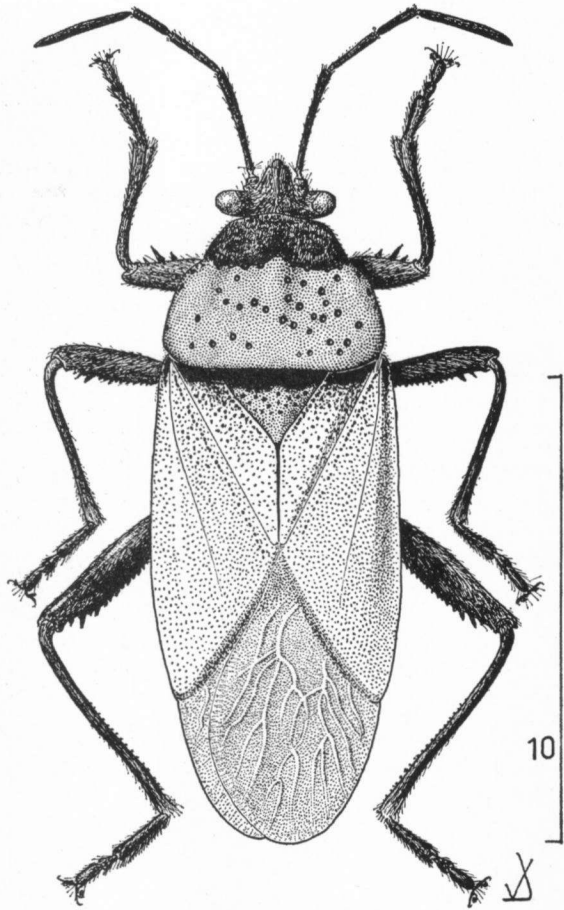


Fig. 18. *Largus crassipes* Stål, ♂, from SURINAME.

Euryophthalmus crassipes; HUSSEY 1929, Gen. Cat. Hem. 3: 15.

Euryophthalmus crassipes; BLÖTE 1931, Zool. Med. 15: 98.

Largus holstei SCHMIDT 1931, Stett. Ent. Ztg. 92: 29-30 (new synonym).

Diagnosis: Orange-red species with head, antennae, anterior part of pronotum, base of scutellum and bases of abdominal segments black.

Head shining black, covered with short, semi-adpressed, golden brown hairs; on tylus, juga, maxillary plates, bucculae, antenni-

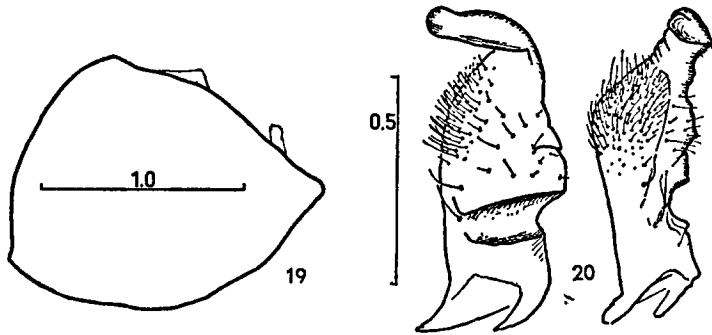


Fig. 19-20. *Largus crassipes*, ♂. - 19. Genital capsule; 20. right paramere.

ferous tubercles, distal margins of eyestalks and posterior parts of the gula, the pubescence more silvery, on tylus and under side of head intermixed with long, sub-erect, white hairs. Antenna black, very finely, adpressed, silvery pilose. Rostrum black; first segment densely, the other sparingly covered with a fine, white pubescence.

Thorax. Pronotal collar brown to blackish; callus dull black, covered with an adpressed, golden yellow pubescence, on both sides with an irregular kidney-shaped, bare and glossy impression; callus anteriorly and posteriorly bordered by an irregular row of black, deeply impressed punctures; along the lateral margins with some small punctures. Disc inflated, in the median and laterally projected into the callus; dull orange-red (Ridgway: Jasper red) and with a number of irregularly scattered, black, deeply impressed punctures. Between these punctures a very fine, obscure, subdermal, dense punctulation and sparingly covered with very delicate yellow hairs (usually wiped-off). Corium and scutellum yellowish orange (Ridgway: ochraceous orange to mars yellow to raw sienna), basal parts however brown to blackish; the border between corium and membrane brownish; punctation of corium and scutellum dark brown to blackish; strong and deep in the basal parts, somewhat finer on the clavus and in one row along the claval suture and very fine on the rest of the corium. Corium and scutellum covered with fine, curved, yellow hairs; apical parts of corium more densely pilose than the anterior parts. Membrane pale smoky grey, sometimes brownish shaded at the base and along the margin.

Epipleure of forewing of same colour as the corium, densely covered with fine, sub-erect hairs. Under side of thorax brown to blackish, densely clothed with adpressed, golden-brown hairs, sparsely intermixed with longer, semi-erect, white setae. The sterna between the coxae silvery pilose and like the collar region, with additional, long, erect, white hairs. Posterior flanges of the propleura orange to brown, at the sides confluent with the disc of the pronotum and with some deeply impressed black punctures in this region. Posterior flanges of mesopleura brownish. Posterior flanges of metapleura yellow with black punctures, which are indistinct by a dense, adpressed, silvery pubescence. Legs brown to black, clothed with close-set, fine, silvery hairs, the femora with many small, bare and dark patches, each with a semi-erect white seta in the centre; under side of the femora provided with two rows of more or less small tubercles, those on the hind femora irregularly scattered, especially proximally. The distal-most tubercles enlarged to spines, especially those on the front legs. The first segment of the tarsi lighter in colour.

Abdomen yellow to greenish with black, clothed with an adpressed, silvery tomentum. Second sternite black with a yellow to greenish anterior margin; remaining sternites black with the posterior parts yellowish to greenish, above the pleural sutures black, bordered by the yellow lateral margins of the abdomen. In the female the posterior margin of the seventh sternite a little concave on both sides; the apical angles of the valvae somewhat produced, fairly sharply rounded; mesial margins brown. In the male the posterior femora are swollen, the irregularly scattered tubercles numerous and prominent; posterior tibiae curved and ventrally also set with rows of short spines. The sternites medially sharply keeled, sixth and seventh segment furrow-like depressed on both sides along the median keel and the posterior margins raised. The ninth segment (Fig. 19) yellowish with a dark, somewhat raised patch on the posterior wall. The broadly rounded edge surrounding the somewhat square genital opening, narrowed at the posterior margin. Paramere with two sharp ridges, bordering an oblique furrow in the broad shaft; medio-dorsal side of the shaft bluntly shouldered and densely covered with long hairs; apical spur curved, somewhat flattened, mesially sharply ridged and bluntly pointed (Fig. 20).

Measurements	7 ♂	8 ♀
length	12.3-13.3-14.4	12.4-13.7-14.9
width	4.88-5.22-5.57	4.64-5.31-6.03
w/head	2.33-2.56-2.67	2.44-2.54-2.67
l/pronotum	3.14-3.36-3.60	2.90-3.41-3.77
w/pronotum	4.30-4.64-5.0	4.18-4.90-5.33
rostrum	3.48-3.95	3.72-4.06

Type. I have seen STÅL's holotype, a male in the collection of the Stockholm Naturhistoriska Riksmuseet. The label records: SURINAME, De Haan. The specimen is badly damaged, but unmistakably conspecific with the Surinam specimens in my collection. I have also studied the type of WALKER's *Largus concisus*, in the British Museum (Nat. Hist), which name DISTANT in 1903 correctly synonymised with STÅL's *crassipes*.

STOLL, in 1788, described and depicted this species for the first time, naming it "De Dwarsgelijnde Wantz" or "La Punaise à pointillages transversées" but wrongly refers it to LINNAEUS' *Cimex lineola* and DE GEER's *Cimex punctatus*.

SURINAME: PARAMARIBO, 2.XI.1958, 1 ♀; V.1959, 1 ♂; XII.1962, 1 ♂. De Morgenstond, 6.II.1959, 1 ♂; 17.II.1959, 1 ♂; 26.II.1959, 1 ♀; 30.III.1959, 1 ♀; 10.IV.1959, 1 ♀; 7.V.1959, 1 ♂. - SARAMACCA, Uitkijk, 25.XI.1960, 1 ♀ (K.U. Kramer coll.). La Poule, 1957, 1 ♂ (N. v. Suchtelen coll.). - COPPENAME, between Coppename and Ingikondre (Coronie), on herbs, 8.XII.1960, 1 ♀. - ZUIDRIVIER, first great falls, 5.VII.1963, 1 ♀ (H. Pijpers coll.). - LUCIE RIVIER, at light, 13.VII.1963, 1 ♂ (H. Pijpers coll.). - SURINAME, seven specimens, without further indication of locality, in the collection of the Leiden Museum; see BLÖTE 1931.

Nothing is known about the biology of this species. All specimens, captured at the estate De Morgenstond were found on different herbs close to a "Swietie boontji" tree (*Inga* sp.), but any other connection with this tree or other plant could not be detected.

Largus lineola (L.)

(Fig. 21-23)

Cimex lineola LINNAEUS 1758, Syst. Nat., ed. 10, 1: 445.

Cimex punctatus DE GEER 1773, Mém. Hist. Ins. 3: 337-338, pl. 34 fig. 17-18.

De Stoppelrug; La Punaise picoté, STOLL 1788, Wantzen: 85, pl. 21 fig. 145.

Lygaeus gibbus FABRICIUS 1803, Syst. Rhyng.: 227.

Largus lineola; BURMEISTER 1835, Handb. Ent. 2: 283.

Largus lineola; STÅL 1868, Hem. Fabr. 1: 80 (synonymy).

Euryophthalmus lineola; HUSSEY 1929, Gen. Cat. Hem. 3: 17.

Euryophthalmus lineola; BLÖTE 1931, Zool. Meded. 14: 99.

Diagnosis: Light yellowish with a broad, tawny, transverse band on the wings; head, anterior pronotal lobe, scutellum and extremi-

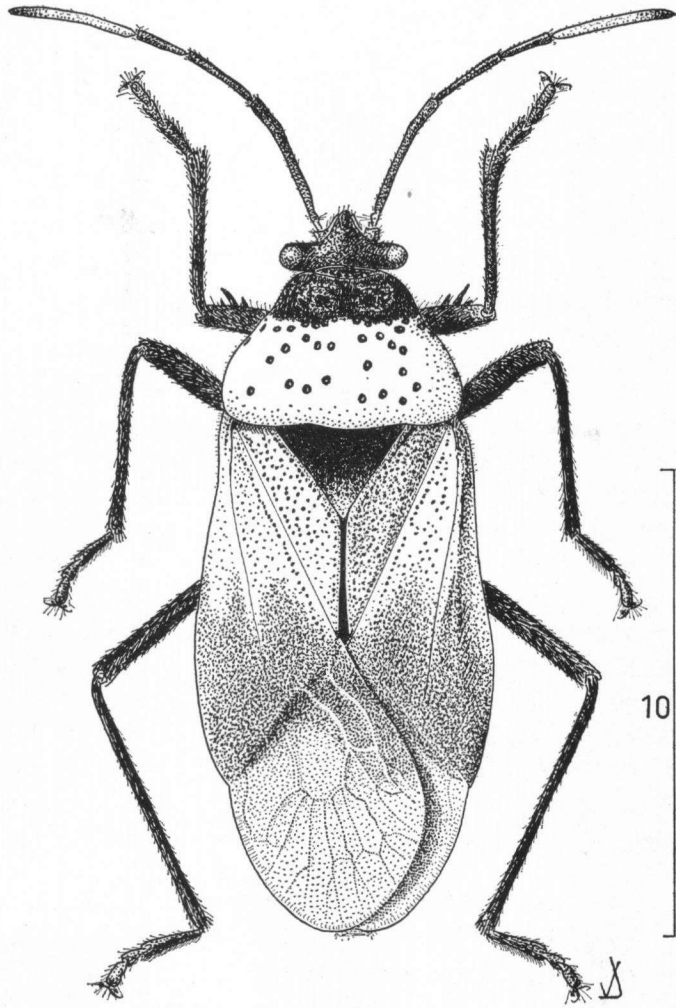


Fig. 21. *Largus lineola* (Linnaeus), ♀, from SURINAME.

ties black; last antennal segment largely yellow; abdomen inflated, yellow, with black lateral markings.

Head shining black, mainly finely blackish pilose; eyestalks, genae, gula, sides and under side covered with silvery to golden

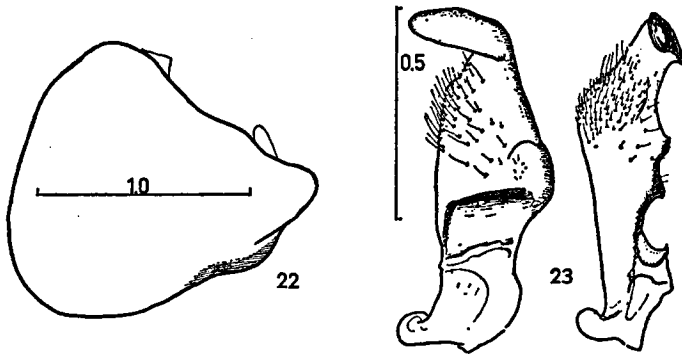


Fig. 22-23. *Largus lineola*, ♂. - 22. Genital capsule; 23. right paramere.

yellow, adressed hairs. Antenna black, last segment for the greater proximal part yellowish. Rostrum black.

Thorax. Pronotal collar and callus dull black, disc pale yellow; collar with many deep punctures; between callus and disc a more or less regular row of black punctures like those along the sides of the pronotum; disc as a rule with a number of scattered, large, black punctures, with a very delicate subdermal punctulation and very finely sparsely pilose (usually wiped-off). Scutellum dull black with a brownish apex, irregularly punctured and densely black pilose. Anterior half of corium yellow, base and inner margin of clavus and the posterior half of corium tawny to cinnamon-rufous (RIDGWAY, 1912); corium with a brown to blackish punctation and whirly covered with silvery semi-adressed hairs. Membrane greyish white with a brownish base. Under side of thorax almost entirely dull black, clothed by a fine dense suberect black pubescence, intermixed with light brown, erect setae, and interrupted by patches of close-set adressed, golden yellow hairs, especially on prothorax. Anterior margin of collar, lateral parts of posterior metapleural flanges, and the apical margins of coxal lobes, turning to yellow. Sides covered with a dull black tomentum, mixed with scattered golden yellow hairs. Lateral part of propleura with adressed, golden hairs. Coxal lobes and sterna covered with a silvery tomentum, mixed with long, erect white hairs. On the border between the posterior propleural flange and the pronotal epipleuron some deeply impressed, black dots. Metapleural scent-gland peritremes dull

blackish with a whitish tuft of hairs laterally on the papillum. Legs dark brown to black; distal parts of femora and the last tarsal segments, brown. The fine, silvery pubescence of the femora with rows of dark bare spots. Front femora with three strong spines near the apex. Under side of the other femora with some small teeth apically, and with many small tubercles, more proximally. Hind femur of male thickened; hind tibia slightly double bent.

Abdomen strikingly convex especially in the female; yellowish brown, sides more yellow, margin red. Black are: basal margins of third and seventh sternite, apical margin of the second sternite at the sides, an impressed dot on each side of the fourth, fifth and sixth sternites, pleural sutures, and a patch bordering these sutures laterally on each side of the third to seventh sternites. Abdomen covered with a fine, silvery pubescence. In the female the mesial margins of the splitted sternite and the under side of the ninth sternite, brown. Posterior margins of the seventh and ninth sternites a little concave.

In the male the eighth and ninth sternites almost entirely yellowish white; the latter medially with a raised, brown streak resembling a snakes head. Sternites medially with a more or less distinct brown keel, the fifth, and especially the sixth and seventh sternites, grooved on both sides of this keel; posterior margins of the fifth and sixth sternites raised, the latter moreover accolade-shaped. Genital capsule (Fig. 22) fairly spherical in form; opening somewhat square, posterior margin rounded, impressed posteriorly. Lateral margins inwardly with a flat, darkened tubercle. Anterior margin somewhat lifted medially. Paramere (Fig. 23) with a broad, flat shaft, provided with an oblique furrow, surrounded proximally and distally by sharp, darkened keels and apically with a third, oblique, short keel; apical spur strong, flat, bluntly pointed and *in situ* directed fronto-dorsally.

<i>Measurements</i>	♂	6 ♀
length	14.3	14.2-14.4-14.6
width	5.68	5.68-6.04-6.27
w/head	2.79	2.68-2.75-2.80
l/pronotum	3.37	3.65-3.82-3.95
w/pronotum	4.52	4.88-5.0 -5.22
rostrum	4.30	3.9-4.5

Type. I have not seen the Linnean type of *Cimex lineola* (type locality: "America"), but the description leaves no doubt of its true identity. I have seen DE GEER's type of *Cimex punctatus* and FABRICIUS' type of *Lygaeus gibbus*, both conspecific with the Surinam specimens.

Another Surinam specimen of this species has been described and depicted by STOLL (1788, p. 85, pl. 21 fig. 145) denominated as "De Stippelrug" or "La Punaise picoté".

SURINAME: PARAMARIBO, 12.VI.1961, 1 ♀ (Geijskes coll.); III. 1963, 1 ♀. Peperpot, 16.III.1962, 1 ♀. - KÄYSER GEBERGTE, Käyser airstrip, X.1960, 1 ♀ (Sagiman coll.) - COEROENI, island airstrip, from canopy of a felled tree, 25.VIII.1959, 1 ♂ (Geijskes coll.). - SARAKREEK, Goudplacer, 1.V.1939, 1 ♀ (Hermans coll.); *Euryophthalmus lineola* L. det. H. C. Blöte; (Surinaams Museum). - CORONIE, Coronieweg, piket 216, Noordlijn km 0-02, 20.XI.1948, Swamp with lying vegetation, 1 ♀ (Suriname Exped. 1948/49; Museum Leiden). - Museum Leiden: Cat. Nos. 1-5 (BLÖTE, 1931, *Euryophthalmus*), PARAMARIBO, 3 ♀♀; SARAMACCA, 1 ♀; without further locality, 1 ♀.

Fibrenus Stål

Fibrenus STÅL 1861, Öfv. Vet. Ak. Förh. 18: 195, 198.
Fibrenus; HUSSEY 1929, Gen. Cat. Hem. 3: 23.

Anterior thoracic lobe (callus) globose, smooth, longer than disc; fore coxae with a forwardly directed spine; eyestalks broad.

Fibrenus bullatus White

(Fig. 24-26)

Fibrenus bullatus WHITE 1879, J. Linn. Soc. Zool. 14: 483 (Amazonas).
Fibrenus bullatus; HUSSEY 1929, Gen. Cat. Hem. 3: 23.

Diagnosis: Dull brown; pronotum with yellow margins and hemelytra with an interrupted, yellowish white cross.

Head brown with black markings. Black are: two spots on vertex, two curved shiny grooves more laterally, margins of the eyestalks and two longitudinal streaks on the frons. Antenna blackish, under side of first segment brownish. Rostrum dark brown to black.

Thorax. Dorsal side of pronotum brown with yellowish lateral and posterior margins. Callus with dark markings. Scutellum either brown with a black base or almost entirely black. Corium brown;

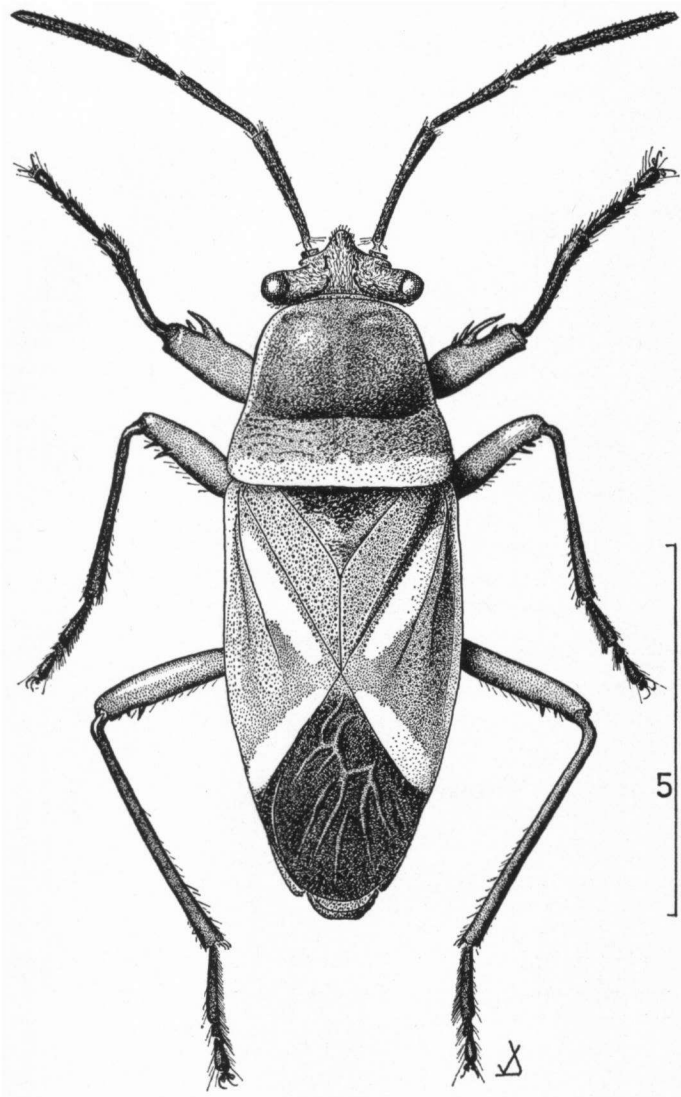


Fig. 24. *Fibrenus bullatus* White, ♂, from SURINAME.

claval suture blackish and each wing with two yellowish white longitudinal patches along the claval vein and the membranal suture respectively. Membrane brownish black. Basal part of

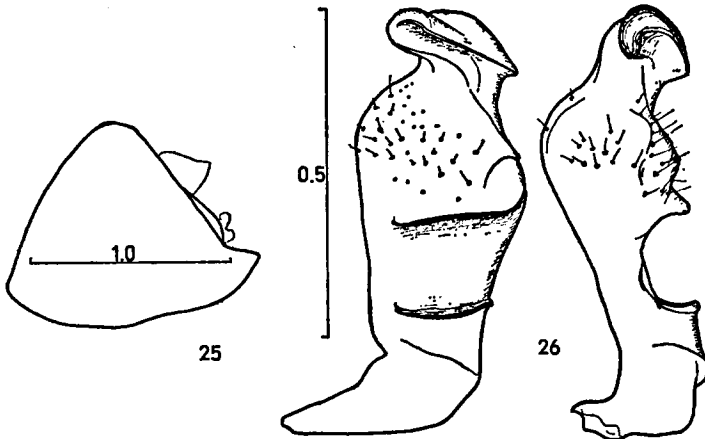


Fig. 25-26. *Fibrenus bullatus*, ♂. - 25. Genital capsule; 26. right paramere.

embolium and epipleure yellowish brown. Under side brown, blackish towards the lateral borders of the pleura. Metapleural scent-gland orifices with black peritremes. Posterior metapleural flanges yellowish. Coxae, trochanters and femora brown, tibiae and tarsi darker, to blackish.

Abdomen (under side) brown with yellow margins along the sides. Basal part of second, distal parts of third, fourth and fifth sternal segments, yellow. In the female the central part of the seventh segment yellowish. In the male the posterior margin of the seventh, and the entire eighth segment, yellow. Ninth segment (Fig. 25) brown with yellow posterior margin. Paramere (Fig. 26) short, with a broad, oblique furrow, bordered with dark rims, and with a short, dark ridge distally of this groove; terminal spur short, dorso-frontally directed, convex above, grooved underneath and very bluntly pointed.

Measurements	♂	♂	♀	♀ (from Sipaliwini)
length	8.7	8.8	9.3	10.8
width	2.94	3.03	3.50	3.91
w/head	2.02	2.07	2.23	2.64
l/pronotum	2.34	2.48	2.34	2.62
w/pronotum	2.71	2.94	3.14	3.26

SURINAME: SIPALIWINI savanne, 11.VI.1963, 1 ♀. - North of MOENGOTAPOE (NE-Suriname), Suriname Exped. 1948/49, Savanne, 3e kamp, zijlijn D,

km 15.8, 20.X.1948, 1 ♂, 1 ♀, on fruit of a small shrub (Geijskes coll.).
Idem, Djaijkreek, lijn km 8.6, 2e kamp, 4.X.1948, ♂ (Geijskes coll.).

Theraneis Spinola

Theraneis SPINOLA 1837, Essai Ins. Hém.: 179.
Theraneis; HUSSEY 1929, Gen. Cat. Hem. 3: 24.

Body elongate, slender; head short, eyes large, broadly sessile; collar broad; legs, especially the hind legs, long and slender.

Theraneis surinamensis nov. sp.

(Fig. 27)

Female. *Head* shining black with large, semi-pedunculate, bulging eyes; under side and sides clothed with a silvery adpressed pubescence, intermixed with erect hairs. Frons and anteclypeus covered with more or less erect, long hairs; vertex bare (rubbed-off?). Behind the eyes some black hairs. First two antennal segments black, the following reddish. Rostrum black, reaching the middle coxae.

Thorax. Pronotum trapezoidal-shaped, slightly shorter than wide posteriorly (6:7), with fairly straight sides; shining black, except for the posterior corners which are orange; posterior sulcus of the callus densely set with silvery, adpressed hairs; in the middle part, this pubescence extends posteriorly into a projected point, at the sides it continues anteriorly, joining a similar pubescence of the under side of the pronotum. Remaining parts with a dull, black tomentum, except for the orange parts, where the hairs are yellow. Callus well defined from collar and disc respectively; a transverse row of punctures joining on both sides the indistinct callosal impressions. Disc with a deep, and coarse punctation. Scutellum slightly longer than wide (8:7), dull black, with a yellow apex, in the anterior part slightly depressed, irregularly punctate and provided with a short, black, whirly pubescence. Corium dull tawny coloured, finely punctate, covered with fine hairs and microscopic, forked, scales. Costal margin densely yellowish tomentose. Membrane dull blackish and whitishly bordered. Posterior pro- and mesopleural flanges with a dense, black tomentum. Metapleura, except for the

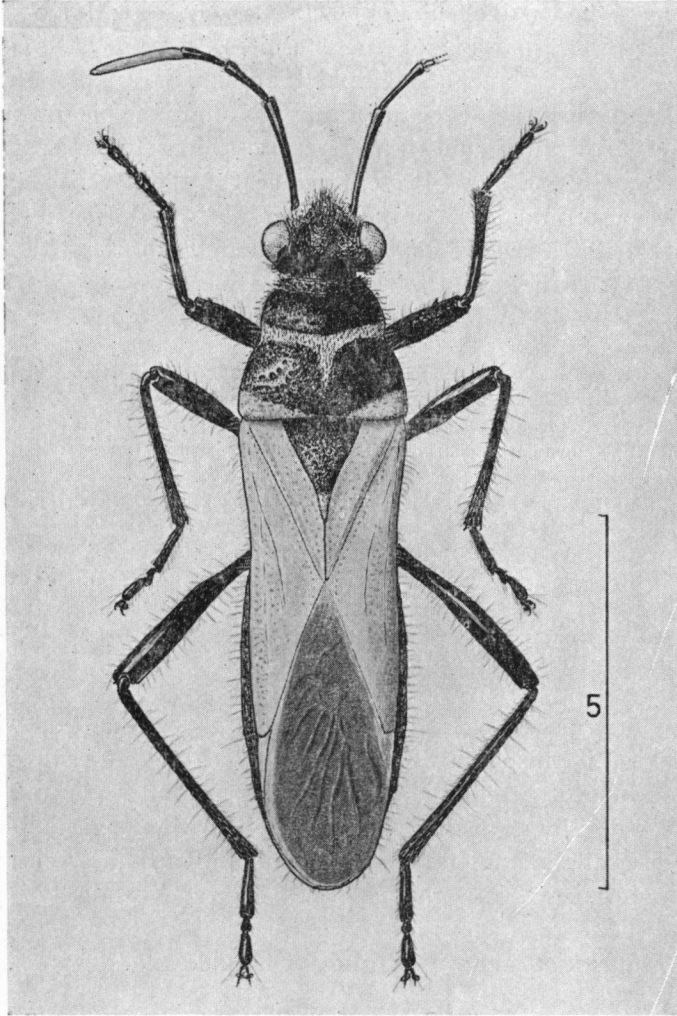


Fig. 27. *Theraneis surinamensis* n. sp., holotype, ♀, from SURINAME.

dorsal and posterior margins, and for a spot in front of each middle coxae, almost bare and shining, only with some long setae. Rest of the sides and under side of thorax densely clothed with adpressed, silvery hairs. Legs shining black, covered with fine, adpressed, silvery hairs, intermingled with long, white setae.

Abdomen (under side) shining black, sparsely set with long, white setae, posterior margins of the sternites, central parts of the sternites two and three, a small patch around the trichobothria on the fourth segment, and the inner margins along the pleural sutures of the fourth, fifth and sixth sternites, densely covered with adpressed, silvery hairs. Posterior edges of the seventh sternite concave; posterior corners of the median split sharp. Dorsal parts of the laterotergites yellowish pilose. Posterior edge of the fifth tergite convex, that of the seventh, deeply concave.

Measurements

Length 9.4; width 2.34; w/head 1.75; l/pronotum 2.0; w/pronotum 2.34; l/scutellum 1.38; w/scutellum 1.24; right antenna: I: 1.74; II: 0.75; III: 0.70; IV: 1.34; (III and IV partly teratologically fused); left antenna: I: 1.74; II: 0.81 (III and IV wanting). [By an accident recently both antennae were lost.]

SURINAME: COMMEWIJNE, Dordrecht, near back dam of Peperpot estate, in secondary forest, 27.V.1958 (author coll.).

***Thaumastaneus* Kirkaldy & Edwards**

Thaumastaneus KIRKALDY & EDWARDS 1902, Wien. Ent. Ztg. 21: 163.

Thaumastaneus; HUSSEY 1927, Bull. Brookl. Ent. Soc. 22: 230.

Strongly myrmecomorph; head spherical to egg-shaped, with a slender neck, hemispherically, prominent eyes and a short rostrum. Anterior lobe of pronotum almost spherical and separated from collar and disc by deep sulci; posterior lobe with a conical spine on each side near the humeral angles. Scutellum with an erect conical tubercle. Legs, especially the hind ones, long and slender.

***Thaumastaneus montandoni* Kirkaldy & Edwards**

(Fig. 28–30)

Thaumastaneus montandoni KIRKALDY & EDWARDS 1902, Wien. Ent. Ztg. 21: 164, pl. 3 fig. 4–4a (female from Brasil, Játahy [= Iátai?], prov. Goyas).

Thaumastaneus montandoni; HUSSEY 1927, Bull. Brookl. Ent. Soc. 22: 232, fig. 1 (male and female specimens from Brasil, Chapada, state of Mato Grosso [not Marañao, R. F. Hussey in litt.]).

Thaumastaneus montandoni; HUSSEY 1929, Gen. Cat. Hem. 3: 28.

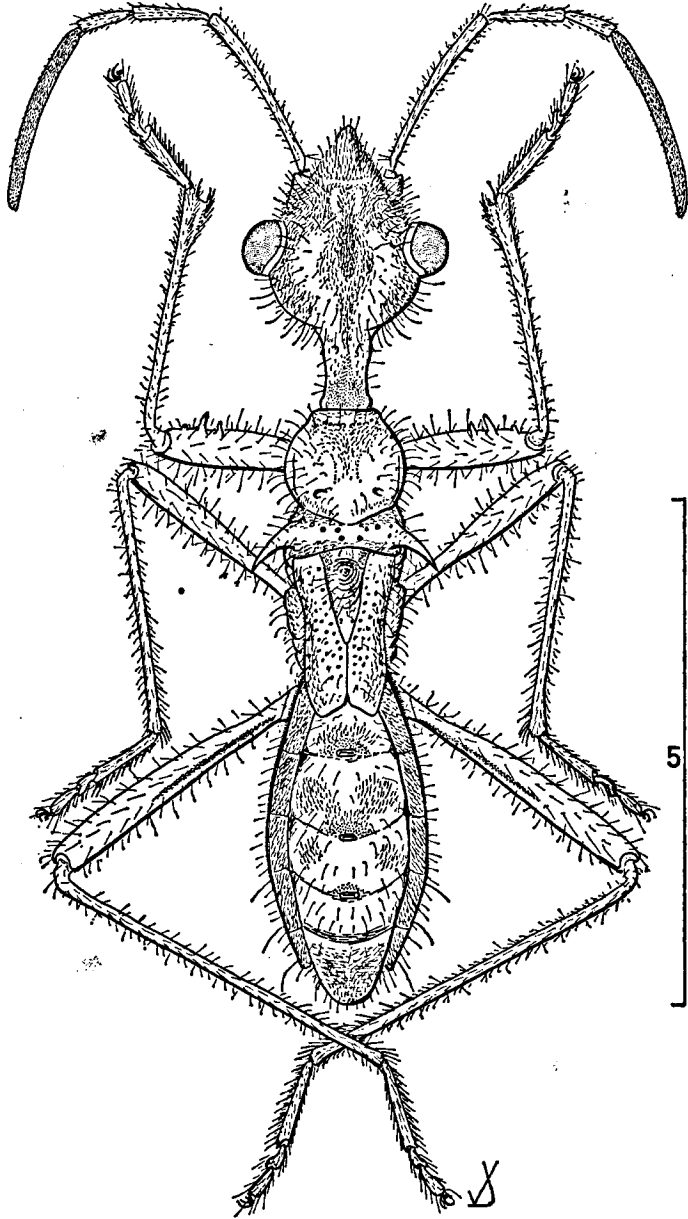


Fig. 28. *Thaumastaneus montandoni* Kirkaldy & Edwards, ♂, from SURINAME.

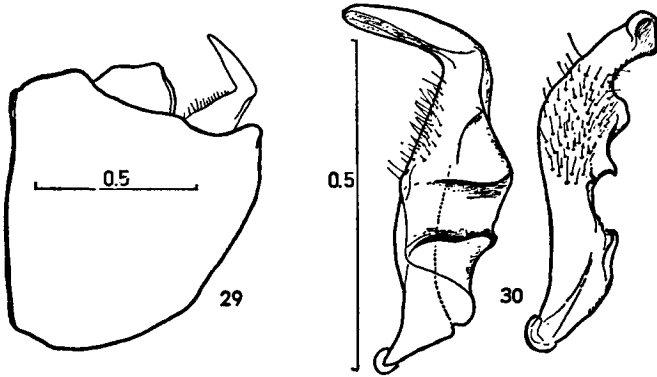


Fig. 29-30. *Thaumastaneus montandoni*, ♂. - 29. Genital capsule; 30. right paramere.

Diagnosis: Brachypterous; shining, with patterns of silvery pubescence mixed with long erect hairs; antennae, tibiae and tarsi light brown.

Head egg-shaped, pointed towards the mouth parts, and with a slender, distinct, cylindrical neck. Eyes sub-pedunculate, almost semi-spherical. Frons with a silvery pubescence, interrupted between the eyes by a patch of black hairs, intermixed with erect black setae. Dorsal parts of neck dull, finely shagreenous. Antenna slender, yellowish brown. Rostrum blackish brown, a little shorter than the head (including the neck).

Thorax. Anterior pronotal lobe (callus) spherically inflated with two callosal impressions dorsally, anteriorly bounded by the narrow collar and posteriorly separated from the disc by a deep transverse sulcus. Posterior margin of the disc broadly concave, posterior angles each provided with a stout, slightly recurved spine. Disc with a central shagreenous, dull area and impressed with some deep punctures. Scutellum about twice as long as wide, provided with an erect, conical tubercle. Hemelytra short, without any trace of a membrane, somewhat lifted posteriorly, truncate, dull black, except for the brownish marginal parts, with impressed punctures, and along the costal margin with a streak of white, semi-adpressed hairs. Costal edge finely serrate laterally. Metatergum (hidden under elytrae) membranous. Sides and under side of thorax silvery

pubescent. Metathoracic scent-gland orifical peritremes dull black, poorly developed and more or less restricted to the ventral part of the segment. Coxal lobes and mesial surfaces of coxae dull shagreenous; trochanters, femora and external parts of coxae shining; fore femora mostly with two spines at the under side: a small one near the apex and a stouter one more proximally. Hind femora slender, with a dull, finely rastrate area along the posterior surface. Tibiae and tarsi light brown with rows of dark spines; knees and last tarsal segments darkened.

Abdomen oblongo-ovate; tergites strongly convex, except for the seventh and eighth in the female; fourth and fifth tergites with silvery pubescent patches laterally. Dorsal parts of laterotergites shagreenous, dull. Orifical structures of dorsal glands well developed, ovate, anterior margins wider than the posterior; Orifices splitlike, apparently not paired and situated in the posteriorly produced hind margins of the third, fourth and fifth tergites respectively; each structure bordered with a very finely punctate area (strainer). Under side with a silvery adpressed pubescence, except for the sides of the fourth to sixth sternites. Lateral edges of the second, third and fourth segments very finely serrate. In the female the abdomen more rounded, the seventh and eighth tergites flat; posterior edge of the former concavely sinuated; sides of seventh sternite roughly shagreenous with broad, shining, semi-transparent margins along the median split; hind margins concave. In the male the seventh tergite prolonged apically and the posterior edge convexely produced, covering the genital opening of the ninth segment. Seventh tergite, eight and ninth sternites, with dull, finely shagreenous sides. Sides and under side of the ninth segment (Fig. 29) gradually rounded towards the posterior margin of the genital opening. Paramere (Fig. 30) brown; shaft broad, somewhat depressed laterally, with a wide, almost transverse sulcus near the middle, and with a short, oblique ridge near its gradually narrowed apex; the oblique sulcus proximally and distally bordered with dark ridges. Spur dorso-frontally directed, hooked, rounded dorsally, flattened ventrally, with a moderately curved mesial margin and semi-acute.

Measurements	♂	♂	♀	♀	♀
length	8.0	8.4	9.6	9.6	10.1
width	1.38	1.52	2.20	2.02	2.07
w/head	1.90	2.02	2.36	2.32	2.34
l/pronotum	1.38	1.42	1.52	1.56	1.52
w/pronotum	1.10	1.24	1.40	1.43	1.40
rostrum	1.98	2.21	2.38	2.38	2.50

According to the original description given by KIRKALDY & EDWARDS and the redescription given by HUSSEY in 1927, there seems to be little doubt about the true identity of the Surinam specimens. But the great distance between the type locality, i.e. southern Brasil, and Suriname, plus the fact that the species is wingless, makes it very interesting to compare minutely specimens (especially their genital structures) from both localities.

SURINAME: PARAMARIBO, 2.VI.1959, 1 ♀; 15.VIII.1959, 1 nymph. Clevia, 8.IV.1960, 1 ♀; 2.V.1960, 1 ♀. - PARANAM, 6.III.1960, 1 ♂. - SECTIE-O, near railroad, 69 km S. of Paramaribo, 23.III.1959, 1 ♂.

Nothing is known about the biology of this very remarkable species. Almost all of the specimens mentioned were caught while sitting on leaves of grasses. The strongly ant-like appearance suggests some relation with ants. The presence of a distinct stridulatory mechanism, i.e. the serrate lateral edges of the wings and abdomen (*pars stridens*) and the rastrate area on the inner side of the hind femora (*plectrum*), may point in the same direction. This mechanism will be described in detail elsewhere.

PYRRHOCORIDAE Amyot & Serville

- Pyrrhocorides* AMYOT & SERVILLE 1843, Hist. Nat. Hém.: xxxviii, 265.
Pyrrhocoridae; DOUGLAS & SCOTT 1865, Brit. Hem.: 20, 163.
Pyrrhocorinae; HUSSEY 1929, Gen. Cat. Hem. 3: 36.
Pyrrhocoridae; MILLER 1956, Biol. Heter.: 5, 64.
Pyrrhocoridae; CHINA & MILLER 1959, Check-list: 8.
Pyrrhocoridae; ŠTYS 1964, Acta Zool. Ac. Sc. Hung. 10: 229-262.

Dysdercus Guérin - Ménéville

- Dysdercus* GUÉRIN - MÉNÉVILLE 1831, Voy. Coquille, Atlas, pl. 12 fig. 16.
Astemma LAPORTE 1832, Essai Class. Hém.: 36 [nec Lep. & Serv., 1925].
Dysdercus, HUSSEY 1929, Gen. Cat. Hem. 3: 84.
Dysdercus, FREEMAN 1947, Trans. R. Ent. Soc. Lond. 98: 374.
Dysdercus, COSTA LIMA e.a. 1962, Mém. Inst. Osw. Cruz 60: 21-22.

Body elongate, bare; head porrect; eyes small, subsessile; second antennal segment almost as long as the first and fourth, third segment about half as long as the first; pronotum trapezoidal with a

narrow, but well defined callus, sides sharply edged and with raised margins; collar entire, not interrupted ventrally.

The members of this genus live chiefly on plants of the families Malvaceae, Bombacaceae, Sterculiaceae and Tiliaceae, from which they suck out the ripe seeds. Well-known hostplants are: cotton, kenaf (*Hibiscus cannabinus*), musk (*Hibiscus abelmoschus*), the silk cotton tree (*Ceiba pentandra*), seaside mahoe (*Thespesia populnea*), *Sida* spp., *Malachra* spp., *Bombax* spp. and *Sterculia* spp. The bugs are strongly attracted by the ripening fruits of these plants. As to cotton, they are one of the most serious pests of this crop. They puncture the bolls to reach the seeds, introducing fungous and bacterial rots and damaging the young lint. After the bolls are open, they foul the fleece by their excrement which results in staining of the fibres, hence their common name: cotton stainers.

Copulation takes place on the food plants and lasts during the egg-ripening and oviposition periods. Eggs are laid in clusters in the soil, leaf moults, or even in the open fruits. Nymphs and adults live gregariously together, often in great numbers. Little is known about the alternate food plants during the year and the consequent migrations.

Interesting particulars concerning bionomics, pest status etc. can be found in: BALLOU 1906; BERRY 1951; CALLAN 1943, 1947; GEERING 1956; HARGREAVES 1948; MAC GILL 1935, 1941, 1945; MENDES 1936; RILEY & HOWARD 1889; SANDS 1917; SQUIRE 1937; WILLE 1951; WITHYCOMBE 1924.

KEY TO SPECIES

- | | | | |
|----|---|------------------------|---|
| 1a | Antennae entirely black | <i>mimus</i> Say | |
| b | Fourth antennal segment proximally with a white annulus | | 2 |
| 2a | Legs unicolourous yellowish | <i>honestus</i> Blöte | |
| b | Tibiae apically much darker than the red base of femora | | 3 |
| 3a | Males | | 4 |
| b | Females | | 7 |
| 4a | Posterior margin of ninth segment uninterrupted rounded (Fig. 54) | <i>ruficollis</i> (L.) | |
| b | Posterior margin of ninth segment interrupted by a median depression | | 5 |
| 5a | Depression anteriorly without a distinct, erect lamella (Fig. 34); paramere without a free, apical spur (Fig. 35) | <i>fernaldi</i> Ballou | |
| b | Depression anteriorly with an erect lamella (Fig. 38); apical spur of paramere distinct (Fig. 39, 47) | | 6 |

- 6a Apical spur of paramere long and slender (Fig. 39)
 *fulvoniger* (De Geer)
- b Apical spur very short (Fig. 47) *maurus* Distant
- 7a Posterior margin of gonocoxites of eighth segment gradually rounded (Fig. 37) 8
- b Posterior margin of gonocoxites of eighth segment angularly produced (Fig. 45) *maurus* Distant
- 8a Gonocoxites of ninth segment medially fused to one, broad plate (Fig. 33) *fernaldi* Ballou
- b Gonocoxites of ninth segment separate 9
- 9a Gonocoxites of ninth segment laterally situated, opposite to each other (Fig. 37) *fulvoniger* (De Geer)
- b Gonocoxites of ninth segment close to each other (Fig. 53) *ruficollis* (L.)

Dysdercus fernaldi Ballou

(Fig. 31, 32b, 33-34)

Dysdercus fernaldi BALLOU 1906, W. Ind. Bull. 7: 68.

Dysdercus fernaldi; HUSSEY 1929, Gen. Cat. Hem. 3: 90.

Dysdercus fuscofasciatus BLÖTE, 1931, Zool. Med. 14: 121 (new synonymy).

Dysdercus austeni BLÖTE 1933, Ann. Mag. N. H. (10) 11: 601 (new synonymy).

Dysdercus fernaldi; DINTHER 1960, Bull. Landbouwpr. Sur. 76: 31, fig. 8.

Dysdercus fuscofasciatus; DOESBURG JR. 1960, Meded. Landbouwpr. Sur. 22: 88.

Dysdercus fernaldi; COSTA LIMA e.a. 1962 (pro parte), Mem. Inst. Osw. Cruz 60: 36.

Dysdercus fernaldi; VREDEN 1964, Meded. Landbouwpr. Sur. 34: 70.

Diagnosis: This species can only be distinguished with certainty from *fulvoniger* and other related species, by morphological characters of the genital segments. (In the field an experienced observer can recognise it among others, by the greater contrast between the colours of the body and the darker red, especially that of the last sternites in the male.)

Head red, often with black markings on clypeus, antenniferous tubercles, frons and neck region, sometimes almost entirely blackish above. Antenna brown to black, first article with red at the extreme base, fourth segment with a white basal annulus. Labrum yellowish

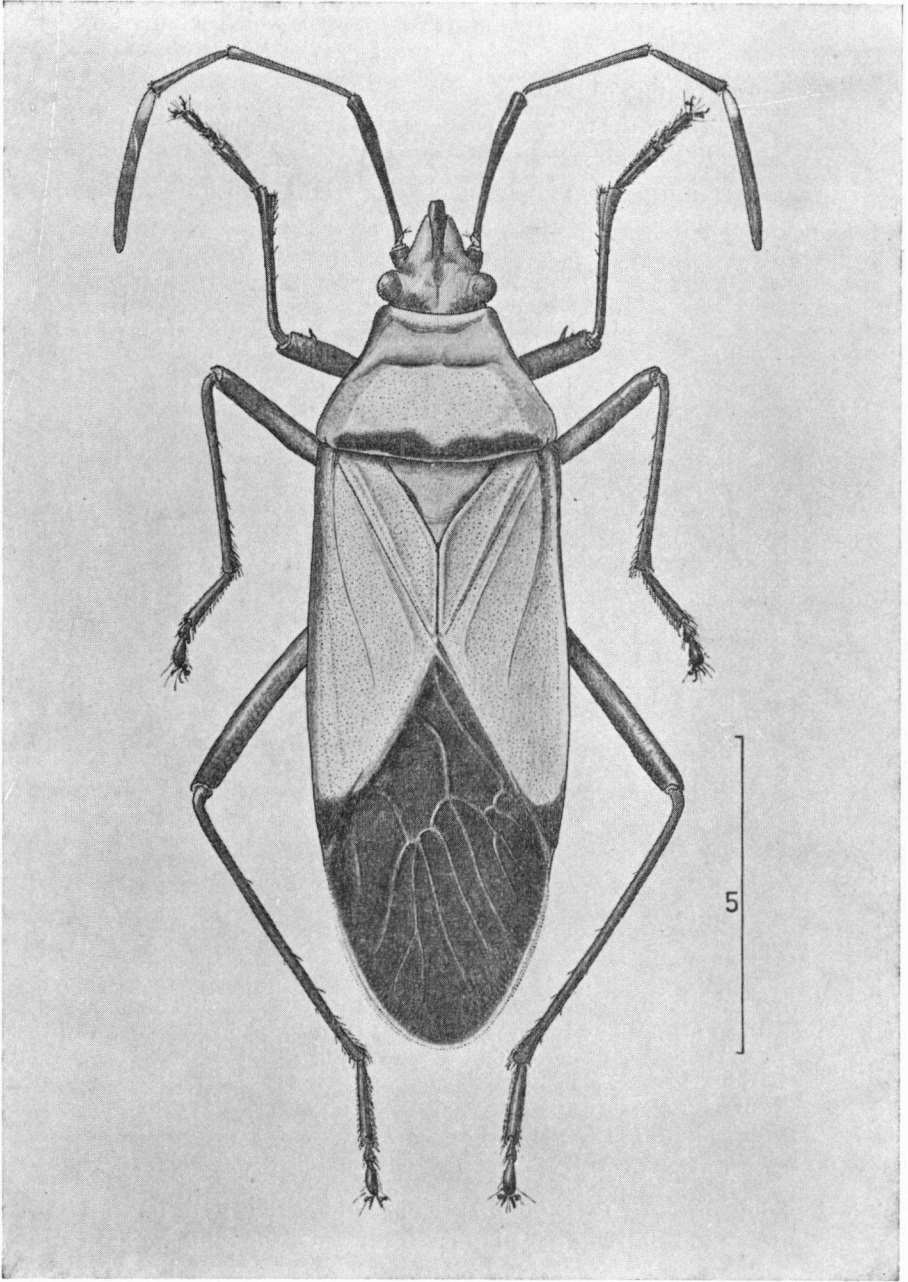


Fig. 31. *Dysdercus fernaldi* Ballou, ♀, from SURINAME.

brown with a black base. Rostrum red, first and third segment often a little darkened, last segment black. Genae often darkened. Under side of head orange-red.

Thorax. Collar of pronotum white, but its posterior margin mostly dirty white to blackish. Callus and lateral margins red, anterior half of the lifted margins narrowly black bordered. The posterior sulcus

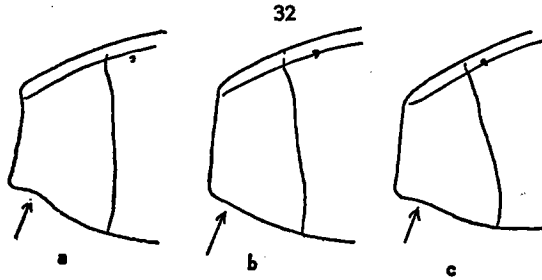


Fig. 32. Female seventh abdominal segment in side view, in: *Dysdercus fulvoviger* (a), *D. fernaldi* (b), and *D. maurus* (c).

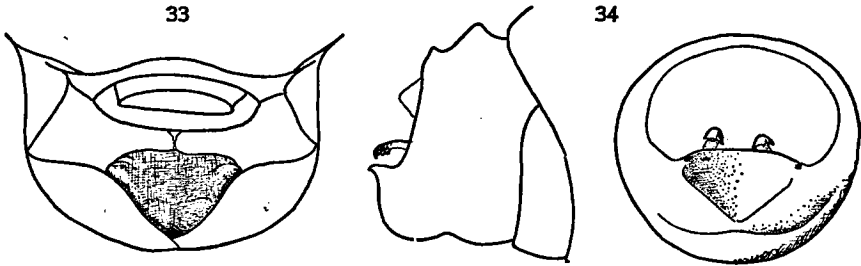


Fig. 33-34. *Dysdercus fernaldi*. 33. ♀, gonocoxites of eighth, and ninth segment; 34. ♂, genitalia.

of the callus usually black on both sides, this black sometimes being more or less spread anteriorly on the callus. Disc yellow with a more or less broad, transverse, blackish band near the posterior border. Scutellum yellow, lateral margins often darkened. Corium yellow, the corial cleft, the lifted costal margins and the distal corners often more or less blackish. Membrane blackish with a lighter border. Under side orange with white. Epipleuron of the pronotum red with a narrow blackish edge. The sulcus between collar and remaining

part of prothorax often blackish, just as the anterior margins of meso and meta-episterna. Coxae, trochanters and base of femora red; the latter darkened towards the knees; tibiae and tarsi reddish brown to black.

Abdomen. Sternites pale yellow, the lateral margins suffused with red. The basal margins of the sternites narrowly darkened at the sides, especially on the sixth and seventh sternites. In the female these sternites indistinctly reddish tinged. Sclerites of the eighth and

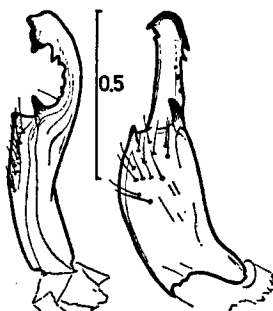


Fig. 35. *Dysdercus fernaldi*, ♂. — Right paramere.

ninth segment red. Seventh segment gradually narrowed towards the apex as seen in profile (Fig. 32b). Gonocoxites of the eighth segment (Fig. 33) gradually rounded at their posterior margins. Those of the ninth segment fused together medially, forming one broad, sclerotised plate from which the apical margin is somewhat lifted at both sides and moreover provided with a blunt tubercle in the extreme lateral corners (Fig. 33). In the male the sixth sternite entirely, the seventh sternite on its anterior half, deep red. Posterior margin of the ninth segment (Fig. 34) with a semi-circular to triangular impression, which is closed anteriorly by a narrow, transverse, erect ridge, on each side of which a small tooth. Shaft of paramere (Fig. 35) with a distinct mesial shoulder; head with a slender, somewhat recurved proximal spur, a short cowl-like apical spur, and an irregular row of small teeth on the lateral ridge between the two spurs.

Measurements	10 ♂	10 ♀
length	11.5-12.8-13.8	12.3-13.6-14.7
width	3.72-4.03-4.30	4.06-4.54-4.88
w/head	1.86-1.95-2.10	1.98-2.12-2.21
l/pronotum	2.21-2.36-2.67	2.32-2.59-2.79
w/pronotum	3.26-3.46-3.95	3.37-3.77-4.18

Type. I have examined (co-)type No 9943 of *Dysdercus fernaldi* BALLOU, a female from Grenada, B.W.I., in the U.S. Nat. Museum at Washington.

SURINAME: PARAMARIBO, 28.X.1957, 1 ♂, 1 ♀, in copula; 26.XI.1957, 1 ♀; 8.XII.1959, 1 ♂, 1 ♀. Cultuurtuin, on *Bombax globosum*, 13.IV.1950, 1 ♂, 1 ♀. (D. C. Geijskes coll.); on *Hibiscus bifurcatus*, 11.V.1960, 1 ♂; 15.V.1960, 1 ♀. Morgenstond, 7.V.1959, 1 ♀; on *Hibiscus abelmoschus*, 2.II.1959, many ♂♂ and ♀♀; underneath a big *Ceiba pentandra*, 6.VI.1960, many specimens with nymphs. Clevia, on Malvaceae, 26.I.1959, 1 ♀. - COMMEWIJNE, Mariënborg, 23.VI.1963, 1 ♀; 1911, W. C. van Heurn, 1 ♂ (Mus. Leiden). - COPPENAME, road to Coppenamepunt, km 80 and 96, on *Hibiscus tiliaceus*, 12.III.1959, many specimens. on *Hibiscus tiliaceus*, 10.III.1959, 1 ♂. Road to Coronie, on flowering Polygonaceae in water, 14.X.1959, 3 ♂, 6 ♀. - CORONIE, on *Hibiscus bifurcatus*, 3.IV.1959, 3 ♀, 2 cops. - SURINAME RIVER, Afobakka, near river bank, on *Hibiscus bifurcatus*, 13.VIII.1961, 3 ♂ (2 very small), and 25.XI.1962, 1 ♀. Kabel, 19.X.1958, 1 ♂. - MAROWIJNE RIVER, Galibi, on *Hibiscus bifurcatus*, 1.VIII.1959, 1 ♂, 2 ♀ Bigiston, on cotton (*Gossypium peruvianum*), 27.VI.1963, 2 ♂, 2 ♀. - PALOEME, V/VII.1961. H. A. Beatty exped., 1 ♂ (Mohmin coll.). Tapanahoni exped., Sep. 1904, Van Stockum, 2 ♀, resp. holo- and paratype of *Dysdercus fuscofasciatus* BLÖTE (Mus. Leiden). - LITANI RIVER, Jakoetoe-kondre, 24.IV.1960, 1 ♂, Saxton coll., 1 ♀.

Of the four *Dysdercus* species occurring in the coastal area (i.e. *fulvoniger*, *maurus*, *mimus* and *feraldi*), this one is the least common; it prefers swampy conditions.

Dysdercus fulvoniger (De Geer)

(Fig. 32a, 36-39)

- Cimex fulvo-niger* DE GEER 1773, Mém. Hist. Ins. 3: 340, pl. 34 fig. 21.
Dysdercus howardi BALLOU 1906, W. I. Bull. 7: 89, 73.
Dysdercus ruficollis; HUSSEY 1929, Gen. Cat. Hem. 91: 101.
Dysdercus fulvo-niger; BLÖTE 1931, Zool. Meded. 14: 121, 136, fig. 6f.
Dysdercus fuscofasciatus BLÖTE 1931, Zool. Meded. 14: 121-122 (pro parte, allotype and paratype, Cat. nos. 3 and 4 resp.).
Dysdercus howardi; PEARSON 1932, Psyche 39: 113, fig. 1 (paramere).
Dysdercus fulvo-niger; DOESBURG JR. 1960, Meded. Landbouwpr. Sur. 22: 88.
Dysdercus fulvoniger; COSTA LIMA e.a. 1962, Mem. Inst. Osw. Cruz 60: 37, pl. 2 fig. 3, pl. 3 fig. 9.
Dysdercus fulvoniger; VREDEN 1964, Meded. Landbouwpr. Sur. 34: 70.

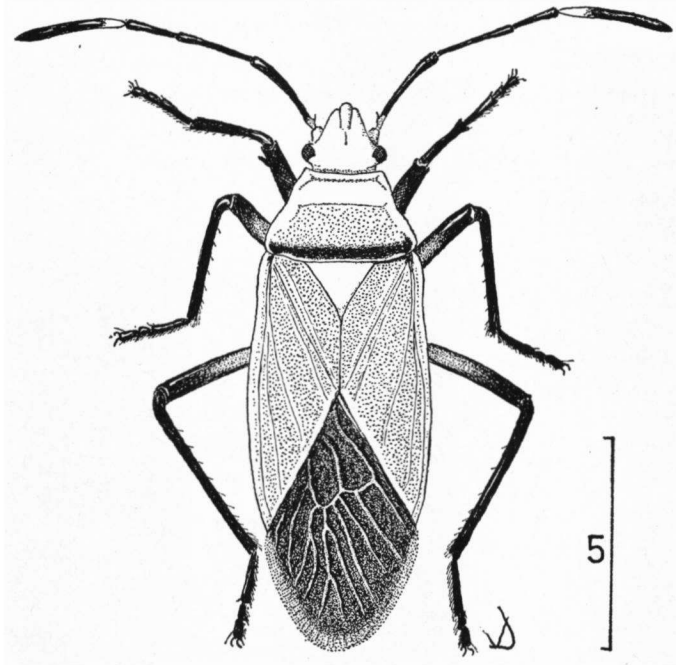


Fig. 36. *Dysdercus fulvoniger* (De Geer), ♀, from SURINAME.



Fig. 37–38. *Dysdercus fulvoniger*. – 37. ♀, gonocoxites; 38. ♂, genitalia.

Diagnosis: To distinguish with certainty from related species by the morphological characters of the genital segments of the male and female as dealt with in the following description. (In the field this species may be recognised by the bright yellow in combination with the typical orange-red colour.)

Head as a rule red with a small blackish spot on the antenniferous tubercles. Dorsal surface sometimes with blackish markings, rarely entirely blackish. Antenna reddish brown to black; base of first segment more or less red, rarely entirely red; fourth segment with a white annulus basally. Rostrum red to orange, fourth segment mainly blackened.

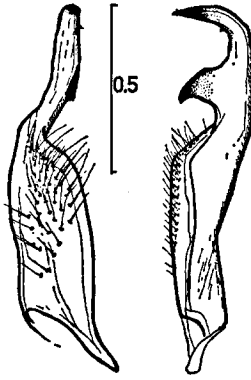


Fig. 39. *Dysdercus fulvoviger*, ♂. – Right paramere.

Thorax. Pronotal collar whitish yellow; callus and lateral margins red; disc yellow with a blackish transverse fascia along the yellow posterior margin. Scutellum orange. Corium unicolourous yellow, the lateral costal margins and the extreme posterior corners sometimes a little darkened, rarely with an indistinct dark spot behind the middle of each corium. Membrane blackish with a narrow, light coloured border. Epipleuron of pronotum red, Under side of thorax orange-yellow, alternate with white. Coxae and trochanters orange, femora red, towards the knees darkened, sometimes leaving only the basal parts red. Tibiae reddish brown to blackish, just as the tarsi.

Abdomen. Abdominal segments pale yellow with narrow blackish bases and red sides. In the *female* the sclerites of the eighth and ninth segment orange-red. The seventh sternite distinctly concavely narrowed towards the apex as seen in profile (Fig. 32a). Gonocoxites of the eighth segment gradually rounded at their posterior margins (Fig. 37). Sclerites of the ninth segment convexely curved, strongly laterally implanted and opposite to each other, separated medially

by a large, membraneous part of the segment (Fig. 37). In the *male* the sixth segment almost entirely, the seventh only at the anterior half, orange-red, often suffused with a dark shade; the basal black margins of these segments mostly enlarged. Posterior margin of the ninth segment (Fig. 38) with an almost semi-circular impression, anteriorly limited by an erect, posteriorly somewhat projecting, lamella. Lateral borders of this segment terminating on both sides of this lamella with a distinct blackish tooth. Paramere (Fig. 39) firmly built, with a strong, sharply recurved, proximal hook, and a slender, sharply pointed and more gradually curved, distal spur. In resting position these spurs are pointing somewhat medio-ventrally backwards.

<i>Measurements</i>	10 ♂	10 ♀
length	10.4-11.6-12.3	11.9-12.9-14.1
width	3.26-3.78-4.06	3.95-4.26-4.88
w/head	1.75-1.86-1.98	1.86-1.98-2.21
l/pronotum	1.86-2.13-2.44	2.21-2.40-2.68
w/pronotum	2.69-3.18-3.49	3.26-3.60-4.18

Type. I have examined the holotype, a female, in the De Geer-collection at the Naturhistoriska Riksmuseet in Stockholm. The general colour and furthermore the typical form and position of the sclerites of the eight and ninth segment agree in all respects with our material from Suriname, the type locality too of DE GEER'S specimen.

SURINAME: Horst coll., 1 ♂, 1 ♀; Leesberg coll., 2 ♂, 2 ♀ (Mus. Leiden). - PARAMARIBO, 1911, W. C. van Heurn coll., 2 ♀, respectively allo- and paratype of *Dysdercus fuscofasciatus* Blöte, 1931, Cat. Nos. 3 and 4 (Mus. Leiden); Sep. 1962, 1 ♂. Cultuurtuin, on the ground, on seeds of *Sterculia carthaginensis*, 18.IV.1959, in great numbers with nymphs; on ripening fruits of *Hibiscus abelmoschus*, 10.X.1958, many specimens and nymphs; on *Hibiscus cannabinus* (kenaf), bearing ripening fruits, 24.IV.1959, in great numbers; on kenaf, 14.VI.1960, 6 specimens (H. A. van Hoof coll.); on *Bombax globosum*, 13.IV.1950, 1 ♂ (Geijskes coll.); 2.V.1963, 1 pair (J. v. d. Vecht coll.). Morgenstond, 2.II.1959, on *Hibiscus abelmoschus*, in great numbers; 8.XII.1959, many specimens; on same plant, 28.II.1960, first, very dark specimens, after the dry season, apparently coming from elsewhere; underneath a big *Ceiba pentandra*, 6.VI.1960, 25 specimens. Fernandes Rd., 28.VII.1963, 1 ♂ (J. v. d. Vecht coll.). Houttuin, 22.VI.1960, 1 ♀. Domburg, on cotton, 17.VIII.1941, 1 ♂ (Uhlenbeek coll.). Meerzorg, 9.I.1962, 1 ♂. Braampunt (mouth of Suriname River), on *Thespesia populnea*, 18.XI.1960, 1 ♂, 1 ♀, and 3.V.1963, 2 ♂, 1 ♀. - JODENSAVANNE, on cotton, 16.X.1959, 7 ♂♂, 5 ♀♀. - MATAPICA, sea shore, on fruits of *Thespesia populnea*, 20.X.1940, 1 ♂, 1 ♀ (Geijskes coll.); id., 3/4.IX.1962

and 18.V.1963, several specimens. – MOENGO, 10.IV.1939, 1 ♂ (Geijskes coll.) – MAROWIJNE RIVER, Galibi, 1.VIII.1959, 2 ♂. Albina, on native cotton, 26.VI.1963, many specimens. – CORONIE, on fruits of *Gossypium barbadense*, 11.III.1959, 3 ♂, 4 cops.; on *Thespesia populnea*, 12.XI.1959, many hundreds. – WAGENINGEN, on herbs on dam of rice polder, 12.XII.1962, 1 ♀. – SIPALIWINI airstrip, on *Hibiscus*, 13.VI.1963, several ♂♂ and ♀♀.

A very common species.

Dysdercus honestus Blöte

(Fig. 40–42)

Dysdercus honestus BLÖTE 1931, Zool. Meded. 14: 122.

Dysdercus honestus; COSTA LIMA e.a. 1962, Mem. Inst. Osw. Cruz 60: 38.

Diagnosis: The typical pale colours of body and legs and the genital characters specified below are good characters to distinguish this species.

Head yellowish orange with a somewhat lighter under side, first three segments of antenna yellowish brown to reddish brown; distal parts darkened; second, and particularly the third segment, often entirely dark, blackish; fourth segment blackish with a narrow white annulus at the base. Rostrum yellow, blackened towards the tip.

Thorax. Collar of pronotum white. Callosum orange-yellow, in the transverse grooves black. Disc pale yellow with a narrow sepia coloured transverse band near the posterior edge. Lateral margins orange-yellow. Scutellum yellow. Fore wings pale yellow with brownish black membrane, bordered with greyish white. Under side orange-yellow alternating with white. Legs brownish yellow with orange-yellow coxae.

Abdomen white with yellow lateral margins. At the sixth and seventh sternites this margins broader and more reddish. Bases of sternites narrowly blackish, sometimes suffused with red in the middle parts.

Female laterotergites orange-red. Gonocoxites of the eight segment (Fig. 41) white, the posterior edge angularly produced. Gonocoxites of the ninth segment free, their posterior margins black and curved, somewhat produced. The medial edges slightly sinuated, touching each other in the median with their produced medio-dorsal corners (Fig. 41).

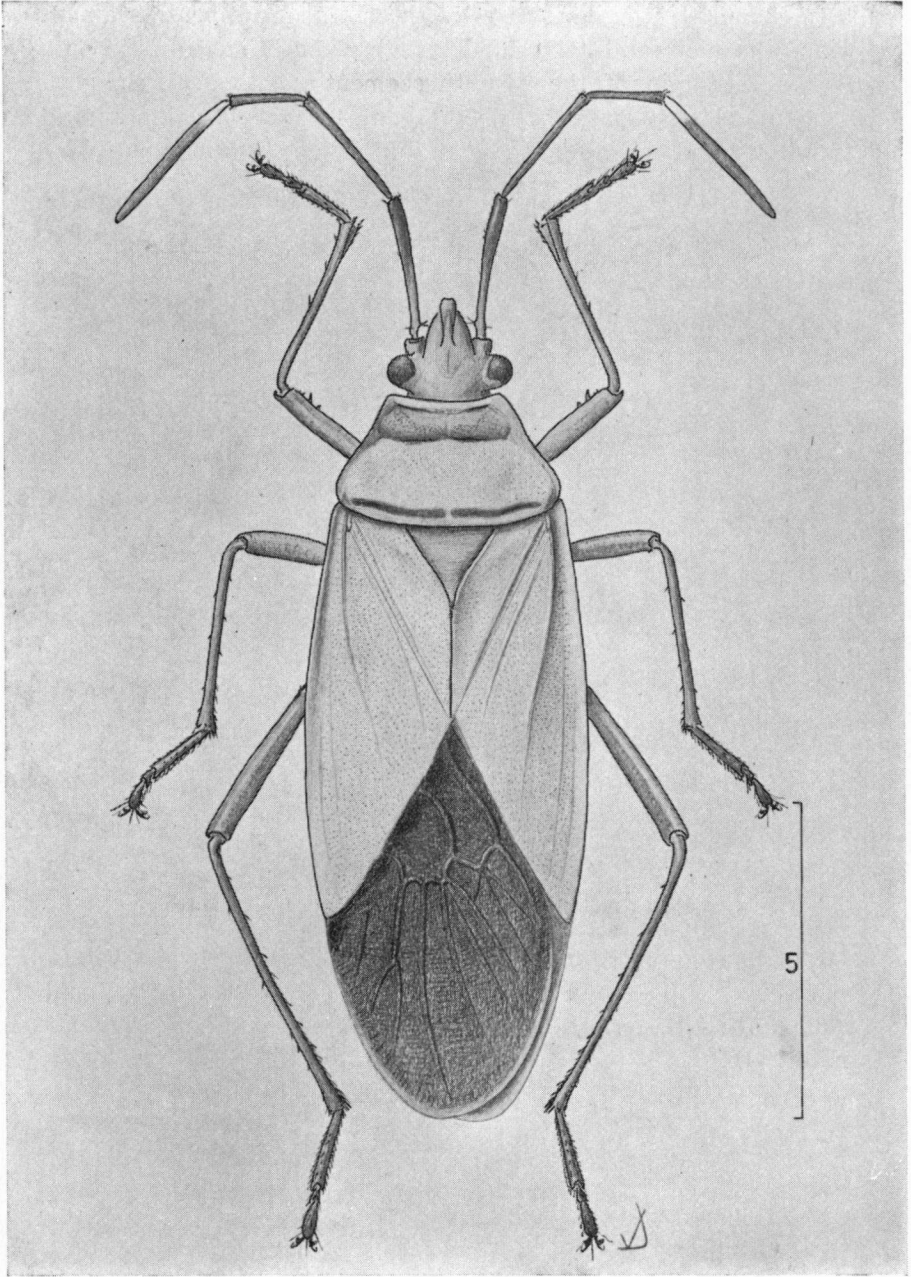


Fig. 40. *Dysdercus honestus* Blöte, ♀, from SURINAME.

In the male the dark bases of the sixth and seventh segment wider and more and less shaded with reddish brown respectively. Posterior margin of the seventh segment and the entire eighth segment white. Genital capsule (Fig. 42) orange; the blunt hind margin with a fairly deep triangular impression, anteriorly closed by

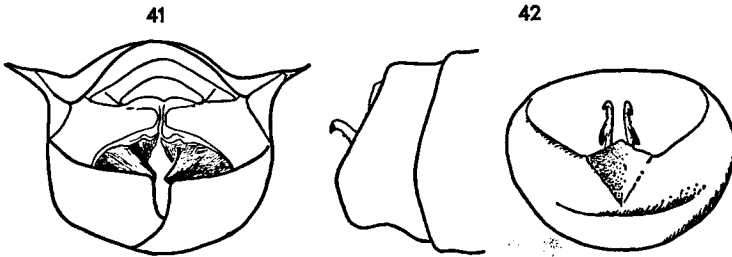


Fig. 41-42. *Dysdercus honestus*. - 41. ♀, gonocoxites; 42. ♂, genitalia.

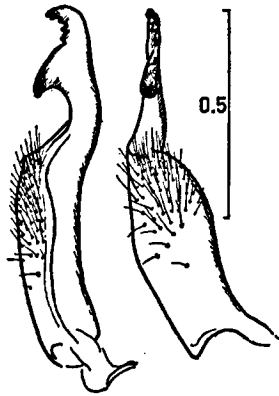


Fig. 43. *Dysdercus honestus*, ♂. - Right paramere.

a triangularly pointed lamellum. Paramere Fig (43) slender with a curved neck and a stout, recurved, proximal spur. Distal spur small and pointing posteriorly. Between the two spurs some irregular small teeth.

Measurements	9 ♂	9 ♀
length	10.1-12.3-13.9	12.8-13.6-15.8
width	3.48-4.05-4.52	4.06-4.53-5.10
w/head	1.62-1.75-1.87	1.85-1.98-2.27
l/pronotum	1.86-2.13-2.56	2.20-2.42-2.79
w/pronotum	2.67-3.16-3.60	3.37-3.65-4.18

Type. I have studied the holotype, a male, in the Leiden Museum. Type locality: Central Brasil, Chapada, 2600 ft., Nov. 1902, A. Robert coll.

SURINAME: LUCIE RIVER basin, Expedition to the Wilhelmina Range, 1926 (leader G. Stahel, entomologist D. S. Fernandes), VII/VIII.1926, 9 ♂, 9 ♀ (Mus. Amsterdam). Two of the female specimens still carry a small seed at the tip of the rostrum. These seeds (identified by Dr. L. Y. Th. Westra) are probably from *Hibiscus verbasciformis* Hochr.

This species has not yet been recorded from Suriname.

Dysdercus maurus Distant

(Fig. 32c, 44-47)

Cimex ruficollis FABRICIUS 1775 (nec Linnaeus), Syst. Ent.: 719.

Dysdercus maurus DISTANT 1901, Trans. Ent. Soc. Lond. 1901: 590.

Dysdercus howardi BALLOU, var. *minor* BALLOU 1906, W. Ind. Bull. 7: 70 (BLÖTE 1931).

Dysdercus maurus; HUSSEY 1929, Gen. Cat. Hem. 3: 93.

Dysdercus maurus; BLÖTE 1931, Zool. Meded. 14: 128, 133.

Dysdercus pallidus BLÖTE 1931, Zool. Meded. 14: 129, 135, fig. 6d (new synonym).

Dysdercus maurus; PEARSON 1932, Psyche 39: 113, 126, fig. 2-4 (claspers).

Dysdercus pallidus; DOESBURG Jr. 1960, Meded. Landbouwr. Sur. 22: 88.

Diagnosis: A medium-sized, dark species with a white annulus at the base of the fourth antennal segment. Only with certainty distinguishable by the genital characters.

Head red, sometimes blackened in the neck-region; under side orange. Antenna dark brownish to black; base of first segment reddish; base of fourth segment with a white annulus. Rostrum yellow to red, fourth segment blackened.

Thorax. Pronotum with a white collar; callus and lateral margins red; disc yellow to greyish. The transverse sulci of the callus and a transverse fascia near the hind margin of the disc, blackish. Scutellum very variable in colour, from orange to pure black, sometimes leaving only the centre or apex orange; the blackish forms are dominating in Suriname. Corium dirty yellow to grey, finely black punctate, mostly more or less suffused with black, accentuated in two patches half-way the wings, along the costal veins, and the corial cleft; embolium often yellowish. Membrane black, often with a faint metallic lustre, light greyish bordered. Under side of thorax

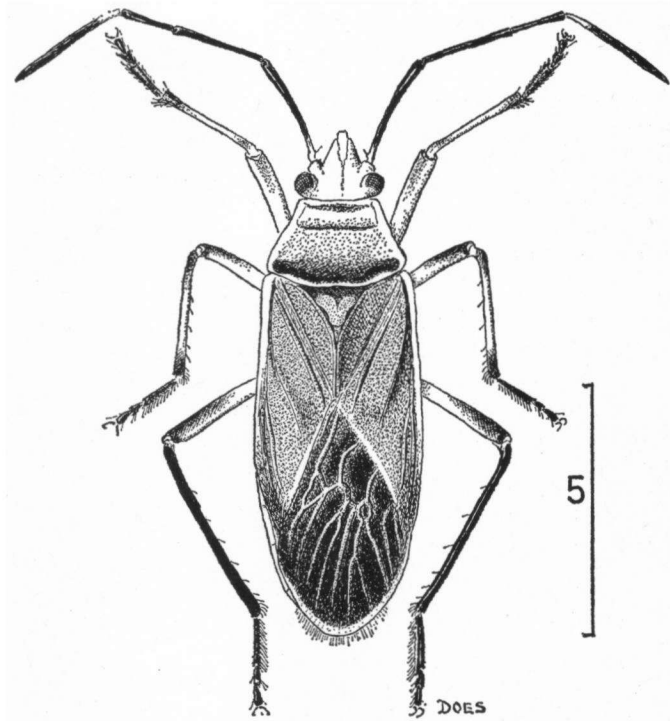


Fig. 44. *Dysdercus maurus* Distant, ♂, from Suriname.

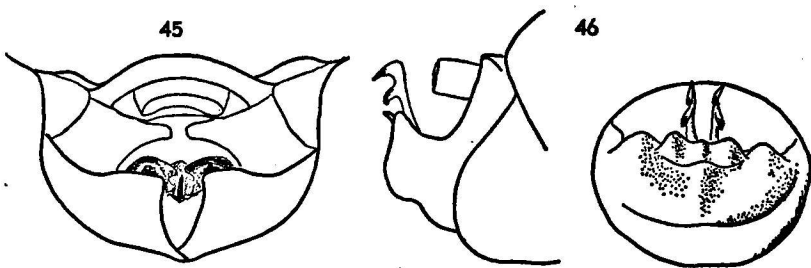


Fig. 45-46. *Dysdercus maurus*. - 45. ♀, gonocoxites; 46. ♂, genitalia.

orange-yellow, alternating with white. Anterior margins of the pleura more or less blackened. Coxae, trochanters and femora orange-yellow, the latter blackened towards the knees. Tibiae and tarsi dark brown to black.

Abdomen yellowish white, sternites basally with blackish fasciae at the sides. Lateral margins yellow, often more reddish. In the *female* the posterior margin of the seventh sternite distinctly concave in profile (Fig. 32c). Posterior margins of gonocoxites of the eighth segment almost rectangularly produced and recurved inwardly, almost touching the second gonocoxites. These small, concave

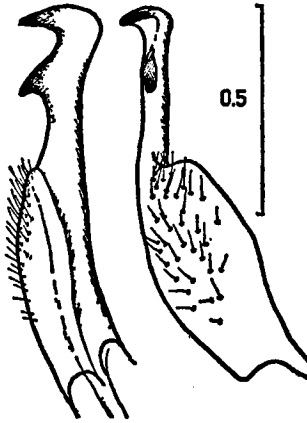


Fig. 47. *Dysdercus maurus*, ♂. - Right paramere.

and close together, their dorsal (anterior) margin produced, ventral margin slightly elevated and accolade-shaped (Fig. 45). In the *male* the black fasciae at the base of the last sternites heavier and the sternites itself suffused with red. Eighth sternite yellowish white to orange, genital capsule (ninth segment) orange to red; both sternites basally provided with black markings. Lateral margins of the genital capsule deeply concave, the posterior margin interrupted by a broad, semi-circular, superficial impression, anteriorly closed by a more or less bilobed erect lamella (Fig. 46). Paramere slender, with two short spurs (Fig. 47); the proximal one sharply recurved and pointing downwards and the apical one, directed backwards.

Measurements	10 ♂	10 ♀
length	8.5-10.8-12.8	10.5-12.4-14.5
width	2.68-3.21-4.08	3.50-4.36-4.90
w/head	1.62-1.69-1.86	1.85-1.92-2.09
l/pronotum	1.63-1.93-2.34	1.97-2.40-2.67
w/pronotum	2.54-2.83-3.34	2.80-3.41-3.85

Type. I have seen the holotype of *Dysdercus maurus* Distant in the British Museum (N.H.), type locality: Zuipapá, Pernambuco, N-E Brasil, Distant Coll., 1911-383.

SURINAME: PARAMARIBO, Cultuurtuin, on herbs, 20.VI.1958, 1 ♂; on fallen seeds, of *Sterculia carthaginensis*, 18.IV.1959, many specimens and nymphs; on *Hibiscus cannabinus*, 24.IV.1959, many specimens; underneath *Bombax globosum*, 13.IV.1959, 2 ♂, 2 ♀ (Geijskes coll.). Morgenstond, on *Hibiscus abelmoschus*, 2.II.1959, many specimens; 28.II.1960; underneath a *Ceiba pentandra*, 6.VI.1960, many specimens. - COMMEWIJNE RIVER, Katwijk, on *Sida*, 22.VI.1959, several specimens (on alcohol). - MATAPICA, sea shore, on fruits of *Thespesia populnea*, 3/4.XI.1962 and 17/19.V.1963, ♂♂, ♀♀. - MAROWIJNE RIVER, Albina, on native cotton, 26.VI.1963, many exx. Bigiston, on *Gossypium peruvianum*, 4.III.1963, 3 ♂, 1 ♀ (2 ♂ with mites under the wings); 27.VI.1963, 1 ♂. - CORONIE, Road to sea, Suriname exped. 1948/49, 13.VI.1948, 1 ♂ (Mus. Leiden); 5.II.1958, 3 ♂, 1 ♀.

Dysdercus mimus (Say)

(Fig. 48-51)

- Capsus mimus* SAY (excl. vars.) 1832, Heter. N. Am., repr. 1859: 783, and 1859: 338.
Dysdercus albidiventris STÅL 1854, Öfv. Vet. Ak. Förh. 11: 236.
Dysdercus mimus; HUSSEY 1929, Gen. Cat. Hem. 3: 95.
Dysdercus infuscatus BLÖTE 1931, Zool. Meded. 14: 126 (new synonym).
Dysdercus mimus (Say) var. *distanti* BLÖTE 1931, Zool. Meded. 14: 128, 135, fig. 6g.
Dysdercus mimus; PEARSON 1932, Psyche 39: 113-126, fig. 9-12.
Dysdercus infuscatus; DOESBURG JR. 1960, Meded. Landbouwpr. Sur. 22: 88.
Dysdercus mimus; COSTA LIMA e.a. 1962, Mem. Inst. Osw. Cruz 60: 43, pl. 2 fig. 9-12, pl. 4 fig. 2.
Dysdercus mimus; VREDEN 1964, Meded. Landbouwpr. Sur. 34: 70.

Diagnosis: The black antennae without a white annulus on the fourth segment, the black scutellum and the genital characters of both sexes distinguish this species from the others.

Head red, sometimes shaded with blackish markings above; under side orange. Antenna dark brown to black with a reddish base; fourth segment without a white annulus. Rostrum orange-red, third segment less darkened, fourth segment strongly so.

Thorax. Anterior part of pronotum (collar) white, posterior part blackish including the adjacent callosal sulcus. This black area often extended on both sides into the lateral grooves and the anterior angles of the pronotum. Callus and posterior sulcus red. Lateral margins near the callus reddish, remainder of the lateral margins, and the

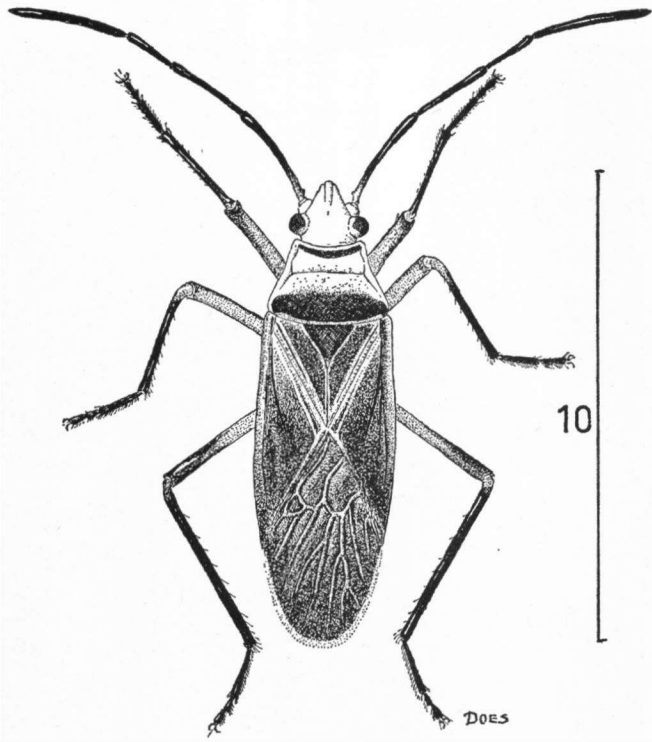


Fig. 48. *Dysdercus mimus* (Say), ♂, from SURINAME.

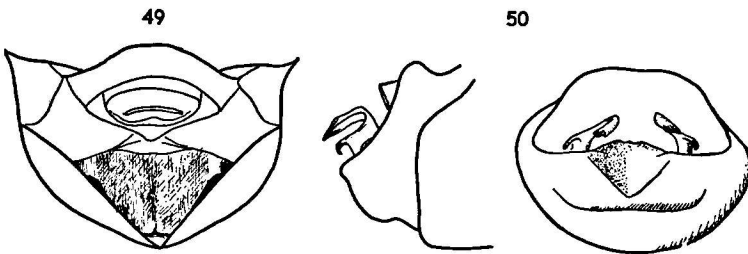


Fig. 49-50. *Dysdercus mimus*. - 49. ♀, gonocoxites; 50. ♂, genitalia.

disc, ochraceous yellow. Disc along the posterior border with a broad, anteriorly not sharply defined, black fascia, sometimes anteriorly enlarged to cover almost the whole disc. A few times this black band nearly wanting. The extreme posterior edge of the

pronotum yellowish. Scutellum mostly black with a dirty yellow apex; sometimes the base and sides also reddish, leaving only the central parts black. Colour of corium ranging from dirty yellow to blackish with a more or less broad, dirty yellow band along the claval suture, a more or less distinct, black marking behind the middle part of each corium and usually with a darker streak along the corial cleft. Membrane blackish brown with a light border.

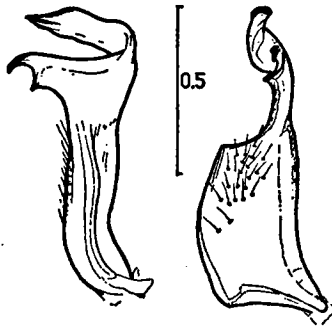


Fig. 51. *Dysdercus mimus*, ♂. - Right paramere.

Under side of thorax orange-red alternating with white. The coxae, trochanters, and bases of femora orange-red; the latter blackened towards the knees; tibiae brown, tarsi blackish towards the apex.

Abdomen yellowish white with reddish borders and dark fasciae along the basal border of the segments. In the female the gonocoxites of the eighth segment (Fig. 49) pale red, their posterior margin hardly rounded, almost straight. The gonocoxites of the ninth segment (Fig. 49) fused to one broad, sclerotised plate, its posterior margin lifted on both sides. In the male the segments eight and nine predominantly red; posterior margin of the ninth segment somewhat impressed, the margin raised by a thickened wall (Fig. 50). Paramere with two latero-posteriorly directed, long spurs from which the proximal one with a secondary tooth proximally from its recurved apical hook (Fig. 51).

<i>Measurements</i>	10 ♂	10 ♀
length	9.9-10.3-11.0	10.4-11.6-12.3
width	2.91-3.12-3.38	3.49-3.67-3.95
w/head	1.57-1.69-1.74	1.74-1.82-1.85
l/pronotum	1.73-1.91-1.97	1.97-2.22-2.42
w/pronotum	2.44-2.61-2.89	2.78-3.09-3.47

SURINAME: PARAMARIBO, 1900, H. van Capelle coll., 1 ♂ and 1 ♀, resp. holo- and allotype of *Dysdercus infuscatus* Blöte, 1931, Cat. Nos. 1 and 2; 1911, W. C. van Heurn, 3 ♂, 1 ♀. Cultuurtuin, on fallen seeds (on the ground) of *Sterculia carthaginensis*, 18.IV.1959, many specimens; on *Hibiscus cannabinus*, many ♂♂ and ♀♀. Morgenstond, 7.V.1959, 1 ♂, 1 ♀; on *Hibiscus abelmoschus* and *Sida*, 28.II.1960; on *Sida rhombifolia*, sucking the seed pods, 25.II.1959, many exx.; on *Hibiscus abelmoschus*, 2.II.1959, several exx.; underneath a *Ceiba pentandra*, 6.VI.1960, several exx. - COMMEWIJNE, Katwijk, on *Sida*, 22.IV.1959, 3 ♂, 3 ♀. Morico kreek, on *Sida*, 24.V.1963, 2 ♂, 1 ♀. - SURINAME RIVER, Domburg, on flower of *Asclepias curassavica*, 30.I.1959, 1 ♀ with pollinia on the front claws. - UPPER SURINAME RIVER, Djoemoe, 27/31.X.1962, 1 ♂ taken at light. - CORONIE, back dam, on *Sida* spp., 24.III.1960, many specimens with nymphs. - MAROWIJNE RIVER, Albina, on native cotton, 26.VI.1963, 1 ♂. - PALOEMEUV, H. A. Beatty Exped. V/VII.1961, 5 ♂, 3 ♀ (Mohmin coll.).

This fairly common species prefers more dry conditions; it is also obvious that *Sida* is the main food plant of this insect.

Dysdercus ruficollis (L.)

(Fig. 52-55)

- Cimex ruficollis* LINNAEUS 1764, Mus. Lud. Ulr.: 180.
Lygaeus annulus FABRICIUS 1803, Syst. Rhyng.: 227.
Dysdercus caribbaeus DISTANT 1901, Trans. Ent. Soc. Lond. 1901: 590.
Dysdercus clarki DISTANT 1902, Ann. Mag. Nat. Hist. (7) 11: 43.
Dysdercus ruficollis; HUSSEY 1929, Gen. Cat. Hem. 3: 101 (pro parte).
Dysdercus ruficollis; COSTA LIMA e.a. 1962, Mem. Inst. Osw. Cruz 60: 47, pl. 4 fig. 6-8.

Diagnosis: Small to medium-sized species with annulated antenna, very variable corial black markings, male genital segment with perfect hind margin and hooked parameres, female second gonocoxites close together, sinuated ventrally.

Head, upper side mostly dull black with a narrow red border along the black eyes, often with red markings on vertex and frons or even almost entirely red, except for the clypeus, antenniferous tubercles and two oblique streaks between the posterior margin of the head

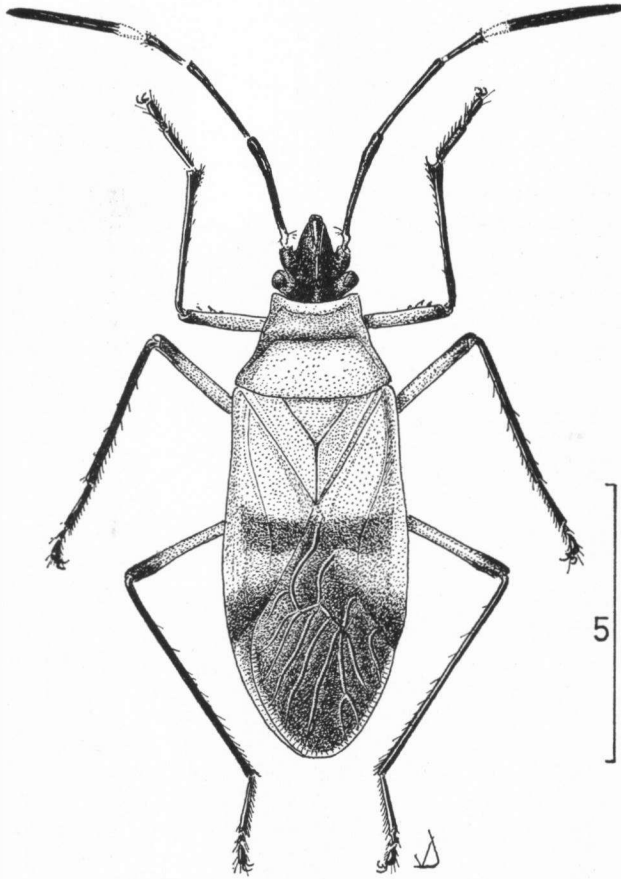


Fig. 52. *Dysdercus ruficollis* (Linnaeus), ♀, from SURINAME.

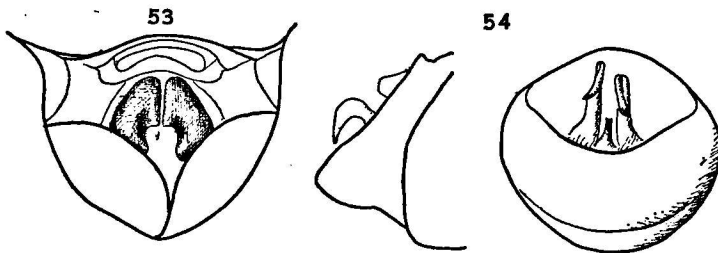


Fig. 53-54. *Dysdercus ruficollis*. - 53. ♀, gonocoxites; 54. ♂, genitalia.

and the eyes. Under side of the head more shining and entirely red. Antenna black with a white annulus at the base of the fourth segment. Rostrum red, except for the black last segment. Labrum blackish.

Thorax. Upper side of pronotum yellow and red; collar whitish yellow. Callus and lateral margins red, the disc yellow. Scutellum orange (in Brazilian specimens often black). Clavus and corium lightly yellow; embolium a little darker, more maize-yellow; membrane blackish. Corium often with a more or less distinct blackish cross-marking beyond the middle and a blackish spot near the distal margin; both spots sometimes united, leaving the anterior half of the corium and the costal margin yellowish (var. *clarki*

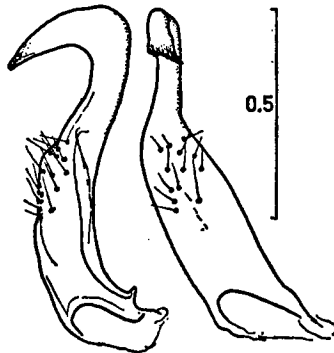


Fig. 55. *Dysdercus ruficollis*, ♂. - Right paramere.

Distant). Under side of thorax orange and white alternating. Coxae orange-red. Trochanters and femora red. Knees, tibiae and tarsi blackish.

Abdomen. Sternites chiefly yellowish white with the basal parts and the pleura red. In the female these red basal margins of the fifth, sixth and seventh sternites increasing in width respectively. Sclerites of the eighth segment (first gonocoxites) red, gradually rounded at their posterior edges. Second gonocoxites not fused but very close to each other, sinuated posteriorly and medially (Fig. 53). In the male the sixth to ninth abdominal segments red, except for the whitish posterior margin of the seventh segment. Genital

capsule (Fig. 54) with a gradually and uninterrupted rounded posterior margin and with an inwardly situated, blackened, apically slightly bifurcated, process. Paramere (Fig. 55) short, without a proximal spur, but with a strongly recurved, terminal hook.

<i>Measurements</i>	10 ♂	9 ♀
length	8.5-9.3-10.1	9.1-10.0-10.9
width	2.56-3.08-3.38	3.14-3.40-3.72
w/head	1.52-1.61-1.62	1.68-1.74-1.85
l/pronotum	1.63-1.75-1.98	1.74-1.94-2.08
w/pronotum	2.31-2.49-2.67	2.55-2.70-3.01

SURINAME: SIPALIWINI, near airstrip, on *Pavonia sessiliflora* H.B.K. (det. L. Y. Th. Westra), 8/10.VI.1963, ♂♂ and ♀♀ with nymphs. - First record for Suriname.

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