Systematics, cladistics, and biogeography of the *Peirates collarti* and *P. lepturoides* species groups (Heteroptera: Reduviidae, Peiratinae)

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Ent. scand.

Coscarón, M. C. & Morrone, J. J.: Systematics, cladistics, and biogeography of the *Peirates collarti* and *P. lepturoides* species groups (Heteroptera: Reduviidae, Peiratinae). *Ent. scand.* 26: 191-228. Copenhagen, Denmark. June 1995. ISSN 0013-8711.

Cleptocoris Stål is synonymized with *Peirates* Serville. Its species are assigned to the *P. collarti* and *P. lepturoides* species groups. The former group includes *P. collarti* Schouteden and *P. monodi* Villiers; the latter group is formed by *P. amieti* Villiers, *P. areatus* Miller, *P. atromaculatus* (Stål), *P. aurigans* Distant, *P. balteatus* Germar, *P. cinctiventris* Horváth, *P. diola* (Villiers) comb. n., *P. lepturoides* (Wolff), *P. macilentus* Miller, *P. maurus* Stål (= *Cleptocoris leyei* Villiers, syn. n.), *P. niger* Signoret, *P. nitidicollis* Reuter (= *P. conspurcatus* Distant, syn. n.), *P. ochripennis* Jeannel, *P. perinetensis* Villiers, *P. strepitans* Rambur (= *P. rufescens* Villiers, syn. n.), *P. tellini* Schouteden and *P. turpis* Walker (= *P. brachypterus* Horváth, syn. rev.). These species are redescribed, illustrated, their geographical distribution mapped, and keys for separating them are given. A phylogenetic analysis of the species is presented. In the cladogram, the *P. collarti* and *P. lepturoides* species groups are monophyletic and sister taxa. Within the latter, *P. amieti* is the sister species to the trichotomy formed by *P. perinetensis, P. strepitans* and the clade including the remaining species which comprises, in phylogenetic order, the pair *P. niger* - *P. turpis;* the group including *P. cinctiventris, P. lepturoides, P. areatus,* and *P. ochripennis;* and the group including *P. atromaculatus* - *P. aurigans, P. balteatus, P. tellini, P. macilentus* - *P. nitidicollis, P. diola* - *P. maurus*. The geographical distribution of the species shows an African - Indopacific generalized track, with an Indian Ocean baseline. The group is hypothesized to be of tropical Gondwanan origin, with subsequent spread into the Palearctic.

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Introduction

The genus *Cleptocoris* was described by Stål (1866), based on *Reduvius lepturoides* Wolff, 1804. It has been treated successively as a valid genus (Maldonado-Capriles 1990; Villiers 1964b) or as a subgenus of *Peirates* (Dispons 1969; Stål 1874).

Up to date, a total of 24 species have been assigned to *Cleptocoris*: *C. amieti* Villiers, *C. areatus* (Miller), *C. atromaculatus* Stål, *C. aurigans* (Distant), *C. balteatus* (Germar), *C. brachypterus* Horváth, *C. cinctiventris* Horváth, *C. collarti* Schouteden, *C. conspurcatus* (Distant), *C. diola* (Villiers), *C. lepturoides* (Wolff), *C. leyei* Villiers, *C. macilentus* Miller, *C. maurus* (Stål), *C. monodi* Villiers, *C. niger* (Signoret), *C. nitidicollis* Reuter, *C. ochripennis* Jeannel, *C. perinetensis* (Villiers), *C. rufescens* Villiers, *C. strepitans* Rambur, *C. tellini* Schouteden, *C. turpis* (Walker), and *C. vittatus* Reuter. Examination of these species shows that they belong to *Peirates*, and that they can be assigned to two different species groups, the *P. collarti* and *P. lepturoides* groups, respectively.

The present revision was carried out in order: (1) to describe the *P. collarti* and *P. lepturoides* species groups for the species formerly placed in *Cleptocoris*; (2) to revise the species assigned to these groups; (3) to analyze their cladistic relationships; and (4) to discuss their biogeography.

Table 1. Selected measurements (ranges) and ratios for species of *Peirates*. Abbreviations: Tl – total length; Wp – width pronotum; Wa – width abdomen; Hdl – Head length; Hdh – head height; Aocl – length anteocular region; Pocl – length postocular region; Eyl – eye length; Eyw – eye width; Eyh – eye height; Eyio – length eye interocular region; oce – ocellar diameter.

		CHARACTER							
SPECIES	SEX	Tl	Wp	Wa	Hdl/Hdh	Aocl/Pocl	Eyl/Eyw	Eyh/Hdh	Eyio/oce
P. amieti	M	–	–	–	–	–	–	–	–
	F	13.36	2.55	3.45	1.45	2.17	1.25	0.72	1.40
P. areatus	M	13.18-13.27	2.73-3.00	3.18-3.27	1.10-1.45	1.33-1.35	1.20-1.27	0.36-0.47	0.72-0.85
	F	–	–	–	–	–	–	–	–
P. atromaculatus	M	14.55-14.73	3.36-3.64	3.45-3.82	1.49-1.50	1.56-1.65	1.47-1.57	0.87-0.91	0.67-0.81
	F	13.36-13.64	3.36	3.45-4.09	1.38-1.42	0.90-1.83	1.24-1.74	0.75-0.90	0.93-1.11
P. aurigans	M	12.18-12.73	3.00-3.18	3.00-3.18	1.04-1.52	1.08-1.25	1.14-1.50	0.91	0.86-0.96
	F	11.82-14.55	2.91-3.73	3.82-3.91	1.27-2.07	0.75-1.15	1.28-1.47	0.64-1.00	0.78-1.50
P. balteatus	M	10.91-11.00	2.91-3.00	3.38	1.16	1.00-1.25	1.15-1.50	0.82	0.93
	F	12.73-12.91	3.36-3.45	3.64	1.45	1.06-1.50	0.92-1.50	0.80-0.85	1.00-1.09
P. cinctiventris	M	–	–	–	–	–	–	–	–
	F	12.09	3.45	3.45	1.13	0.65	1.12		1.00
P. collarti	M	12.09-13.73	2.64-2.82	2.73-3.64	1.16-1.30	0.87-0.96	1.05-1.64	1.13-1.25	0.74-0.95
	F	13.18	2.55	3.82	1.72	0.70	1.78	1.60	1.29
P. diola	M	–	–	–	–	–	–	–	–
	F	12.37-13.00	3.00-3.36	3.91-4.27	1.30-1.40	1.29-2.00	1.36-1.40	0.65-0.70	1.29-1.32
P. lepturoides	M	12.27-12.73	3.00-3.18	2.91-3.36	0.96-1.35	0.80-1.00	1.38-1.41	1.00-1.02	0.78-0.79
	F	12.45-12.91	3.18	3.27-3.36	1.16-1.22	0.80-1.13	1.20-1.35	0.89-0.91	0.90
P. macilentus	M	12.00-14.00	2.91-3.36	3.18-3.55	1.11-3.31	0.87-1.33	0.92-1.20	0.87-0.94	0.73-1.00
	F	–	–	–	–	–	–	–	–
P. maurus	M	11.45-14.09	2.90-3.64	3.18-3.73	1.19-1.46	1.00-1.25	1.22-1.43	0.40-0.81	0.73-1.00
	F	11.00	2.81	3.36	1.09	1.20	1.09	0.65	1.14
P. monodi	M	12.73-13.18	2.64-2.73	3.00-3.36	2.41-2.64	1.58-1.80	1.00-1.28	0.81-0.91	0.85-1.33
	F	12.73	2.64	3.55	2.46	1.92	1.18	0.65	1.04
P. niger	M	12.55-12.73	3.18-3.45	3.64	1.16-1.30	1.13-1.67	1.29-1.43	0.82-0.84	1.00-1.40
	F	13.45-14.36	3.64-3.82	4.00-4.09	1.25	1.10-1.27	1.40-1.67	0.67-0.76	1.07-1.19
P. nitidicollis	M	10.45-10.91	2.55-2.91	2.73-2.91	1.15-1.29	0.87-1.50	1.25-1.53	0.79-1.00	0.82-1.25
	F	10.45-11.18	2.55-2.73	3.00	1.27	1.07-1.20	1.47	0.78	1.04-1.14
P. ochripennis	M	14.27-14.73	3.18	3.82-3.91	1.40-2.80	1.17-1.88	1.13-1.43	0.82-0.90	0.88-0.96
	F	–	–	–	–	–	–	–	–
P. perinetensis	M	–	–	–	–	–	–	–	–
	F	13.00	2.91	4.45	2.44	1.36	1.05	0.56	1.61
P. strepitans	M	11.36-12.73	3.09	2.91-3.09	1.20-1.40	1.00-1.71	1.09-1.35	0.77-0.92	1.14-1.18
	F	11.82-12.73	3.18-3.36	3.18-3.82	1.15-1.33	0.88-1.43	1.10-1.35	0.83-0.86	0.97-1.27
P. tellini	M	12.91	3.45	3.27	–	1.45	1.27	–	–
	F	13.18-14.09	3.73-3.82	3.91-4.00	1.12-1.40	0.94-1.50	1.09-1.20	0.57-0.75	1.20-1.25
P. turpis	M	14.55-15.09	3.45-3.91	3.82-4.36	1.32-1.75	0.84-2.06	1.00-1.70	0.44-0.67	0.94-1.21
	F	16.18-17.73	3.91-4.18	4.55-5.27	1.36-1.55	1.65-2.78	11.46.-60	0.43-0.72	1.13-1.16

Table 2. Selected ratios for species of *Peirates*. Abbreviations: ant 1-4 - antennal segments 1-4 length; rosI-III - rostral segments I-III length; Pronl - pronotal anterior lobule length; PrPol - pronotal posterior lobule length.

		CHARACTER						
SPECIES	SEX	ant1/ant2	ant1/ant3	ant1/ant4	rosI/ rosII	rosI/ rosIII	Pronl	PrAnl/ PrPol
P. amieti	M	-	-	-	-	-	-	-
	F	0.40	0.40	0.35	0.60	1.00	2.83	2.05
P. areatus	M	0.52-0.57	-	-	-	-	2.43-2.61	1.48-1.68
		-	-	-	-	-	-	-
P. atromaculatus	M	0.40	0.71	-	0.59-0.62	1.00	3.13-3.39	1.67-1.85
	F	0.47-0.49	0.55	0.49	0.55-0.58	1.00-1.17	3.22-3.26	1.92-2.08
P. aurigans	M	0.43-0.73	0.37	0.41	0.44-0.60	0.75-0.88	2.61-2.83	1.60
	F	0.42-0.44	0.40	-	0.50-0.56	0.68-1.00	2.74-2.87	1.36-2.32
P. balteatus	M	0.39-0.50	-	-	0.56	1.25	2.74-2.78	1.77-2.05
	F	0.56	0.57	0.53	0.55	1.00-1.20	2.87-3.09	1.64-2.04
P. cinctiventris	M	-	-	-	-	-	-	-
	F	0.56	-	-	-	-	3.00	1.91
P. collarti	M	0.47	0.44	0.45	0.65-0.71	1.20-1.25	2.26-2.61	1.67-1.76
	F	0.49	0.49	0.45	-	-	2.65	2.21
P. diola	M	-	-	-	-	-	-	-
	F	0.49-0.56	0.58	-	0.50	-	2.96-3.04	2.00-2.04
P. lepturoides	M	0.46-0.47	0.50-0.53	0.53	0.51-0.60	1.20-1.59	2.83-3.04	1.84-1.95
	F	0.46	0.53	0.46	0.58	1.15	2.83	1.67-2.10
P. macilentus	M	0.31-0.50	-	-	0.56-0.67	1.00-1.20	2.61-2.83	1.65-2.10
	F	-	-	-	-	-	-	-
P. maurus	M	0.40-0.49	0.49-0.50	-	0.60-0.71	1.00-1.10	2.52-2.83	1.60-1.90
	F	0.46	0.45	-	0.58	-	2.70	-
P. monodi	M	0.49	-	-	5.45-6.09	1.76-1.95	2.61-2.91	2.00
	F	0.49	0.83	1.25	6.00	1.83	2.87	2.04
P. niger	M	0.49	0.58	0.54	0.62	-	2.91-3.13	1.83-2.04
	F	0.50	-	-	0.56-0.57	0.83-1.17	3.22-3.26	1.78-1.96
P. nitidicollis	M	0.36-0.50	0.33-0.61	-	-	-	2.39-2.74	1.70-1.83
	F	0.43-0.44	0.29-0.41	0.56	0.56	1.25	2.65	1.90
P. ochripennis	M	0.38-0.42	0.44	0.67	0.80	-	2.39-2.87	1.33-2.16
	F	-	-	-	-	-	-	-
P. perinetensis	M	-	-	-	-	-	-	-
	F	0.53	-	-	0.67	1.18	3.00	1.44
P. strepitans	M	0.39-0.53	0.54	0.43	0.68	-	2.30-2.96	1.71-1.94
	F	0.50-0.61	0.53-0.66	0.44	0.55	-	1.91-3.13	1.70-2.09
P. tellini	M	0.50	0.50	-	0.60	1.00	3.13	2.09
	F	-	-	-	0.50-0.64	-	3.17-3.22	1.92-2.00
P. turpis	M	0.38-0.52	0.50-0.57	-	0.57-0.71	1.00-1.67	3.48-3.91	1.73-2.61
	F	0.58	0.58	-	0.53	0.89	3.83-3.91	2.46-2.91

Material and methods

Material. – The material examined belongs to the following institutions: American Museum of Natural History (AMNH), New York, USA; Musée Royal de l'Afrique Centrale (MRAC), Tervuren, Belgium; Museum für Naturkunde der Humboldt Universität zu Berlin (ZMB), Berlin, Germany; Museum Nationale d'Histoire Naturelle (MNHN), Paris, France; National Collection of Arachnida (PPRI), Pretoria, Republic of South Africa; Naturhistorisches Museum Wien (NMW), Vienna, Austria; Naturhistoriska Riksmuseet (NRS), Stockholm, Sweden; The Natural History Museum (BMNH), London, United Kingdom; Zoological Institute (ZIL), Saint Petersburg, Russia; and Zoological Museum, University of Helsinki (ZMH), Helsinki, Finland. The type of *Pirates* (*Cleptocoris*) *vittatus* Reuter, 1881 could not be located and the characters from the original description are scanty, so we have excluded this species from the analysis.

Terminology. – The terminology used for the external morphology has been reported previously (Coscarón 1983; Lent & Jurberg 1966; Lent & Wygodzinsky 1979). The measurements and ratios, as seen in Tables 1 and 2, were taken according to Coscarón (1989). For this revision a total of four measurements and 11 ratios were selected. The terminology employed for the characters of the female genitalia is detailed in Coscarón (1994). Extraction, dissection, inflation, and drawings of the male and female genitalia were performed according to Coscarón (1983).

Cladistic analysis. – The 19 species formerly assigned to *Cleptocoris* are considered as terminal taxa. The following 30 characters were analyzed:

1. Body shape. [0] robust; [1] slender
2. Eyes. [0] not attaining superior edge of head; [1] attaining superior edge of head; [2] surpassing superior edge of head
3. Ocelli. [0] not placed on a tubercle; [1] placed on a tubercle
4. Pronotum shape. [0] subrounded; [1] subquadrangular
5. Pronotum granulations. [0] absent; [1] present
6. Sulci. [0] not distinct; [1] distinct
7. Lateral internal sulci. [0] medially united; [1] distally united
8. Lateral external sulci. [0] undivided; [1] divided in two
9. Pronotum granulations on posterior lobe. [0] absent; [1] present
10. Scutellum. [0] uniformly pigmented; [1] not uniformly pigmented
11. Scutellum granulations. [0] present; [1] absent
12. Female hemelytra. [0] macropterous; [1] brachypterous
13. Hemelytra. [0] passing the apex of the abdomen; [1] not passing the apex of the abdomen
14. Hemelytra with light stripe on corium (and/or clavum). [0] absent; [1] present
15. Hemelytra with an orange-reddish area between the Cu and R + M in the corium. [0] absent; [1] present
16. Hemelytra with two regular dark dots on the membrane. [0] absent; [1] present
17. Hemelytra with a light dot on the membrane. [0] present; [1] absent
18. Fore femora with two colours. [0] present; [1] absent
19. Mid femora with two colours. [0] present; [1] absent
20. Hind femora with two colours. [0] present; [1] absent
21. Fore tibiae with two colours. [0] present; [1] absent
22. Mid tibiae with two colours. [0] present; [1] absent
23. Connexivum. [0] dorsally visible; [1] dorsally not visible
24. Connexivum colour. [0] one colour; [1] more than one colour
25. Pigmentation of the last segment of the abdomen equal to the anterior one. [0] present; [1] absent
26. Parameres. [0] subtriangular; [1] subrectangular
27. Gonocoxite VIII shape. [0] straight edge; [1] edge not straight
28. Gonocoxite IX internal edge hairs. [0] thin; [1] thin and thick
29. IX and X tergites segments shape. [0] subrounded; [1] subquadrangular
30. IX and X tergites intersegmental line. [0] entire; [1] not entire

Multistate character 2 was treated as additive. The data matrix (Table 3) was analyzed with Hennig86 version 1.5 (Farris 1988), applying the mhennig* and bb* options for calculating trees. The cladogram was rooted with *Parapirates* Villiers. Consistency (Kluge & Farris 1969) and retention (Farris 1989) indices were calculated. We used the successive weighting procedure in Hennig86, which calculates weights from the best fits of the characters on the most parsimonious cladograms using rescaled consistencies (products of the character consistency and the character retention index). These products are scaled in the range 0–10, and the weighting procedure is repeated on successively produced cladograms until they no longer change (Farris 1989). CLADOS version 1.1 (Nixon 1992) was used for examination of character distributions.

Systematics

The name *Pirates*, as it first appeared in Burmeister (1835), is an 'incorrect subsequent spelling' of *Peirates* Serville, 1831, and therefore unavailable. Later, however, Agassiz (1847) intentionally adopted the spelling *Pirates* instead of *Peirates*. Thus, the

Table 3. Data matrix for the species of the *Peirates collarti* and *P. lepturoides* species groups. 0 = plesiomorphic state; 1, 2 = apomorphic states; ? = missing data.

Character nos.	12345	1 67890	11111 12345	11112 67890	22222 12345	22223 67890
Parapirates	00000	0??00	00000	00000	00000	0????
P. collarti	11110	11001	00010	01110	00101	10010
P. monodi	10011	11010	01010	01000	00101	10111
P. amieti	10001	11001	00110	01011	01000	?0011
P. areatus	11100	11100	10010	01111	11111	11101
P. atromaculatus	01100	11100	00011	1?111	11010	00010
P. aurigans	01100	01100	11011	1?111	11011	10110
P. balteatus	01000	11100	1??10	01111	11010	11100
P. cinctiventris	01000	11100	00010	01111	11110	11111
P. diola	00000	00100	10110	00110	11010	10100
P. lepturoides	02100	01100	10010	01111	11100	11111
P. macillentus	10000	11010	00010	01111	11011	11100
P. maurus	00000	10100	00010	00111	11010	10000
P. niger	00000	11100	00000	01111	11010	11011
P. nitidicollis	00001	11010	00010	00111	11010	10000
P. ochripennis	11100	11100	1?010	01111	11110	1????
P. perinetensis	00000	11000	00110	00111	11010	?0111
P. strepitans	00000	01000	101?0	01111	11010	11011
P. tellini	00000	11100	10?10	01111	11010	11000
P. turpis	00010	11110	01000	01111	11100	00011

name *Pirates* Agassiz, 1847 is an available name but also an 'unjustified emendation' of *Peirates* Serville, i.e., a junior objective synonym.

The *Peirates collarti* species group

Diagnosis. – Pronotum subquadrangular (Fig. 13); last segment of the abdomen with different pigmentation than anterior one; connexivum dorsally visible (Fig. 13).

Key to species of the *Peirates collarti* species group

1. Ocelli on a tubercle (Fig. 1); eyes attaining superior but not inferior edge of head (Fig.1); female macropterous; intersegmental line between IX and X tergites entire (Fig. 12) ..... *P. collarti* Schouteden
– Ocelli not on a tubercle (Fig. 14); eyes neither attaining superior nor inferior edge of head (Fig. 14); female brachypterous; intersegmental line between IX and X tergites not entire (Fig. 23) ..... *P. monodi* Villiers

Peirates collarti Schouteden

(Figs 1-12, 182)

Pirates collarti Schouteden, 1931: 143; Villiers 1948: 235 (subgenus *Cleptocoris*).
Cleptocoris collarti; Villiers 1964a: 55; Maldonado-Capriles 1990: 348.

Material examined. – Holotype ♂, Zaire: Ituri, Niocloynil, 21-III-1929, A. Collarti, R. Dét. J. 2450, *Pirates collarti* Sch. Typus *Peirates collarti* (Sch.), det. J. Maldonado-Capriles C. 85 (MRAC). Tanzania: 3 ♂ Ugano, 15-1700 m, Tanganyika-Terr, Matengo–Hochland WSW. v. Songea, 21-31.I.'36, Zerny, (*Pirates Cleptocoris collarti* Sch. Villiers det 1962) (NMW); Zaire: 1 ♂ Kivu: Ibanda, 1951-1952, M. Vandelannoite (Coll. Mus. Tervuren, *Peirates collarti* Schout.) (MRAC); 1 ♀ Lulua, Kapanga, IX-1932, G.F. Overlaet, R. Det. 6962c (MRAC).

Description. – Male and female: Head (Figs 1, 2) dark brown. In lateral view, eyes attaining superior but not inferior edge of head. Ocelli on a tubercle. Antennae not uniformly coloured.

Pronotum (Fig. 2) anterior lobe dark brown, except sulci with pilosity, hairs over surface and edges. Sulci distinct, with whitish to light brown pilosity, and brown hairs, without granulations. Depression not distinct. Lateral internal sulci distally united and extending to transversal sulci, and lateral external sulci attaining transversal sulci. Posterior lobe dark brown (in some specimens light brown in edges or lighter than anterior lobe), dark brown hairs, without granulations. Scutellum (Fig. 2) not uniformly dark brown; principal body with reduced granulations over surface and edges.

Macropterous form: Hemelytra (Fig. 3) passing apex of abdomen. Predominating colour dark brown, except part of the clavus (upper zone) and corium light brown.

Fore leg with coxa dark brown; trochanter,

femur and tarsi light brown; tibia yellowish in the base and dark brown in the distal zone. Mid leg with coxa dark brown; femur and tarsi light brown; tibia yellowish and dark brown not homogeneous. Hind leg with coxa brown; trochanter, tibia and tarsi light brown and femur light brown in the base and brown in the distal zone.

Connexivum not dorsally visible. Urosternites brown or light brown to black (first segments lighter and getting darker in last ones). Last segment dark brown to almost black.

Male genitalia (Figs 4-9). Parameres (Figs 6-9) subrectangular, with hairs.

Female genitalia (Figs 10-12). Gonocoxites VIII (Fig.10) with straight edges. Gonocoxite IX (Fig. 11) internal edge hairs thin. IX and X tergites (Fig. 12) subquadrangular; intersegmental line entire.

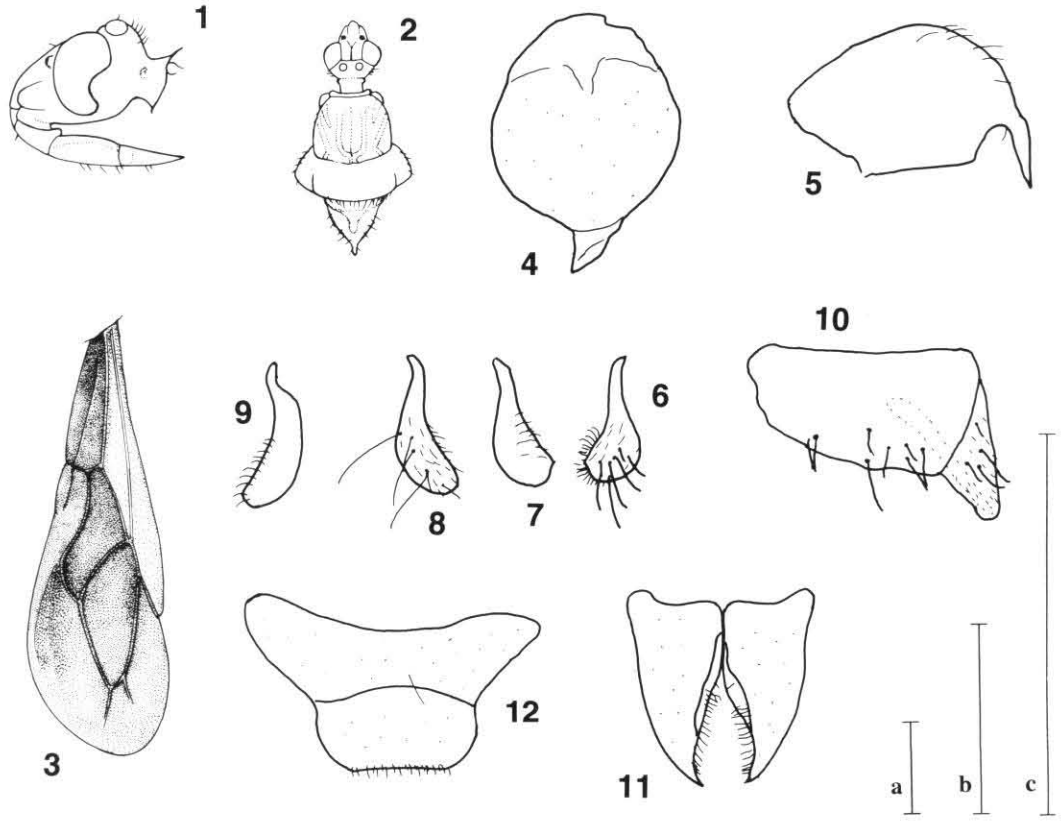
Measurements, see Tables 1 and 2.

Distribution. – Afrotropical: Congo, Rwanda, Tanzania, and Zaire (Fig. 182).

Discussion. – Separated from *P. monodi* by having a different pattern in the hemelytra, ocelli not on a tubercle, eyes neither attaining superior nor inferior edge of head, female brachypterous, and intersegmental line between IX and X tergites not entire.

Peirates monodi Villiers

(Figs 13-23, 182)



Figs 1-12. *Peirates collarti* Schouteden: (1) head, lateral view; (2) head, pronotum and scutellum, dorsal view; (3) hemelytra; (4) pygophore, ventral view; (5) pygophore, lateral view; (6) left paramere, external view; (7) left paramere, internal view; (8) right paramere, external view; (9) rigth paramere, internal view; (10) gonocoxite and gonapophysis VIII; (11) gonocoxites IX; (12) IX and X tergites. Scale lines 2.0 mm: (a) 2, 3, (b) 1, (c) 4–12.

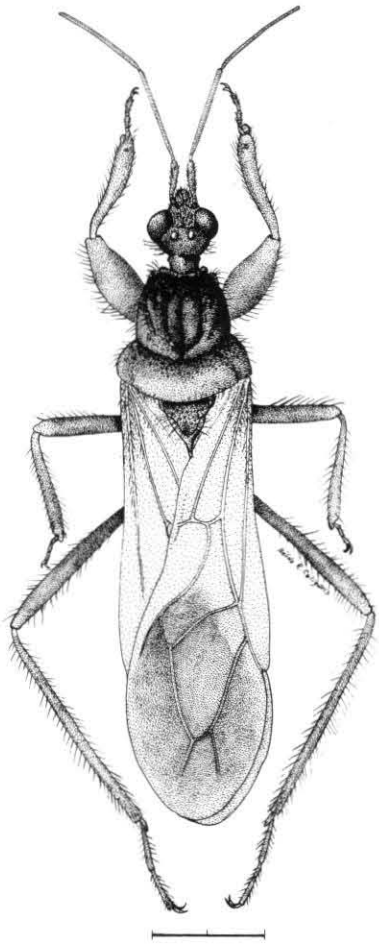


Fig. 13. *Peirates monodi* Villiers: general aspect. Scale line 2.0 mm.

Pirates monodi Villiers, 1948: 235 (subgenus *Cleptocoris*).
Cleptocoris monodi; Villiers 1964a: 55; Maldonado-Capriles 1990: 348.

Material examined. - Holotype ♀, Zaire (Senegal), *Pirates monodi* m. A. Villiers det (MNHN); 1 ♂ (Congo Belge) P. N. G. Miss. H. De Saeger, II/fe/15, 14-III-1951, Réc. H. De Saeger. 1386, Coll. Mus. Tervuren *C. monodi* Vill., det. A. Villiers 1962 (MRAC); 1 ♀ P. N. G. Miss. H. De Saeger II/gd/4, 5-XII-1951, Réc. H. De Saeger. 2863 (MRAC).

Description. - Male and female: General aspect of the male in Fig. 13. Head (Figs 13, 14) dark brown almost black. In lateral view, eyes neither attaining superior nor inferior edge of head. Ocelli not on a tubercle. Antennae not uniformly coloured, brown to dark brown.

Pronotum: Anterior lobe dark brown almost black, except sulci with pilosity, hairs over surface and edges. Sulci distinct, with whitish to light brown pilosity, and brown hairs, with granulations. Depression distinct. Lateral internal sulci distally united, and extending to transversal sulci, and lateral external sulci not attaining transversal sulci. Posterior lobe dark brown almost black (in some specimens lighter), dark brown hairs, reduced granulations. Scutellum uniformly dark brown almost black; principal body with granulations over surface and edges.

Both macropterous and brachypterous forms known. Macropterous form: Hemelytra passing apex of abdomen. Predominating colour dark brown, except part of the clavus (upper zone) and corium light brown.

Legs entirely dark brown except union between femur and tibia light brown.

Connexivum not dorsally visible with brown colour. Urosternites light brown with orange tonalities in basal medial region. Last segment of abdomen dark brown almost black.

Male genitalia (Figs 15-20). Parameres (Figs 17-20) subrectangular, with hairs.

Female genitalia (Figs 21-23). Gonocoxites VIII (Fig. 21) with straight edges. Gonocoxite IX (Fig. 22) internal edge hairs thin and thick. IX and X tergites (Fig. 23) subquadrangular; intersegmental line entire.

Measurements, see Tables 1 and 2.

Distribution. - Afrotropical: Ivory Coast and Zaire (Fig. 182).

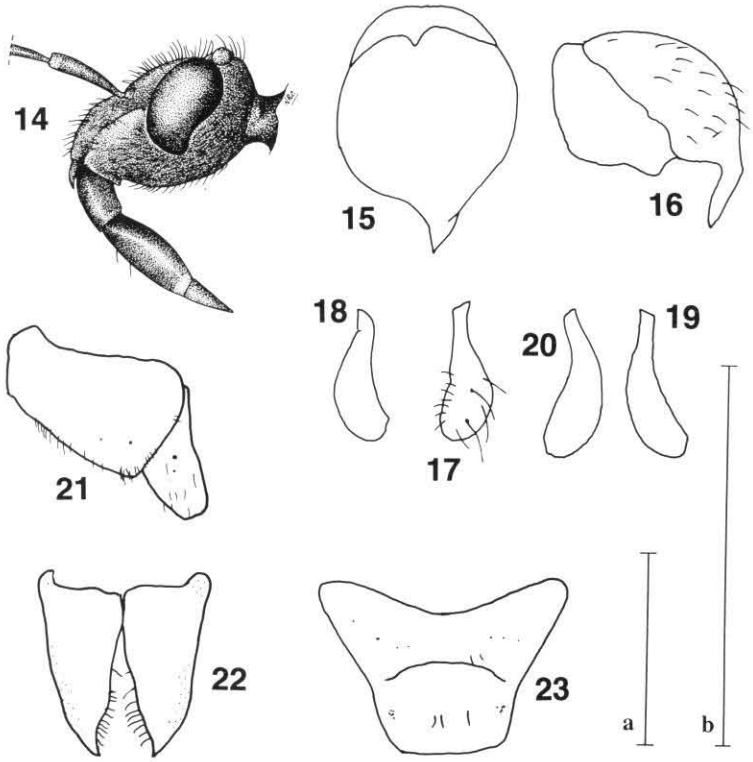
Discussion. - Separated from *P. collarti* by having a different pattern in the hemelytra, ocelli on a tubercle, eyes attaining the superior but not the inferior edge of the head; female macropterous, intersegmental line between IX and X tergites entire.

The *Peirates lepturoides* species group

Diagnosis. - Pronotum subrounded (Figs 60, 80, 114); hind femur and mid tibia unicolourous.

Key to species of the *Peirates lepturoides* species group

1. Hemelytra black 2
- Hemelytra not black 3



Figs 14-23. *Peirates monodi* Villiers: (14) head, lateral view; (15) pygophore, ventral view; (16) pygophore, lateral view; (17) left paramere, external view; (18) left paramere, internal view; (19) rigth paramere, external view; (20) right paramere, internal view; (21) gonocoxite and gonapophysis VIII; (22) gonocoxites IX; (23) IX and X tergites. Scale lines 2.0 mm: (a) 14, (b) 15-23.

2. Junction between connexival segments light brown (Fig. 114); female macropterous; parameres subrectangular (Figs 118-121) ..... *P. niger* Signoret
- Junction between connexival segments dark brown almost black; female brachypterous; parameres subtriangular (Figs 174-177) ..... *P. turpis* Walker
3. Hemelytra with light dot on the membrane 4
- Hemelytra without white dot on the membrane .. 7
4. Lateral internal sulci distally extending to the transversal sulci, lateral medial sulci not attaining the transversal sulci, and lateral external sulci divided in two and attaining the transversal sulci 5
- Lateral internal sulci distally united and extending to the transversal sulci, and lateral external sulci attaining the transversal sulci 6
5. Legs entirely dark brown; scutellum with granulations (Fig. 102); hairs of internal edge of gonocoxite IX thin (Fig. 112) ..... *P. maurus* Stål
- Legs dark brown except base of hind femur light brown; scutellum without granulations; hairs of internal edge of gonocoxite IX thin and thick (Fig. 79) ..... *P. diola* (Villiers)
6. IX and X tergites subquadrangular (Fig. 146); intersegmental line not entire (Fig. 146); hemelytra not passing apex of abdomen; hairs of internal edge of gonocoxite IX thin and thick (Fig. 145) ..... *P. perinetensis* Villiers
- IX and X tergites subrounded (Fig. 133); intersegmental line entire (Fig. 133); hemelytra not passing apex of abdomen; hairs of internal edge of gonocoxite IX thin (Fig. 132) ..... *P. nitidicollis* Reuter
7. Hemelytra with area between Cu and R + M of corium orange, and two irregular dots on the membrane (one on the basal and other on the area between the Cu black) 8
- Hemelytra without the characters mentioned above, with brownish tonalities 9
8. Sulci not distinct (Fig. 48); scutellum without granulations (Fig. 48); female brachypterous; parameres subrectangular (Figs 53–56) ..... *P. aurigans* Distant
- Sulci distinct (Fig. 37); scutellum with granula-

tions (Fig. 37); female macropterous; parameres subtriangular (Figs 40-43) ..... *P. atromaculatus* (Stål)

9. Body slender 10
- Body stout 13

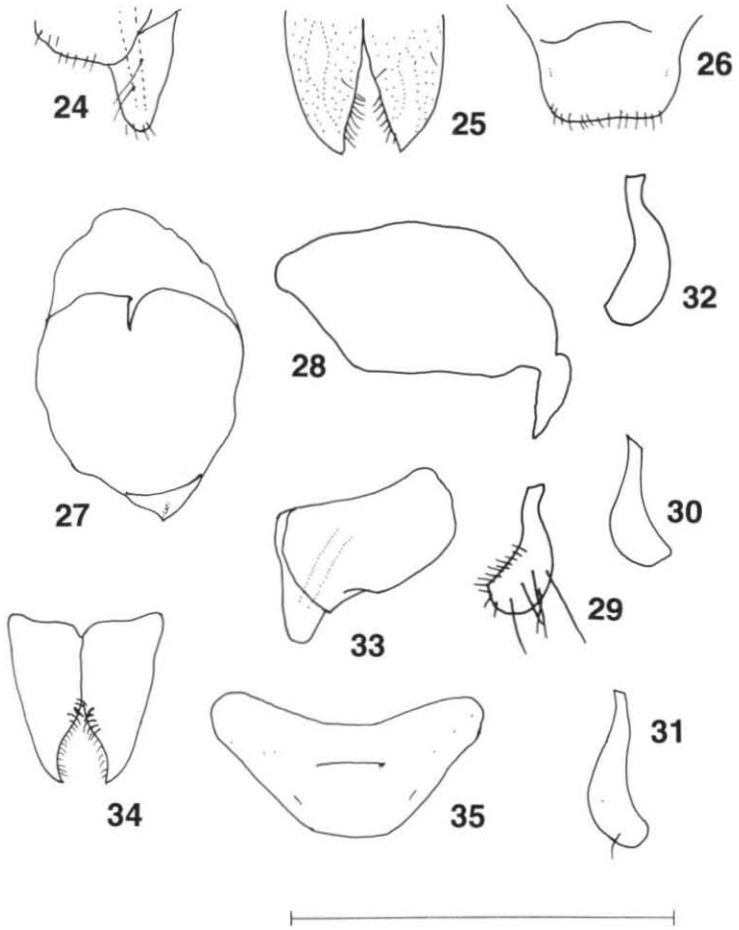
10. Legs entirely dark brown 11
- Mid and hind legs entirely dark brown; fore leg with femur dark brown in the base and light brown in the distal zone; tibia light brown in the base and brown in the distal zone; and coxa, trochanter and tarsi dark ..... *P. amieti* Villiers

11. Ocelli on a tubercle; eyes attaining superior but not inferior edge of the head 12
- Ocelli not on a tubercle; eyes neither attaining superior nor inferior edge of the head ..... *P. macilentus* Miller

12. Last segment of the abdomen of the same colour than the anterior one; parameres small (Figs 29-32) ..... *P. areatus* Miller
- Last segment of the abdomen of different colour than the anterior one; parameres big (Figs 136-139) ..... *P. ochripennis* Jeannel

13. Lateral internal sulci distally united, and extending to the transversal sulci, and lateral external sulci divided in two and attaining the transversal sulci; tergites IX and X subrounded . 14
- Lateral internal sulci distally united, and extending to the transversal sulci, and lateral external sulci attaining the transversal sulci; tergites IX and X subquadrangular 15

14. Eyes attaining the superior edge of the head (Fig. 61); hairs of internal edge of gonocoxite IX



Figs 24-35. (24-26) *Peirates amieti* Villiers: (24) gonocoxite and gonapophysis VIII; (25) gonocoxites IX; (26) IX and X tergites. (27-35) *Peirates areatus* Miller: (27) pygophore, ventral view; (28) pygophore, lateral view; (29) left paramere, external view; (30) left paramere, internal view; (31) right paramere, external view; (32) right paramere, internal view; (33) gonocoxite and gonapophysis VIII; (34) gonocoxites IX; (35) IX and X tergites. Scale line 2.0 mm.

thin and thick (Fig. 72).. *P. balteatus* Germar
- Eyes not attaining the superior edge of the head (Fig. 159); hairs of internal edge of gonocoxite IX thin (Fig. 169)..... *P. tellini* Schouteden

15. Eyes attaining superior but not inferior edge of head; ocelli not on a tubercle; connexivum not dorsally visible; scutellum with granulations .. .. *P. cinctiventris* Horváth
- Eyes passing superior and inferior edge of head (Fig. 82); ocelli on a tubercle (Fig. 82) .... *P. lepturoides* (Wolff)
- Eyes neither attaining superior nor inferior edge of head (Fig. 147); ocelli not on a tubercle (Fig. 147) ..... *P. strepitans* Rambur

Peirates amieti Villiers

(Figs 24-26, 182)

Pirates amieti Villiers, 1963b: 513 (subgenus *Cleptocoris*).
Cleptocoris amieti; Maldonado-Capriles 1990: 347.

Material examined. - Holotype ♀, Ivory Coast: Pepdu Joan Savia 57, Nimba Lamote, Amiet, Vanderplaetsen, XII-56-V-57, *Pirates amieti* n. sp., A. Villiers det 1961 (MNHN).

Description. - Female: Head dark brown. In lateral view, eyes neither attaining superior nor inferior edge of head. Ocelli not on a tubercle. Antennae uniformly coloured, brown.

Pronotum anterior lobe, dark brown, except sulci with pilosity and granulations, hairs over surface and edges. Sulci distinct, with light brown pilosity, and brown hairs, with granulations. Depression not distinct. Lateral internal sulci distally united and extending to transversal sulci, and lateral external sulci attaining transversal sulci. Posterior lobe dark brown, brown hairs, without granulations. Scutellum not uniformly dark brown; principal body with granulations over surface and edges.

Macropterous form: Hemelytra not passing apex of the abdomen. Predominating colour dark brown, except part of clavus (upper zone) and corium light brown.

Mid and hind legs entirely dark brown. Fore leg with femur dark brown in the base and light brown in the distal zone; tibia light brown in the base and brown in the distal zone; and coxa, trochanter and tarsi dark brown.

Connexivum dorsally visible. First abdominal segments lighter in the base and darker (light brown to dark brown almost black) in the distal zone. Urosternites brown. Last segments of abdomen dark brown almost black.

Female genitalia (Figs 24-26). Gonocoxites VIII (Fig. 24) straight edges. Gonocoxite IX (Fig. 25) internal edge hairs thin. IX and X tergites (Fig. 26) subquadrangular; intersegmental line not entire.

Measurements, see Tables 1 and 2.

Distribution. - Afrotropical: Ivory Coast and Zaire (Fig. 182).

Discussion. - Separated from *P. areatus* and *P. ochripennis* by having the legs entirely dark brown, ocelli on a tubercle and eyes attaining the superior but not the inferior edge of the head.

Peirates areatus Miller

(Figs 27-35, 183)

Pirates areatus Miller, 1950: 222 (subgenus *Cleptocoris*).
Cleptocoris areatus; Maldonado-Capriles 1990: 347.

Material examined. - Holotype ♂, Zimbabwe (S. Rhodesia): Od zi dist 28-XII-46 at light N. C. E. Miller, 90, *P. (Cleptocoris) areatus* sp. n. det. N. C. E. Miller 1949 (BMNH). Zaire (Congo): 1 ♂ Yakuluku, 4°20'S; 28°50'E, IX-23-1911 (AMNH); Medje, 27°15'E, 2°25'N, ♂ IV-V-1910 (AMNH).

Description. - Male and female: Head dark brown almost black. In lateral view, eyes attaining superior but not inferior edge of head. Ocelli on a tubercle. Antennae uniformly coloured.

Pronotum anterior lobe, dark brown almost dark, except sulci with pilosity, hairs over surface and edges. Sulci distinct, with whitish to light brown pilosity, without granulations. Depression distinct. Lateral internal sulci distally united and extending to the transversal sulci, and lateral external sulci divided in two and attaining the transversal sulci. Posterior lobe dark brown, dark brown hairs, without granulations. Scutellum uniformly dark brown; principal body almost black, no granulations over surface and edges.

Macropterous form: Hemelytra passing apex of abdomen. Predominating colour dark brown, except part of the clavus (between Cu and Sc) that is light brown.

Legs dark brown.

Connexivum not dorsally visible, with predominating colour dark brown, the rest light brown (upper zone). Urosternites with different tonalities of dark brown. Last segment of abdomen dark brown almost black.

Male genitalia (Figs 27-32). Parameres (Figs 29-32) subrectangular, with hairs.

Female genitalia (Figs 33-35). Gonocoxites VIII (Fig. 33) curved edges. Gonocoxite IX (Fig. 34) internal edge hairs thin and thick. IX and X tergites

(Fig. 35) subrounded; intersegmental line not entire.

Measurements, see Tables 1 and 2.

Distribution. Afrotropical: Zaire and Zimbabwe (Fig. 183).

Discussion. - Separated from *P. ochripennis* by having the last segment of the abdomen of different colour than the anterior one and parameres big.

Peirates atromaculatus (Stål)

(Figs 36-46, 183)

Cleptocoris atromaculatus Stål, 1870: 262; Maldonado-Capriles 1990: 347.
Pirates sinensis Walker, 1873: 114; Distant 1902: 283 (= *atromaculatus*).
Pirates atromaculatus; Walker 1873: 123; Stål 1874: 58 (subgenus *Cleptocoris*).

Material examined. - China: 1 ♂ N. 11, Arau, Kratke Mts., Valley of upper Wantan R., 1400 m, Oct. 18. 1959 (AMNH); 1 ♂ Pinghsiang Kreyenberg, Col. Breddin, Deutsch. Entom. Mus. Berlin Dahlems (ZIL); 1 ♂ Tatsien-lu, Sztschwan, St. Breuning ded. (ZIL). India: 1 ♂ New Delhi, 1-10-VIII AnekcamapoB (ZIL). 1 ♂ N. Indien, Coll. Signoret, *mundulus* Signoret, *atromaculatus* det. Distant, *Pirates atromaculatus* Stål (MNW); 1 ♀ Anamalai Hills Cinchona, 3500 ft. P.S. Nathan (AMNH); 1 ♂ Madras State, Anamalai Hills Kadamparai, 3500', P. Sussi Nathan Collector (AMNH); 1 ♂ Madras State, Anamalai Hills Kadamparai, 3500', P. Sussi Nathan Collector (AMNH); 1 ♀ New Delhi, 19-VII Anekcandposs 1958.; 1 ♀ Anamalai Hills, Cenchona, 3500 ft, P.S. Nathan (AMNH); 1 ♂ Madras State, Anamalai Hills, Kadamparai, 3500', P. Susai Nathan Collector (AMNH). Iran: 1 ♂ Podachi-Kuimurga, K. Kiman, Zarudnij leg., 25.VI.98 (ZIL); 1 ♀ Charma, near river Karuna, Zarudnij leg. 9-10. 11-04 (ZIL); 1 ♀ Agulasker, Zarudnij, 28-III-04 (ZIL). Java: 1 ♀ Blavan, Bondo-woso, H. Lucht (ZIL); Blavan, Bondo-woso, H. Lucht, 1 ♂ 16-III-1935 (ZIL); 1 ♂ Banjoewangi, H. Lucht (ZIL). Myanmar (Burma): 1 ♀ Katha Fes, VI 1889 (ZIL). Papua: 1 ♀ New Guinea, Menapi, Cape Vogel Peninsula, 0-30 m. N.1, Mar-26-30-1953, Geoffrey M. Tate Collector (AMNH). Philippines: 1 ♀ Banos Laguna Luzon, 50 m, V-17-1947 (AMNH).

Description. - Male and female: Head (Figs 36, 37) dark brown almost black. In lateral view, eyes attaining superior but no inferior edge of head. Ocelli on a tubercle. Antennae not uniformly coloured, I antennal segment dark brown, the rest slightly dark brown.

Pronotum (Fig. 37) anterior lobe, dark brown almost black, except sulci with pilosity, hairs over surface and edges. Sulci distinct, with whitish to light brown pilosity, and brown hairs, without granulations. Depression not distinct. Lateral internal sulci distally united and extending to transversal sulci, and lateral external sulci divided in two and attaining transversal sulci. Posterior lobe dark brown almost black, dark brown hairs, without granulations. Scutellum (Fig. 37) uniformly dark brown; principal body with reduced granulations over surface and edges.

Macropterous form: Hemelytra (Fig. 38) passing apex of the abdomen. Predominating colour dark brown, except area between the Cu and R + M of the corium orange, and two irregular dots in the membrane, one in the basal zone and the other in the area between the Cu black.

Legs entirely dark brown.

Connexivum dorsally visible with predominating colour dark brown, the rest light brown (separation between the two colours not defined). Urosternites uniformly dark brown or not, light and dark brown. Last segment of abdomen dark brown.

Male genitalia (Figs 39-43). Parameres (Figs 40-43) subtriangular, with hairs.

Female genitalia (Figs 44-46). Gonocoxites VIII (Fig. 44) straight edges. Gonocoxite IX (Fig. 45) internal edge hairs thin. IX and X tergites (Fig. 46) subquadrangular; intersegmental line entire.

Measurements, see Tables 1 and 2.

Observations. - In some specimens the clavus may have the distal zone a lighter dark brown than the rest. Also, in the membrane it may have an irregular dot in the upper zone.

Distribution. - Australian, Indomalayan, and Palearctic: China, Hong-Kong, India, Indonesia, Iran, Japan, Java, Myanmar (Burma), Papua, Philippines, and Sri Lanka (Ceylon) (Fig. 183).

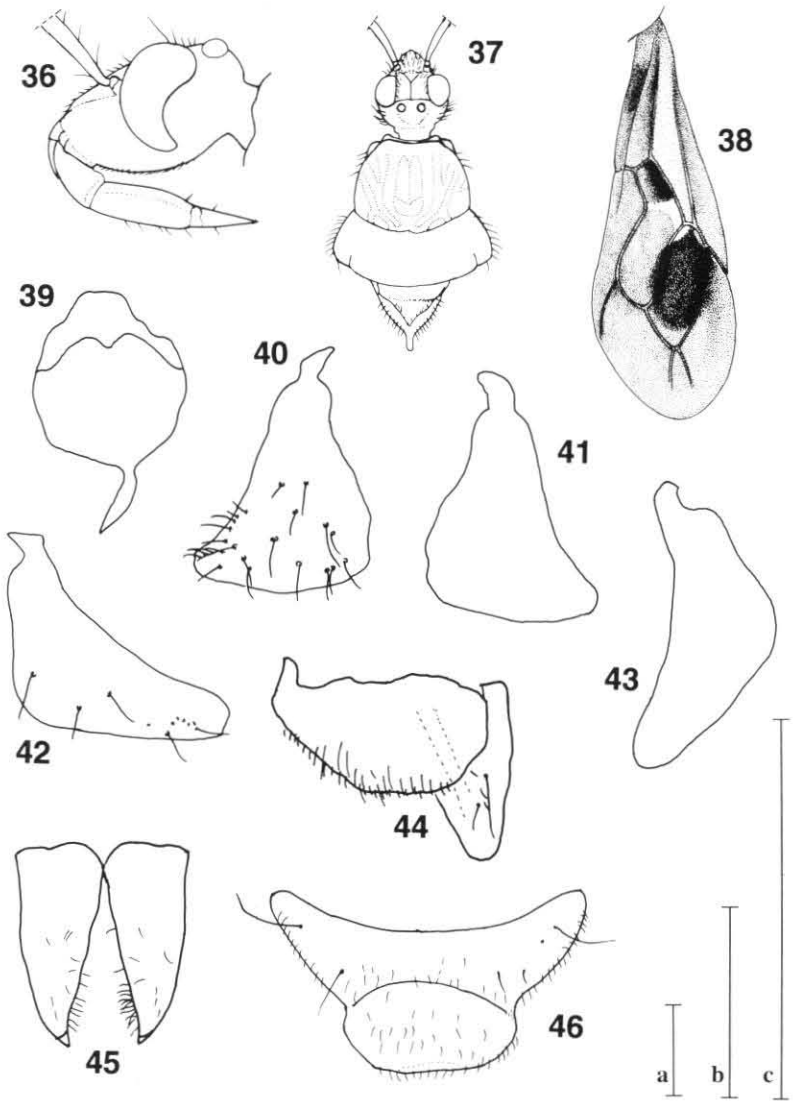
Discussion. - Separated from *P. aurigans* by having the sulci of the pronotum not distinct, scutellum without granulations, female brachypterous, and parameres subrectangular.

Peirates aurigans Distant

(Figs 47-59, 183)

Pirates aurigans Distant, 1902: 285; Jeannel 1919: 249 (subgenus *Cleptocoris*).
Cleptocoris aurigans; Villiers 1973: 26; Maldonado-Capriles 1990: 347.

Material examined. - Holotype ♂ *aurigans* Dist, B. E. Africa, C. S. Betton. 1902-35, El donyo et Viru. May to July (BMNH). Kenya: 1 ♀ Timboroa, 2800m prairies découvertes, 10-IV-1957; Mission Zoolog. I.R.S.A.C. en Afrique Orientale (P. Basilewsky et N. Leleup), *Pirates (C.) aurigans, L. gerstaeckeri* Bergr., A. Villiers det 1961 (MRAC). Rep. South Africa: 1 ♂ Musée du Congo,

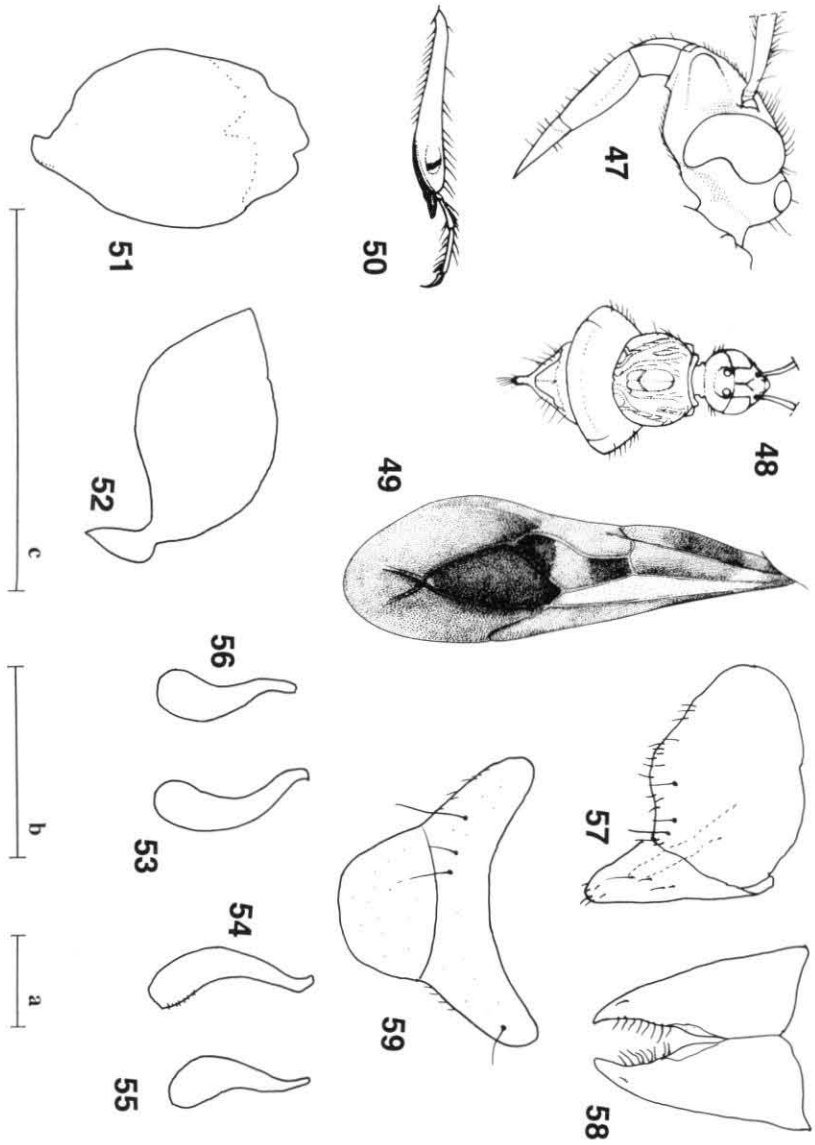


Figs 36-46. *Peirates atromaculatus* (Stål): (36) head, lateral view; (37) head, pronotum and scutellum, dorsal view; (38) hemelytra; (39) pygophore, ventral view; (40) left paramere, external view; (41) left paramere, internal view; (42) right paramere, external view; (43) right paramere, internal view; (44) gonocoxite and gonapophysis VIII; (45) gonocoxites IX; (46) IX and X tergites. Scale lines 2.0 mm: (a) 37, 38, (b) 36, 39, (c) 40-46.

Pretoria (Van Sasseghem), R. Dét. M 2450 (MRAC). Tanzania: 1 ♂ Tanganyika Terr, Katesh, Contref. S. du Mt. Hanang, 1850 m. 18/31-V-1957, Coll. Mus. Congo, Mission Zoolog. I.R.S.A.C. en Afrique Orientale (P. Basilewsky et N. Leleup) (MRAC).

Description. – Male and female: Head (Figs 47, 48) dark brown almost black (in some specimens). In lateral view, eyes attaining superior but not inferior edge of head. Ocelli on a tubercle. Antennae uniformly dark brown.

Pronotum (Fig. 48) dark brown. Anterior lobe dark brown almost black, except sulci with pilosity, hairs over surface and edges. Sulci not distinct, with brown pilosity, and brown hairs, without granula-



Figs 47-59. *Peirates aurigans* Distant: (47) head, lateral view; (48) head, pronotum and scutellum, dorsal view; (49) hemelytra; (50) fore leg, tibia; (51) pygophore, ventral view; (52) pygophore, lateral view; (53) left paramere, external view; (54) left paramere, internal view; (55) right paramere, external view; (56) right paramere, internal view; (57) gonocoxite and gonapophysis VIII; (58) gonocoxites IX; (59) IX and X tergites. Scale lines 2.0 mm: (a) 48, 50, (b) 47, 49, (c) 51-59.

tions. Depression not distinct. Lateral internal sulci distally united and extending to transversal sulci, and lateral external sulci divided in two and attaining transversal sulci. Posterior lobe dark brown almost black, dark brown hairs, without granulations. Scutellum (Fig. 48) , uniformly dark brown almost black; principal body without granulations over surface and edges.

Both macropterous and brachypterous forms known. Macropterous form: Hemelytra (Fig. 49)

passing apex of abdomen. Predominating colour dark brown, except area between the Cu and R+M of the corium orange, and two irregular dots in the membrane, one in the basal zone and the other in the area between the Cu black.

Legs entirely dark brown. Fore leg tibia as in Fig. 50.

Connexivum dorsally visible or not, predominating colour dark brown, the rest brown. Urosternites not uniformly coloured, from light brown to dark brown. Last segment of the abdomen black.

Brachypterous form: Urosternites black.

Male genitalia (Figs 51-56). Parameres (Figs 53-56) subrectangular, without hairs.

Female genitalia (Figs 57-59). Gonocoxites (Fig. 57) VIII straight edges. Gonocoxite IX (Fig. 58) internal edge hairs thin and thick. IX and X tergites (Fig. 59) subquadrangular; intersegmental line entire.

Measurements, see Tables 1 and 2.

Distribution. Afrotropical: Kenya, Republic of South Africa, Tanzania, and Zaire (Fig. 183).

Discussion. – Separated from *P. atromaculatus* by having the sulci of the pronotum distinct, scutellum with granulations, female macropterous, and parameres subtriangular.

Peirates balteatus Germar

(Figs 60-73, 183)

Pirates balteatus Germar, 1837: 131; Stål 1874: 58 (subgenus *Cleptocoris*).
Cleptocoris balteatus; Stål 1866: 261; Maldonado-Capriles 1990: 347.

Material examined. – 5 ♂, O Africa (NMW). Egypt: 1 ♀ Natt. 1858 (NMW). Kenya-Tanzania: 1 ♀ Pz. Albert S. Africa, 1883 (NMW).

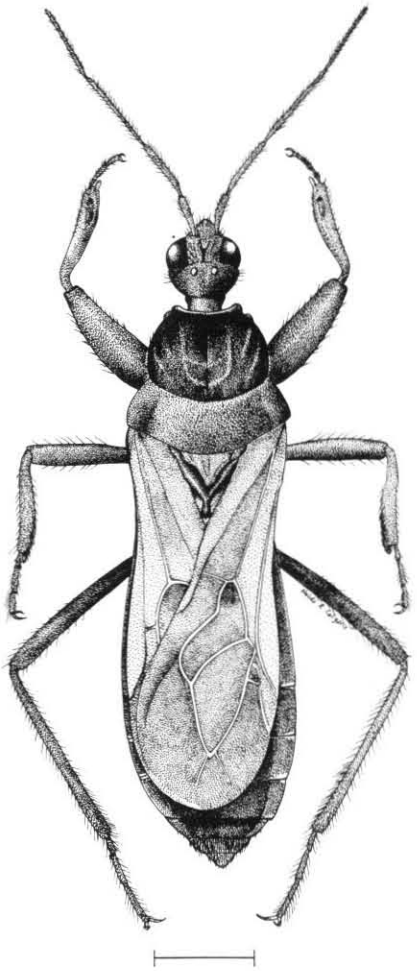


Fig. 60. *Peirates balteatus* Germar: general aspect. Scale line 2.0 mm.

Description. – Male and female: General aspect of the female as in Fig. 60. Head (Figs 61, 62) dark brown almost black. In lateral view, eyes attaining superior but not inferior edge of head. Ocelli not on a tubercle. Antennae uniformly coloured.

Pronotum (Fig. 62) anterior lobe, dark brown almost dark, except sulci with pilosity, hairs over surface and edges. Sulci distinct, with whitish to light brown pilosity, without granulations. Depression not distinct. Lateral internal sulci distally united and extending to transversal sulci, and lateral external sulci divided in two and attaining transversal sulci. Posterior lobe dark brown or lighter than anterior lobe, dark brown hairs, without granulations. Scutellum (Fig. 62), uniformly dark brown; principal body almost black, without granulations over surface and edges.

Macropterous form: Hemelytra (Fig. 63) passing or not the apex of the abdomen. Predominating colour dark brown, except part of the clavus (upper zone) and corium light brown.

Legs dark brown.

Connexivum (Fig. 64) dorsally visible, with predominating colour dark brown, the rest light brown. Urosternites with different tonalities of dark brown. Last segment of abdomen dark brown.

Male genitalia (Figs 65-70). Parameres (Figs 67-70) subrectangular, with hairs.

Female genitalia (Figs 71-73). Gonocoxites VIII (Fig. 71) curved edges. Gonocoxite IX (Fig. 72) internal edge hairs thin and thick. IX and X tergites (Fig. 73) subrounded; intersegmental line entire.

Measurements, see Tables 1 and 2.

Distribution. – Afrotropical: Egypt, Kenya, Tanzania, and Zaire (Fig. 183).

Discussion. – Separated from *P. tellini* by having the eyes not attaining the superior edge of the head and the hairs of the internal edge of the gonocoxite IX thin.

Peirates cinctiventris Horváth

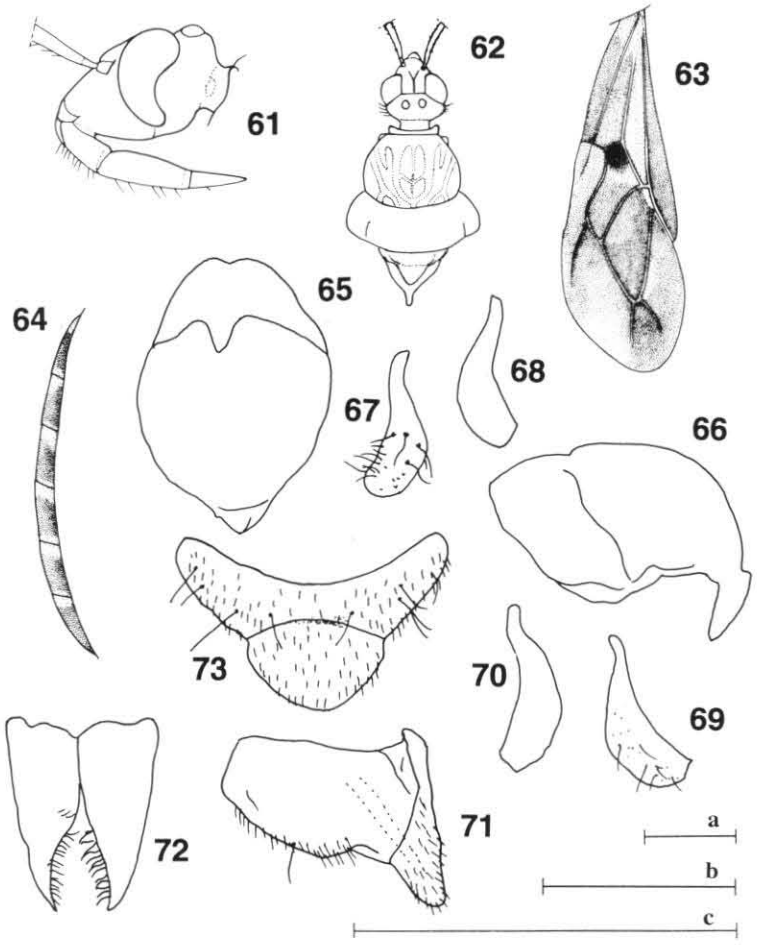
(Figs 74-76, 184)

Pirates cinctiventris Horváth, 1879: 148 (subgenus *Cleptocoris*).

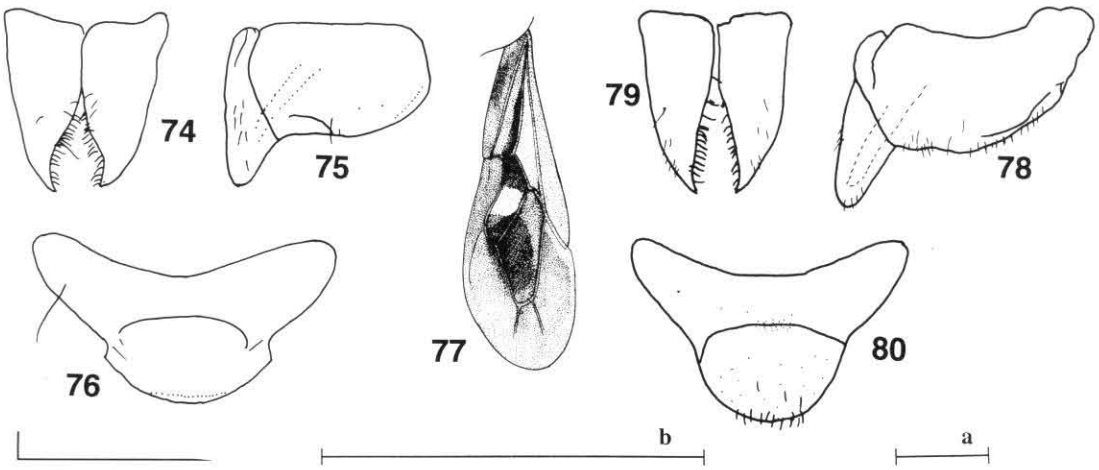
Cleptocoris cinctiventris; Maldonado-Capriles 1990: 348.

Material examined. – Japan: 1 ♀ (BMNH) [det. *cinctiventris* Horváth by J. Scott, Trans. ent. Soc. Lond. 1880: 306].

Description. – Female: Head dark brown. In lateral view, eyes attaining superior but not inferior edge of head. Ocelli not on a tubercle. Antennae not uni-



Figs 61-73. *Peirates balteatus* Germar: (61) head, lateral view; (62) head, pronotum and scutellum, dorsal view; (63) hemelytra; (64) connexivum; (65) pygophore, ventral view; (66) pygophore, lateral view; (67) left paramere, external view; (68) left paramere, internal view; (69) right paramere, external view; (70) right paramere, internal view; (71) gonocoxite and gonapophysis VIII; (72) gonocoxites IX; (73) IX and X tergites. Scale lines 2.0 mm: (a) 62-64, (b) 61, (c) 65-73.



Figs 74-80. (74-76) *Peirates cinctiventris* Horváth: (74) gonocoxite and gonapophysis VIII; (75) gonocoxites IX; (76) IX and X tergites. (77-80) *Peirates diola* (Villiers): (77) hemelytra; (78) gonocoxite and gonapophysis VIII; (79) gonocoxites IX; (80) IX and X tergites. Scale lines 2.0 mm: (a) 77, (b) 74-76, 78-80.

formly coloured. First and 2 antennal segments dark brown, 3 and 4 darker than 1 and 2.

Pronotum anterolateral angles well developed. Lateral margin carinated along its entire edge. Anterior lobe dark brown, except sulci with pilosity, hairs over the surface and the edges. Sulci distinct, with whitish to light brown pilosity, without granulations. Depression not distinct. Lateral internal sulci distally united extending to transversal sulci, lateral medial sulci not attaining transversal sulci, and lateral external sulci divided in two and attaining transversal sulci. Posterior lobe dark brown, dark brown hairs, without granulations. Scutellum uniformly dark brown; principal body with granulations over surface and edges.

Macropterous form known. Hemelytra passing the apex of abdomen. Predominating colour dark brown, except clavus and corium light brown.

Legs dark brown with fore tibia lighter.

Connexivum not dorsally visible with predominating colour dark brown, the rest light brown. Urosternites dark brown. Last segment of abdomen dark brown.

Female genitalia (Figs 74-76). Gonocoxites VIII (Fig. 74) curved edges. Gonocoxite IX (Fig. 75) internal edge hairs thin and thick. IX and X tergites (Fig. 76) subquadrangular; intersegmental line not entire.

Measurements, see Tables 1 and 2.

Distribution. – Palearctic: Japan (Fig. 184).

Discussion. – Separated from *P. lepturoides* and *P. strepitans* by having a different position of the eyes and the ocelli.

Peirates diola (Villiers) **comb. n.**

(Figs 77-80, 184)

Cleptocoris diola Villiers, 1963a: 984; Maldonado-Capriles 1990: 348.

Material examined. – Holotype ♀, Senegal, Forêt Classée des Kalounayes, 26-XI-1961, Défrechement, Mission Ifan en Basse-Casamance, *C. diola* n. sp. A. Villiers det 1962 (MNHN). Zaire (Congo Belge): 1 ♀ P. N. G. Miss. H. De Saeger 11/fb/18, 16-XI-1951 Réc. H. De Saeger. 2766, Coll. Mus. Tervuren (MRAC).

Description. – Female: Head dark brown. In lateral view, eyes neither attaining superior nor inferior edge of head. Ocelli not on a tubercle. Antennae not uniformly coloured dark brown.

Pronotum anterior lobe, dark brown almost black, except sulci with pilosity, hairs over surface and edges. Sulci not distinct, with whitish to light brown pilosity, and brown hairs, without granulations. Depression not distinct. Lateral internal sulci distally extending to transversal sulci, lateral medial sulci not attaining transversal sulci, and lateral external sulci divided in two and attaining transversal sulci. Posterior lobe dark brown, dark brown hairs, without granulations. Scutellum uniformly dark brown; principal body without granulations over surface and edges.

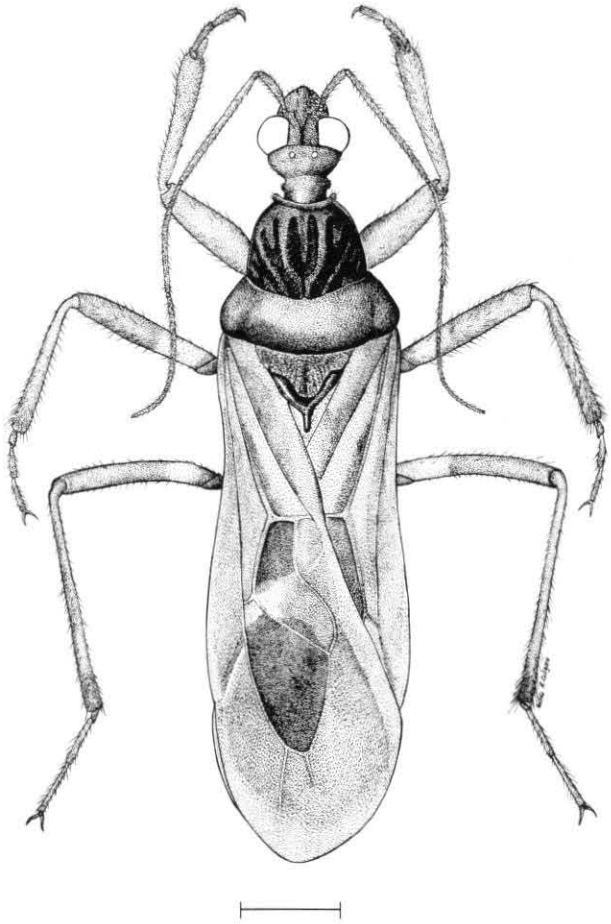


Fig. 81. *Peirates lepturoides* (Wolff): general aspect. Scale line 1.5 mm.

Macropterous form: Hemelytra (Fig. 77) not passing apex of the abdomen. Predominating colour yellowish except a dark brown dot in the upper zone of the membrane.

Legs dark brown, except base of hind femur light brown.

Connexivum dorsally visible with predominating colour dark brown except a yellowish stripe. Urosternites brown. Last segment of abdomen dark brown almost black.

Female genitalia (Figs 78-80). Gonocoxites VIII (Fig. 78) straight edges. Gonocoxite IX (Fig. 79) internal edge hairs thin and thick. IX and X tergites (Fig. 80) subrounded; intersegmental line entire.

Measurements, see Tables 1 and 2.

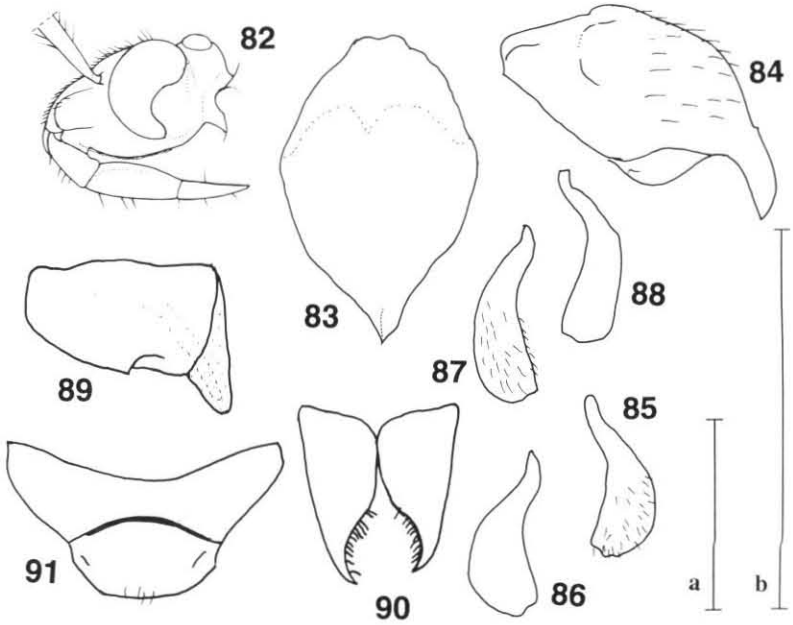
Distribution. – Afrotropical: Senegal and Zaire (Fig. 184).

Discussion. – The closest species is *P. maurus* which differs by having the legs entirely dark brown, scutellum with granulations, and the hairs of the internal edge of the gonocoxite IX thin.

Peirates lepturoides (Wolff)

(Figs 81-91, 182)

Reduvius lepturoides Wolff, 1804: 165.
Pirates lepturoides; Stål 1866: 262, incerti generis; Stål 1874: 58 (subgenus *Cleptocoris*).
Cleptocoris lepturoides; Oshanin 1910: 538; Maldonado-Capriles 1990: 348.



Figs 82-91. *Peirates lepturoides* (Wolff): (82) head, lateral view; (83) pygophore, ventral view; (84) pygophore, lateral view; (85) left paramere, external view; (86) left paramere, internal view; (87) right paramere, external view; (88) right paramere, internal view; (89) gonocoxite and gonapophysis VIII; (90) gonocoxites IX; (91) IX and X tergites. Scale lines 2.0 mm: (a) 82, (b) 83-91.

Material examined. - China: 1 ♂, 1 ♀ Suifu Sz., Oct. 1930, D.C. Graham coll. (AMNH). Philippines: 1 ♀ Capiz Balate, 10-VI-51, E. Guanco (AMNH). Thailand: 1 ♂ Bangkok, April 25, 1955, Duis D. Bolinger (AMNH). 1 ♀ Mangas (ZIL).

Description. - Male and female: General aspect of male as Fig. 81. Head (Fig. 82) dark brown almost black. In lateral view, eyes passing superior and inferior edge of head. Ocelli on a tubercle. Antennae not uniformly dark brown.

Pronotum anterolateral angles well developed. Lateral margin carinated along its entire edge. Anterior lobe dark brown, except sulci with pilosity, hairs over surface and edges. Sulci not distinct, with whitish to light brown pilosity, and brown hairs, without granulations. Depression not distinct. Lateral internal sulci distally united and extending to transversal sulci, and lateral external sulci divided in two and attaining transversal sulci. Posterior lobe dark brown, dark brown hairs, without granulations. Scutellum uniformly dark brown; principal body without granulations over surface and edges.

Macropterous form: Hemelytra passing apex of the abdomen. Predominating colour dark brown, except part of the clavus (upper zone) and corium light brown.

Legs entirely dark brown.

Connexivum not dorsally visible. Urosternites brown or dark brown. Last segment of the abdomen brown or dark brown.

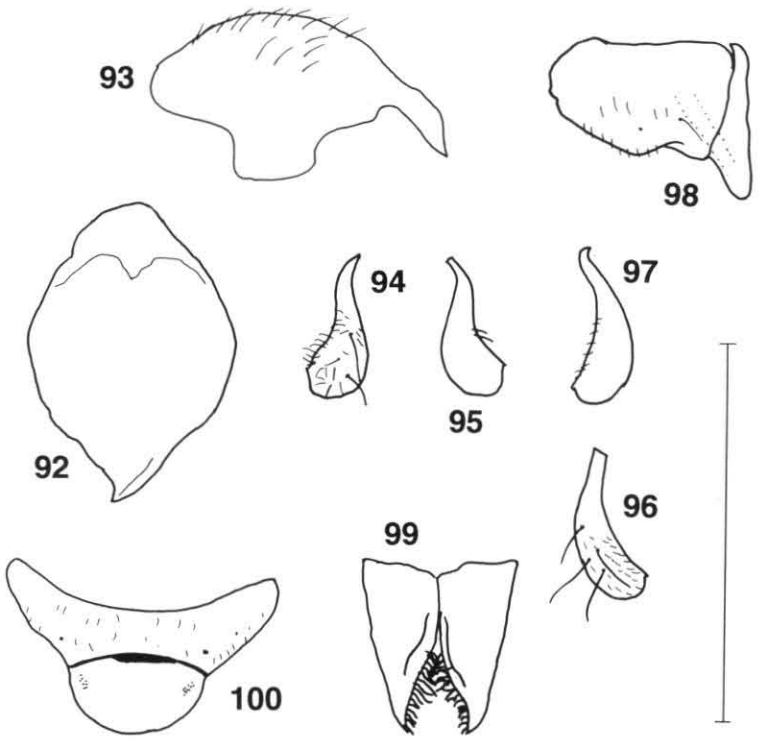
Male genitalia (Figs 83-88). Parameres (Figs 85-88) subrectangular, with hairs.

Female genitalia (Figs 89-91). Gonocoxites VIII (Fig. 89) curved edges. Gonocoxite IX (Fig. 90) internal edge hairs thin and thick. IX and X tergites (Fig. 91) subquadrangular; intersegmental line not entire.

Measurements, see Tables 1 and 2.

Distribution. - Indomalayan: Borneo, China, India, Java, Myanmar (Burma), Philippines, Sri Lanka (Ceylon), and Thailand (Fig. 182).

Discussion. - Separated from *P. strepitans* by having the eyes neither attaining the superior nor the inferior edge of the head and ocelli not on a tubercle.



Figs 92-100. *Peirates macilentus* Miller: (92) pygophore, ventral view; (93) pygophore, lateral view; (94) left paramere, external view; (95) left paramere, internal view; (96) right paramere, external view; (97) right paramere, internal view; (98) gonocoxite and gonapophysis VIII; (99) gonocoxites IX; (100) IX and X tergites. Scale line 2.0 mm.

Peirates macilentus Miller

(Figs 92-100, 184)

Pirates macilentus Miller, 1950: 223 (subgenus *Cleptocoris*).
Cleptocoris macilentus; Maldonado-Capriles 1990: 348.

Material examined. - Holotype ♂, Zambia–Zimbabwe (S. Rhodesia): Nov. 1945, N. C. E. Miller, 16, *Pirates macilentus* sp. n. det. N. C. E. Miller 1949, Pres. by N. C. E. Miller. B. M. 1951-36 (BMNH). Rep. South Africa: 2 ♂ N. Transvaal, XII-1956, Louis Trichardt, (unreadable) (AMNH).

Description. - Male and female: Head dark brown almost black. In lateral view, eyes neither attaining superior nor inferior edge of head. Ocelli not on a tubercle. Antennae uniformly coloured dark brown.

Pronotum anterior lobe, dark brown almost black, except sulci with pilosity, hairs over surface and edges. Sulci distinct, with whitish to light brown pilosity, and brown hairs, without granulations. Depression not distinct. Lateral internal sulci distally united and extending to transversal sulci, and lateral external sulci attaining transversal sulci. Posterior lobe dark brown almost black, dark brown hairs, reduced granulations. Scutellum uniformly dark brown; principal body with reduced granulations over surface and edges.

Macropterous form: Hemelytra passing the apex of abdomen. Predominating colour dark brown, except part of the clavus (upper zone) and corium light brown.

Legs dark brown almost black.

Connexivum dorsally visible, predominating colour dark brown, the rest almost black. Urosternites brown to dark brown. Last segment of abdomen black.

Male genitalia (Figs 92-97). Parameres (Figs 94-97) subrectangular, with hairs.

Female genitalia (Figs 98-100). Gonocoxites VIII (Fig. 98) curved edges. Gonocoxite IX (Fig. 99) in-

ternal edge hairs thin and thick. IX and X tergites (Fig. 100) subrounded; intersegmental line entire.

Measurements, see Tables 1 and 2.

Observations. – The type has a whitish dot over the membrane (in the upper zone) and corium Pcu+1A, and Cu brown; also area between R+M and SC brown with reddish tonalities.

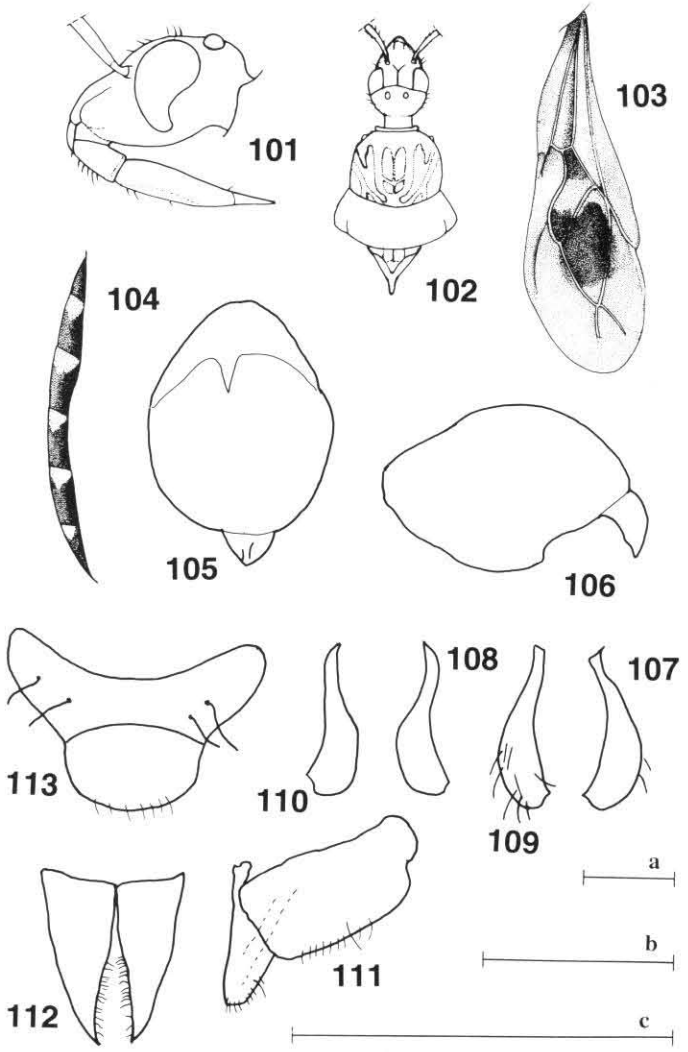
Distribution. – Afrotropical: Republic of South Africa, Zambia, and Zimbabwe (Fig. 184).

Discussion. – Separated from *P. areatus* and *P. ochripennis* by having the ocelli on a tubercle and the eyes attaining the superior but not the inferior edge of the head.

Peirates maurus Stål

(Figs 101-113, 184)

Pirates maurus Stål, 1855a: 38; Stål 1874: 58 (subgenus *Cleptocoris*).



Figs 101-113. *Peirates maurus* Stål: (101) head, lateral view; (102) head, pronotum and scutellum, dorsal view; (103) hemelytra; (104) connexivum; (105) pygophore, ventral view; (106) pygophore, lateral view; (107) left paramere, external view; (108) left paramere, internal view; (109) right paramere, external view; (110) right paramere, internal view; (111) gonocoxite and gonapophysis VIII; (112) gonocoxites IX; (113) IX and X tergites. Scale lines 2.0 mm: (a) 102-104, (b) 101, (c) 105-113.

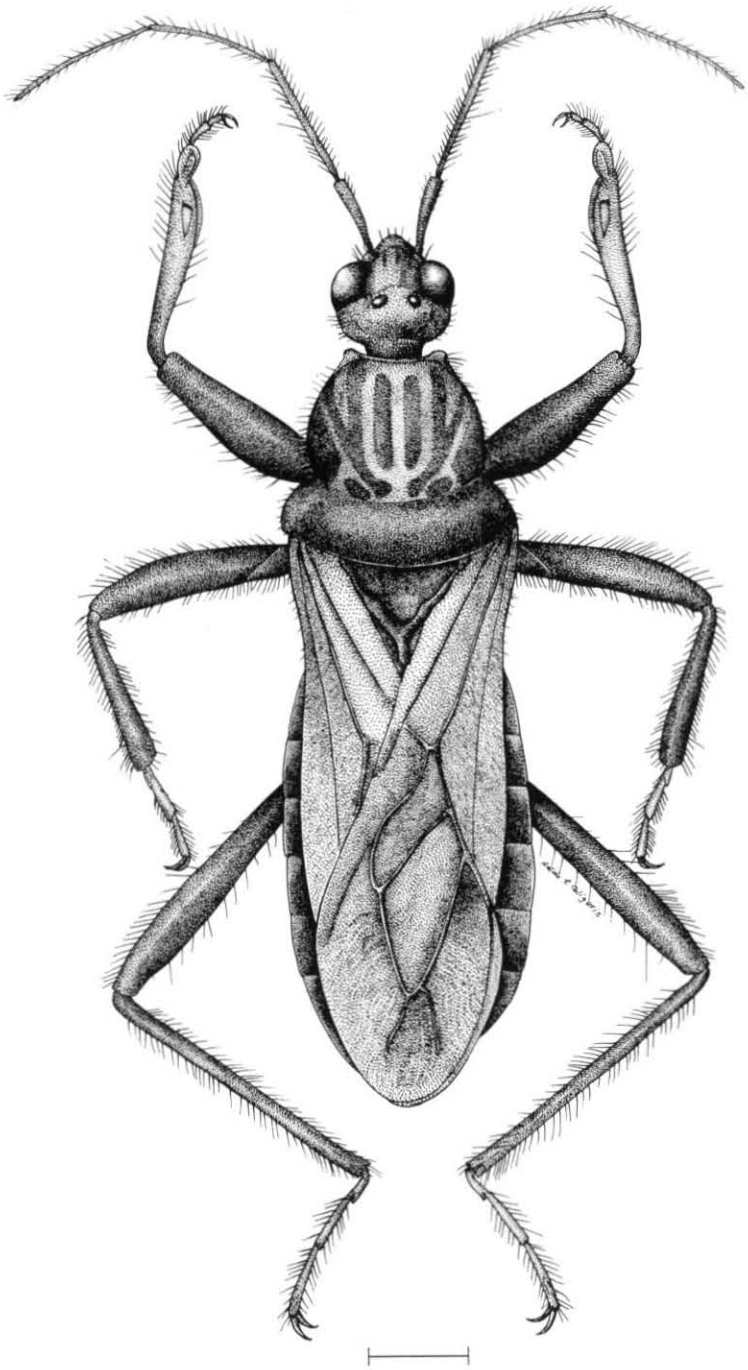


Fig. 114. *Peirates niger* Signoret: general aspect. Scale line 5.0 mm.

Cleptocoris maurus; Stål 1866: 261; Maldonado-Capriles 1990: 348.
Pirates nitidicollis Reuter; Villiers, 1963a: 985 (subgenus *Cleptocoris*), in part (misidentification).
Cleptocoris leyei Villiers, 1963a: 985. **Syn. n.**

Material examined. – Holotypus ♂, Rep. of South Africa (Caffraria), J. Wahlb, *maurus* Stål (NRS). Holotype ♂, Zaire: Farât classée, Les Kalounayes, 26-XI-1961, dé Frichement, Mission IFAN in Basse-Casamance, *C. leyei* n. sp. A. Villiers det. 1963 (MNHN). Ivory Coast: 1 ♂ Bingerville, IV-1961, J. Decelle, *C. leyei* Vill. A. Villiers det. 1966 (MRAC); 1 ♀ Ferkessédougou, J. Decelle 10/20. V. 1964, *C. leyei* Villiers, Villiers det. 1966 (MRAC).

Description. – Male and female: Head (Fig. 101) dark brown almost black. In lateral view, eyes neither attaining superior nor inferior edge of head. Ocelli not on a tubercle. Antennae uniformly coloured.

Pronotum (Fig. 102) anterior lobe, dark brown almost black, except sulci with pilosity, hairs over surface and edges. Sulci distinct, with whitish to light brown pilosity, and brown hairs, without granulations. Depression not distinct. Lateral internal sulci distally extending to transversal sulci, lateral medial sulci not attaining transversal sulci, and lateral external sulci divided in two and attaining transversal sulci. Posterior lobe dark brown, dark brown hairs, without granulations. Scutellum (Fig. 102) uniformly dark brown; principal body with granulations over surface and edges.

Macropterous form: Hemelytra (Fig. 103) passing apex of abdomen. Predominating colour dark brown, except a yellowish dot in the upper zone of the membrane and part of the clavus (distal zone) and corium (between Pcu+1A and Cu) brown.

Legs dark brown.

Connexivum (Fig. 104) dorsally visible with predominating colour dark brown, the rest light brown. Urosternites dark brown. Last segment of abdomen dark brown.

Male genitalia (Figs 105-110). Parameres (Figs 107-110) subrectangular, with hairs.

Female genitalia (Figs 111-113). Gonocoxites VIII (Fig. 111) straight edges. Gonocoxite IX (Fig. 112) internal edge hairs thin. IX and X tergites (Fig. 113) subrounded; intersegmental line entire.

Measurements, see Tables 1 and 2.

Observations. – In some specimens there is no yellowish dot in the membrane.

Distribution. – Afrotropical: Guinea, Ivory Coast, Republic of South Africa, Senegal, and Zaire (Fig. 184).

Discussion. – Separated from *P. diola* by having the legs dark brown except the base of the hind femur light brown, scutellum without granulations, and the hairs of internal edge of gonocoxite IX thin and thick.

Peirates niger Signoret

(Figs 114-124, 184)

Pirates niger Signoret, 1860: 960; Stål 1874: 58 (= *lugubris* var. b, incorrect synonymy).
Cleptocoris lugubris Stål; Stål 1866: 261 (misidentification).
Cleptocoris niger; Villiers 1964b: 183; Maldonado-Capriles, 1990: 348.

Material examined. – Malagasy Republic (Madagascar): 1 ♀ Tanandava (lumière), 1963/1964, G. Schmitz (MRAC); 1 ♂ Tanandava (lumière), 1963/1964, G. Schmitz (MRAC); 1 ♂ Ankarafantsika (Forest Reserve), near Marovoay, XII-I-1959 (AMNH); 1 ♀ Ankarafantsika (Forest Reserve), near Marovoay, XII-I-1959 (AMNH).

Description. – Male and female: General aspect of male as Fig. 114. Head (Fig. 115) dark brown almost black. In lateral view, eyes neither attaining superior nor inferior edge of head. Ocelli not on a tubercle. Antennae uniformly coloured.

Pronotum anterior lobe, dark brown almost black, except sulci with pilosity, hairs over surface and edges. Sulci distinct, with whitish to light brown pilosity, and brown hairs, without granulations. Depression not distinct. Lateral internal sulci distally united and extending to transversal sulci, and lateral external sulci divided in two and attaining transversal sulci. Posterior lobe dark brown almost black, without granulations. Scutellum uniformly dark brown almost black; principal body with reduced granulations over surface and edges.

Macropterous form: Hemelytra passing the apex of abdomen. Dark brown almost black.

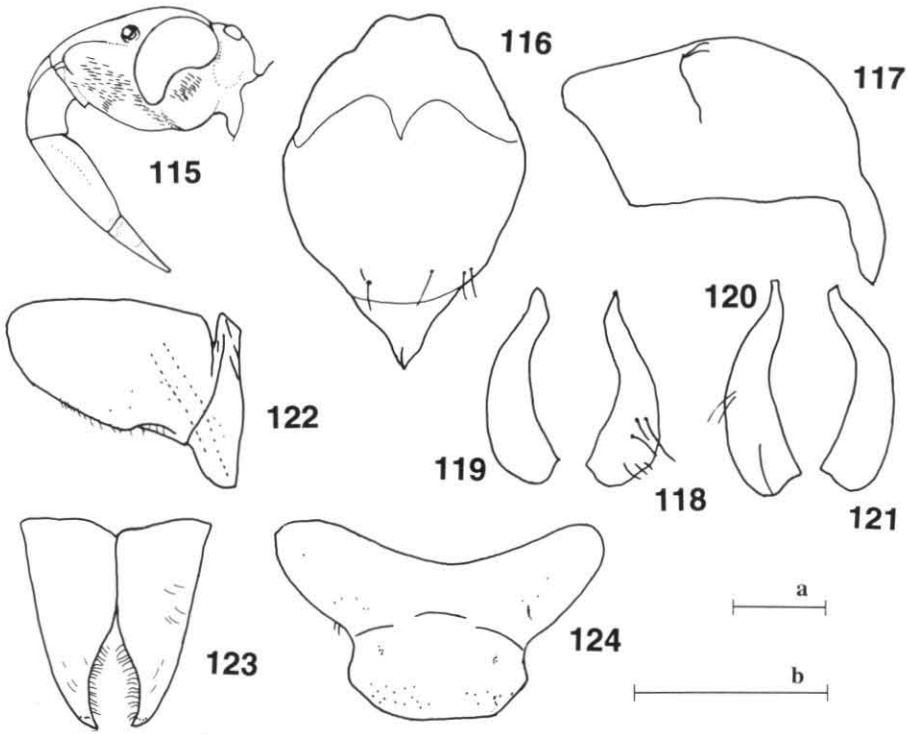
Legs dark brown.

Connexivum dorsally visible. Dark brown almost black, junction between the connexival segments light brown. Urosternites with different tonalities of dark brown. Last segment of abdomen dark brown.

Male genitalia (Figs 116-121). Parameres (Figs 118-121) subrectangular, with hairs.

Female genitalia (Figs 122-124). Gonocoxites VIII (Fig. 122) curved edges. Gonocoxite IX (Fig. 123) internal edge hairs thin. IX and X tergites (Fig. 124) subquadrangular; intersegmental line not entire.

Measurements, see Tables 1 and 2.



Figs 115-124. *Peirates niger* Signoret: (115) head, lateral view; (116) pygophore, ventral view; (117) pygophore, lateral view; (118) left paramere, external view; (119) left paramere, internal view; (120) right paramere, external view; (121) right paramere, internal view; (122) gonocoxite and gonapophysis VIII; (123) gonocoxites IX; (124) IX and X tergites. Scale lines 2.0 mm: (a) 115, (b) 116-124.

Distribution. – Afrotropical: Algeria, Kenya, Malagasy Republic (Madagascar), Mozambique, Republic of South Africa, Rwanda, Zambia, Zaire, and Zimbabwe (Fig. 184).

Discussion. – Separated from *P. turpis* by having the junction between the connexival segments dark brown almost black, female brachypterous and parameres subtriangular.

Peirates nitidicollis Reuter

(Figs 125-133, 184)

Pirates nitidicollis Reuter, 1881: 312 (subgenus *Cleptocoris*); Schouteden 1957: 236.
Cleptocoris nitidicollis; Villiers 1964a: 55; Maldonado-Capriles 1990: 348.
Pirates conspurcatus Distant, 1892: 225; Miller 1953: 587 (subgenus *Cleptocoris*). **Syn. n.**
Pirates conspurcatus var. *vittipennis* Horváth, 1914: 115.
Cleptocoris conspurcatus; Villiers 1964a: 57; Maldonado Capriles 1990: 348.

Material examined. – Holotype ♀, Entebbe Lovén, *P.* (*C.*) *nitidicollis* Reuter, *P. nitidicollis* A. Villiers det. (NRS). Holotype ♂, Rep. South Africa: Pretoria (W. L. D.), Distant coll, nymph 1911-383, *conspurcatus* Dist., H.T. (BMNH). Benin: 1 ♀ Dahomey, Parakou, 5-6-IX-73 Linnavuori; purchased by AMNH from R. Linnavuori (AMNH). Rep. South Africa: 1 ♂ O. F. State, Edenville, 7-I-69 light trap (PPRI); 1 ♂ O. F. State, Edenville, 9-9-1967 light trap, J. Munting (PPRI); 1 ♂ Transvaal 5 min, E. Silverton, 31 Oct. 1967, Sam Slater (PPRI); 1 ♂ Johannesburg, JP, 24-2-1960, J.A. Yates (PPRI); 1 ♂ Natal, Wienen, 2840 ft., i 1924, H.P. Thomasset (PPRI); 1 ♂ Cedara, Natal, 21-Apr. 1925 (PPRI). Somalia: 2 ♂ nr Hargeisa, 23-28-VI-63 Linnavuori; purchased by AMNH from R. Linnavuori (AMNH). Zaire: 1 ♀ Lulua, Tshibamba, III-1932. G.F. Overlaet, R. Det 6962 E. (MRAC).

Description. – Male and female: Head dark brown almost black. In lateral view, eyes neither attaining superior nor inferior edge of head. Ocelli not on a tubercle. Antennae uniformly coloured brown.

Pronotum anterior lobe, dark brown almost black (in some specimens), except sulci with pilosity, hairs over surface and edges. Sulci distinct, with

sternites dark brown almost black. Last segments of abdomen dark brown almost black.

Male genitalia (Figs 125-130). Parameres (Figs 127-130) subrectangular, with hairs.

Female genitalia (Figs 131-133). Gonocoxites VIII (Fig. 131) straight edges. Gonocoxite IX (Fig. 132) internal edge hairs thin. IX and X tergites (Fig. 133) subrounded; intersegmental line entire.

Measurements, see Tables 1 and 2.

Distribution. - Afrotropical: Benin, Cameroon, Central African Republic, Equatorial Guinea, Gabon, Guinea, Guinea-Bissau, Ivory Coast, Lesotho, Liberia, Republic of South Africa, Rwanda, Somalia, Sudan, Zaire, Zambia, and Zimbabwe (Fig. 184).

Discussion. - Separated from *P. perinetensis* by having the posterior lobe of the pronotum not reduced, hemelytra without a stripe between the corium and clavus, shorter mesopleura, metapleura whitish pubescense and abundant in the abdomen, IX and X tergites subquadrangular, intersegmental line not entire, hemelytra not passing the apex of the abdomen, and the hairs of the internal edge of gonocoxite IX thin and thick.

Peirates ochripennis Jeannel

(Figs 134-139, 183)

Pirates ochripennis Jeannel, 1916: 303 (subgenus *Cleptocoris*); Jeannel 1919: 250.
Cleptocoris ochripennis; Maldonado-Capriles 1990: 348.

Material examined. - Holotype ♂, Kenya [Afr. Or. Angl. (Kikuyu. Esc.)]: Kijabe Allaud et Jeannel, Feb. 1916. 2100 m. St. 58, *P. aurigans v. ochripennis* n. R. Jeannel det. (BMNH); 2 ♂ Elgon Saw Mill ver' Est. 2470m. 1932. E.P. (not readable) et Jeannel, Museum de Paris, Mission de l'Omo C. Arambourg, P.A. Chappuis and R. Jeannel, 1932-33, Kenya Elgon Saw Mill, ver' Est (Camp II) 2470m, R. Dét R. 4930 (MRAC).

Description. - Male: Head dark brown almost black. In lateral view, eyes attaining superior but not inferior edge of head. Ocelli on a tubercle. Antennae not uniformly coloured.

Pronotum anterior lobe, dark brown, except sulci with pilosity, hairs over surface and edges. Sulci distinct, with whitish to light brown pilosity, and brown hairs, without granulations. Depression not distinct. Lateral internal sulci distally united and extending toe transversal sulci, and lateral external sulci divided in two and attaining transversal sulci. Posterior lobe brown, dark brown hairs, without granulations. Scutellum, uniformly dark brown; principal body without granulations over surface and edges.

Macropterous form: Hemelytra passing apex of abdomen. Predominating colour dark brown, except light brown in the corium.

Legs dark brown.

Connexivum not dorsally visible. Urosternites brown. Last segment of abdomen dark brown to almost black.

Male genitalia (Figs 134-139). Parameres (Figs 136-139) subrectangular, with hairs.

Measurements, see Tables 1 and 2.

Distribution. - Afrotropical: Kenya (Fig. 183).

Discussion. - The closest species is *P. areatus* which differs by having the last segment of the abdomen of the same colour than the anterior one and parameres small.

Peirates perinetensis Villiers

(Figs 140-146, 182)

Pirates perinetensis Villiers, 1960: 23.
Cleptocoris perinetensis; Villiers 1964b: 184; Maldonado-Capriles, 1990: 348.

Material examined. - Holotype ♀, Malagasy Republic (Madagascar): Forest Périnet 18 Dec 1955, Ec. Mc. C. Callan collector, Institute Scientifique Madagascar, *Pirates perinetensis* n. sp. A. Villiers det 1958 (MNHN).

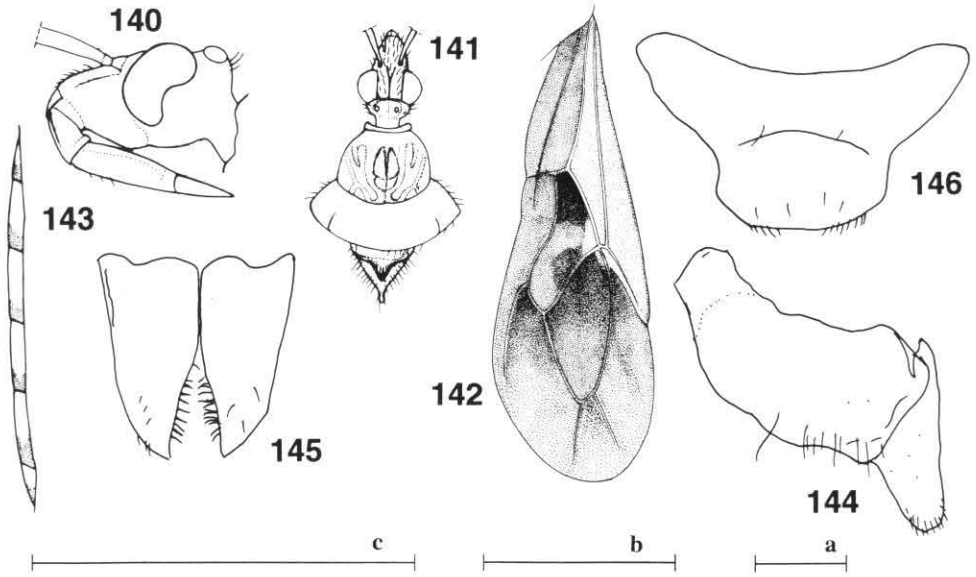
Description. - Female: Head (Figs 140, 141) dark brown almost black. In lateral view, eyes neither attaining superior nor inferior edge of head. Ocelli not on a tubercle. Antennae uniformly coloured.

Pronotum (Fig. 141) anterior lobe, dark brown almost black, except the sulci with pilosity, hairs over surface and edges. Sulci distinct, with dark brown pilosity, without granulations. Depression distinct. Lateral internal sulci distally united and extending to transversal sulci, and lateral external sulci attaining transversal sulci. Posterior lobe dark brown, dark brown hairs, without granulations. Scutellum (Fig. 141), uniformly dark brown; principal body almost black, with granulations over surface and edges.

Macropterous form: Hemelytra (Fig. 142) not passing apex of abdomen. Predominating colour dark brown, except a stripe between the corium and clavus and a dot in the upper zone of the membrane.

Legs dark brown.

Connexivum (Fig. 143) dorsally visible, with predominating colour dark brown, the rest light brown. Urosternites dark brown almost black. Last segment of abdomen almost black.



Figs 140-146. *Peirates perinetensis* Villiers: (140) head, lateral view; (141) head, pronotum and scutellum, dorsal view; (142) hemelytra; (143) connexivum; (144) gonocoxite and gonapophysis VIII; (145) gonocoxites IX; (146) IX and X tergites. Scale lines 2.0 mm: (a) 141-143, (b) 140, (c) 144-146.

Female genitalia (Figs 144-146). Gonocoxites VIII (Fig. 144) straight edges. Gonocoxite IX (Fig. 145) internal edge hairs thin and thick. IX and X tergites (Fig. 146) subquadrangular; intersegmental line not entire.

Measurements, see Tables 1 and 2.

Distribution. – Afrotropical: Malagasy Republic (Madagascar) (Fig. 182).

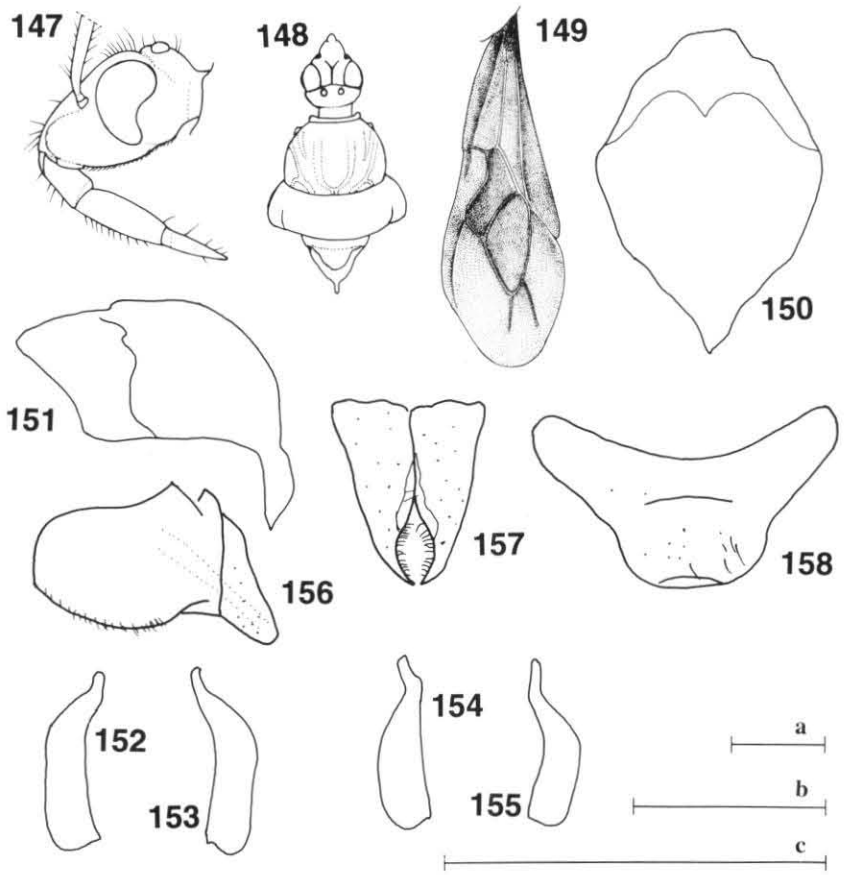
Discussion. – Separated from *P. nitidicollis* by having the IX and X tergites subrounded, intersegmental line entire, hemelytra not passing the apex of the abdomen, and hairs of the internal edge of the gonocoxite IX thin.

Peirates strepitans Rambur

(Figs 147-158, 182)

?*Pirates unicolor* Herrich-Schaeffer, 1835: 90; Stål 1874: 58 (= *strepitans*).
?*Pirates niger* Herrich-Schaeffer, 1835: 98; Stål 1874: 58 (= *strepitans*).
Peirates strepitans Rambur, 1839: 174.
Pirates rufipennis Lucas, 1849: 52.
Pirates lugubris Stål, 1855b: 318; Stål 1865: 118, 119, var. a; Lethierry & Severin 1896: 127 (= *strepitans*).
Cleptocoris lugubris; Stål 1866: 261.
Pirates coracinus Garbiglietti, 1869: 195; Lethierry & Severin 1896: 127 (= *strepitans*).
Pirates (*Cleptocoris*) *lugubris*; Stål 1874: 58; Jeannel 1919: 249, *strepitans* var.?
Pirates strepitans; Puton 1880: 174.
Pirates strepitans var. *rufipennis*; Puton 1886: 48.
Cleptocoris strepitans; Villiers 1964a: 56; Maldonado-Capriles 1990: 348.
Cleptocoris strepitans var. *rufipennis*; Villiers 1964a: 56.
Pirates (*Cleptocoris*) *rufescens* Villiers, 1948: 234. **Syn. n.**
Cleptocoris rufescens; Villiers 1964a: 56; Maldonado Capriles 1990: 348.

Material examined. – Syntype ♀, *Peirates strepitans*, Rambur Coll. B. M. 1931-137, *Peirates strepitans* Rambur (BMNH). Holotype ♂, Chad: Moyen Chari, Fort Archambault Boungoul (Ba-Karé), Mission Chari-Chad, Dr. J. Decorse 1904, Février, *Pirates rufescens* m. A. Villiers det. (MNHN). Algeria: 1 ♀ Sidibel Albès, (ZMB). Angola: 1 ♀ Mongobi, 11-7 Kich, Collectio Wygodzinsky; *Pirates strepitans* Ramb. A Villiers det. 1952 (AMNH). Benin: 4 ♀ Poundou, Haute Volta, Afr. Occ. For., III-1928 (ZIL). China: 1 ♂ Kutan, Fuchzhov, Fujanj, Jang leg, 2-8-57 (ZIL). Cyprus: 1 ♂ Fasoulla, II-10-1940, G. Mavromoustakis (AMNH). Egypt: 1 ♀ Helwan, Min. Agric. (Egypt), Coll. Tarag, 28-8-81, on grass (ZIL); 1 ♀ Kerdasa, (Min. Agric. Egypt), Coll. R. Mabrouk, 11-10-31 (ZIL); 1 ♀ Kerdasa, (Min. Agric. Egypt), Coll. R. Mabrouk, 8-11-81 (ZIL). Ethiopia: 1 ♂ Gembia nr. Agaro, 15-VI-63 Linnavuori, Purchased by AMNH from R. Linnavuori (AMNH). Italy: 1 ♀ Sardinia Krause, Orestano (ZIL). Malagasy Republic (Madagascar): 1 ♂ Fort Dauphin mer, Sikora, 1899 (ZIL). Marocco: 1 ♀ 1900 (ZIL). Rep. South Africa: 1 ♀ Mr Meje's Farm. Ausemburg, XII-1950, Capener (AMNH). Rwanda (Congo Belge): 1 ♀ P. N. G. Mis. H. De Saeger II/fb/18, 6-X-1951, Réc. H.



Figs 147-158. *Peirates strepitans* Rambur: (147) head, lateral view; (148) head, pronotum and scutellum, dorsal view; (149) hemelytra; (150) pygophore, ventral view; (151) pygophore, lateral view; (152) left paramere, external view; (153) left paramere, internal view; (154) right paramere, external view; (155) right paramere, internal view; (156) gonocoxite and gonapophysis VIII; (157) gonocoxites IX; (158) IX and X tergites. Scale line 2.0 mm: (a) 148, 149, (b) 147, (c) 150-158.

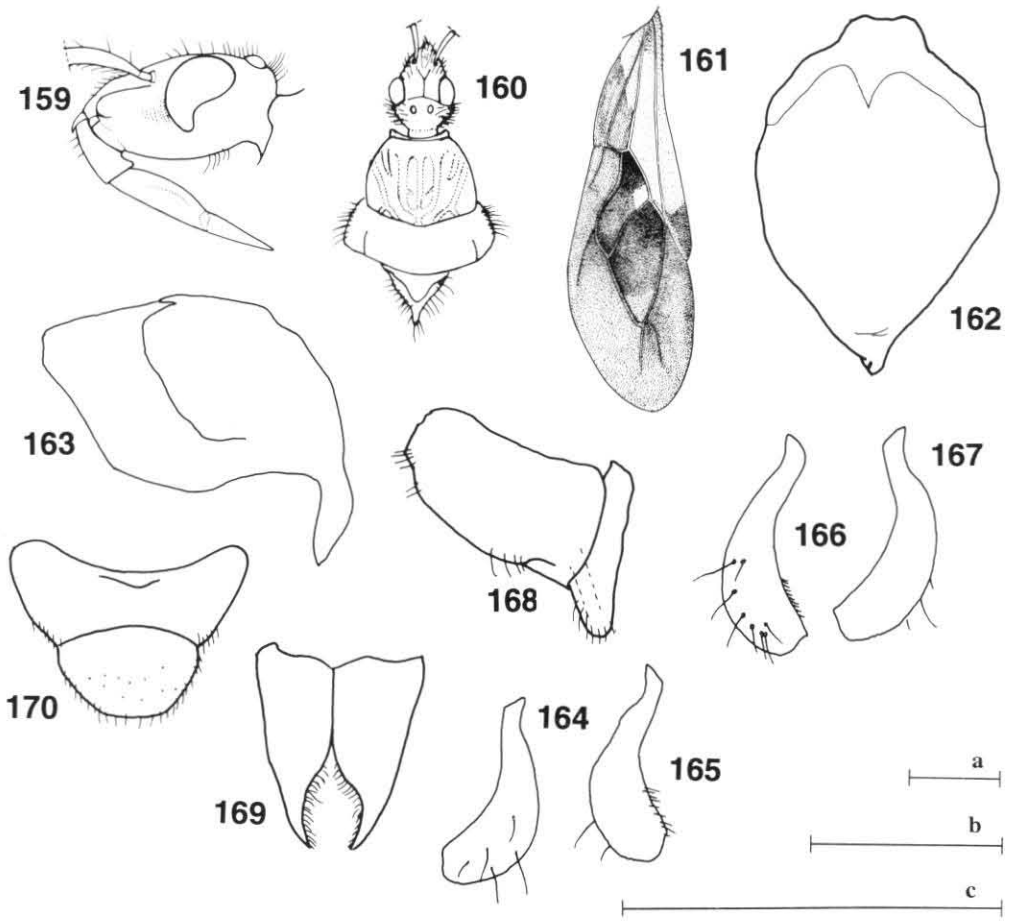
De Saeger. 2551, *C. rufescens* Vill. A. Villiers det. 1962 (MRAC); 1 ♂ Jadotville (AMNH). Sudan: 1 ♀ Upper Nile, Malakal, 5-20-1-63. Linnavuori, Purchased by AMNH from R. Linnavuori (AMNH); 1 ♀ Upper Nile, Renk-Malakal, 3-5.1.63. Linnavuori, Purchased by AMNH from R. Linnavuori (AMNH); 1 ♂ Upper Nile, Malakal, 5-20-1-63. Linnavuori, Purchased by AMNH from R. Linnavuori (AMNH). Vietnam: 1 ♀ Hanoj, Kabakov lrg, 3-X-61 (ZIL). Zaire: 1 ♂, 1 ♀ Kivu, Kavimvira (Uvira) (à la lumière), XII-1954 G, Marlier, R. Det. 7767 (MRAC); 1 ♂ Kalenda Katanga, (ZMB). 1 ♀ Mangao, O. Kabakob, 25-1961 (ZIL). 1 ♀ Omapo Ovamboland, 5-6-48 (AMNH). 3 ♀ Hisp., n° 8845 (ZMB).

Description. – Male and female: Head (Figs 147, 148) dark brown. In lateral view, eyes neither attaining superior nor inferior edge of head. Ocelli not on a tubercle. Antennae uniformly coloured dark brown or not.

Pronotum (Fig. 148) anterior lobe, dark brown, except sulci with pilosity, hairs over surface and edges. Sulci not distinct, with whitish to light brown pilosity, and brown hairs, without granulations. Depression not distinct. Lateral internal sulci distally united and extending to transversal sulci, and lateral external sulci attaining transversal sulci. Posterior lobe dark brown, dark brown hairs, without granulations. Scutellum (Fig. 148) uniformly dark brown; principal body without granulations over surface and edges.

Macropterous form: Hemelytra (Fig. 149) reaching or not apex of abdomen. Predominating colour dark brown except a fine light brown stripe that runs in the upper edge of the membrane.

Legs dark brown.



Figs 159-170. *Peirates tellini* Schouteden: (159) head, lateral view; (160) head, pronotum and scutellum, dorsal view; (161) hemelytra; (162) pygophore, ventral view; (163) pygophore, lateral view; (164) left paramere, external view; (165) left paramere, internal view; (166) right paramere, external view; (167) right paramere, internal view; (168) gonocoxite and gonapophysis VIII; (169) gonocoxites IX; (170) IX and X tergites. Scale lines 2.0 mm: (a) 160, 161, (b) 159, (c) 162-170.

Connexivum dorsally visible with predominating colour dark brown, the rest brown. Urosternites dark brown. Last segment of abdomen dark brown.

Male genitalia (Figs 150-155). Parameres (Figs 152-155) subrectangular, without hairs.

Female genitalia (Figs 156-158). Gonocoxites VIII (Fig. 156) curved edges. Gonocoxite IX (Fig. 157) internal edge hairs thin. IX and X tergites (Fig. 158) subquadrangular; intersegmental line not entire.

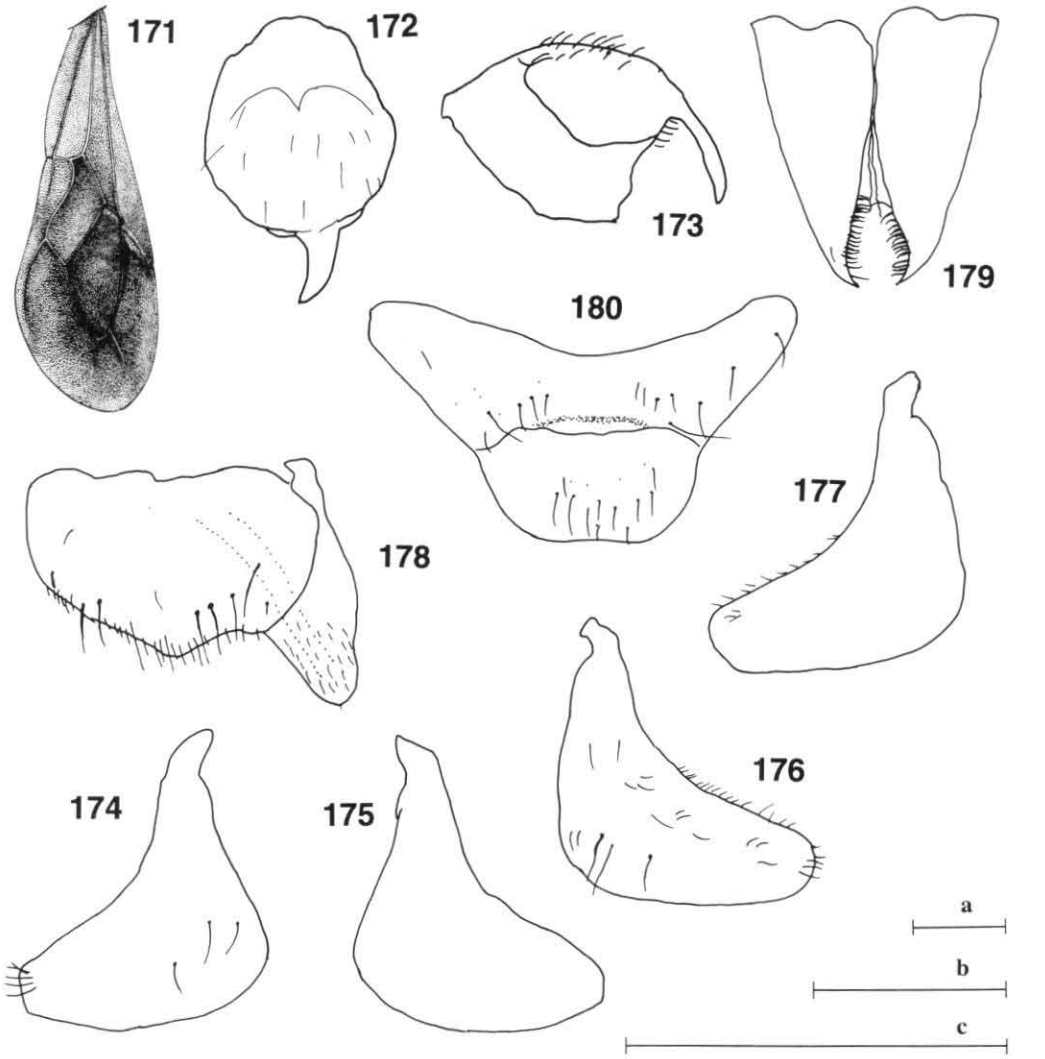
Measurements, see Tables 1 and 2.

Distribution. – Afrotropical and Palearctic: Algeria, Angola, Benin, Bostwana, Central African Republic, Chad, China, Congo, Cyprus, Egypt, Ethiopia, Greece, Italy, Kenya, Portugal (Madeira), Malagasy Republic (Madagascar), Mali, Morocco, Mozambique, Nubia, Republic of South Africa, Rwanda, Senegal, Spain, Sudan, Turkey, Vietnam, Zaire, Zambia, and Zimbabwe (Fig. 182).

Discussion. – Separated from *P. lepturoides* by having the eyes passing the superior and inferior edge of the head and ocelli on a tubercle.

Peirates tellini Schouteden

(Figs 159-170, 183)



Figs 171-180. *Peirates turpis* Walker: (171) hemelytra; (172) pygophore, ventral view; (173) pygophore, lateral view; (174) left paramere, external view; (175) left paramere, internal view; (176) right paramere, external view; (177) right paramere, internal view; (178) gonocoxite and gonapophysis VIII; (179) gonocoxites IX; (180) IX and X tergites. Scale lines 2.0 mm: (a) 171, (b) 172, 173, (c) 174-180.

Pirates tellini Schouteden, 1906: 14 (subgenus *Cleptocoris*).
Cleptocoris tellini; Maldonado-Capriles 1990: 348.

Material examined. – Holotypus ♀, Ethyiopia: Erythrée (Tellini) Telezan S. Negris XII Coll Schouteden; R. Dét. P. 2450; *Pirates tellini* T Schouteden (MRAC); 1 ♂ (Oismara) Coll Schouteden, R. Dét. P. 2450 (MRAC); 1 ♀ March-I- Coll Schouteden, R. Dét. P. 2450 (MRAC).

Description. – Male and female: Head (Figs 159, 160) dark brown almost black. In lateral view, eyes neither attaining superior nor inferior edge of the head. Ocelli not on a tubercle. Antennae uniformly coloured dark brown.

Pronotum (Fig. 160) anterior lobe, dark brown almost dark, except sulci with pilosity, hairs over surface and the edges. Sulci distinct, with whitish to light brown pilosity, without granulations. Depression not distinct. Lateral internal sulci distally united and extending to transversal sulci, and lateral ex-

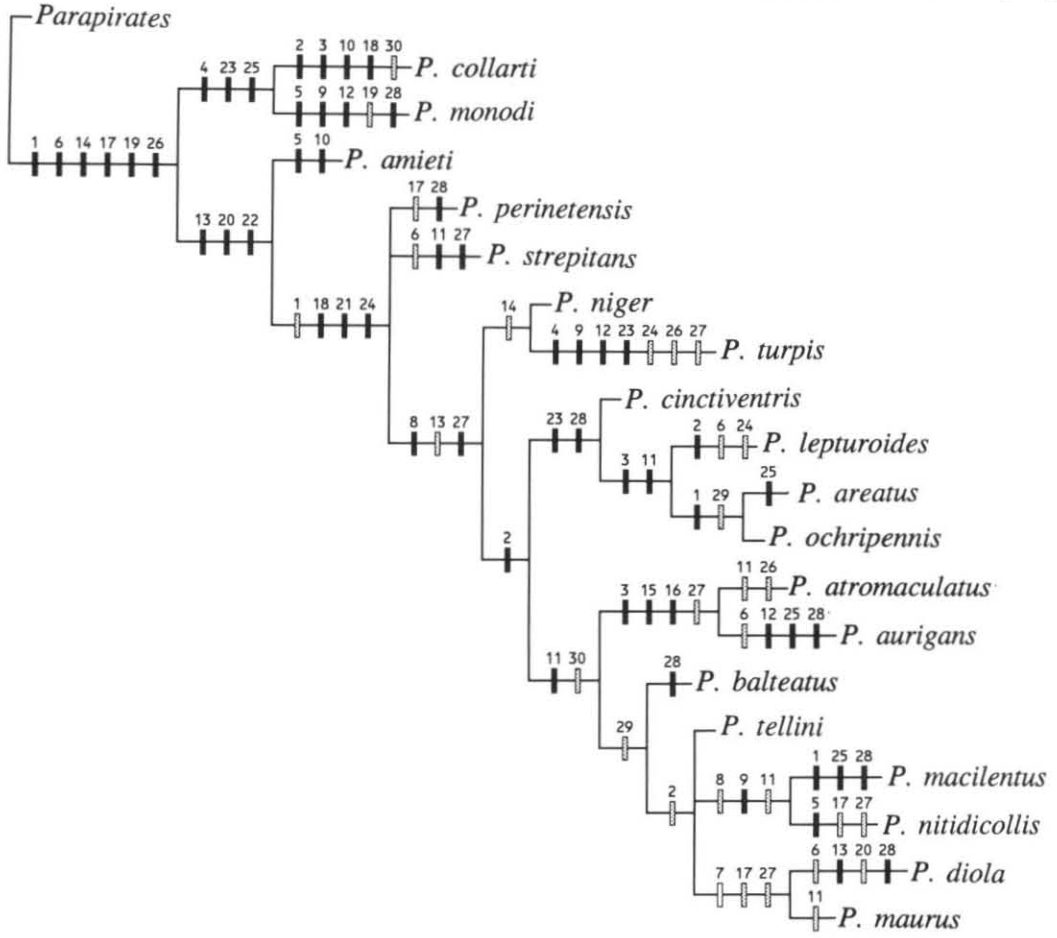


Fig. 181. Cladogram of *Peirates collarti* and *P. lepturoides* species groups resulting after successive weighting procedure. Character state changes are superimposed: solid black squares = synapomorphies; dotted squares = parallelisms; open squares = reversals.

ternal sulci divided in two and attaining transversal sulci. Posterior lobe dark brown, dark brown hairs, without granulations. Scutellum (Fig. 160), uniformly dark brown almost black; principal body almost black, without granulations over surface and edges.

Macropterous form: Hemelytra (Fig. 161) passing or not apex of abdomen. Predominating color dark brown, except part of the clavus (upper zone) and corium light brown.

Legs dark brown almost black.

Connexivum dorsally visible, with predominating color dark brown, the rest light brown. Urosternites dark brown almost black. Last segment of abdomen black.

Male genitalia (Figs 162-167). Parameres (Figs 164-167) subrectangular, with hairs.

Female genitalia (Figs 168-170). Gonocoxites VIII (Fig. 168) curved edges. Gonocoxite IX (Fig. 169) internal edge hairs thin. IX and X tergites (Fig. 170) subrounded; intersegmental line entire.

Measurements, see Tables 1 and 2.

Distribution. – Afrotropical: Ethiopia (Fig. 183).

Discussion. – Separated from *P. balteatus* by having the eyes attaining the superior edge of the head, hairs of the internal edge of the gonocoxite IX thin and thick.

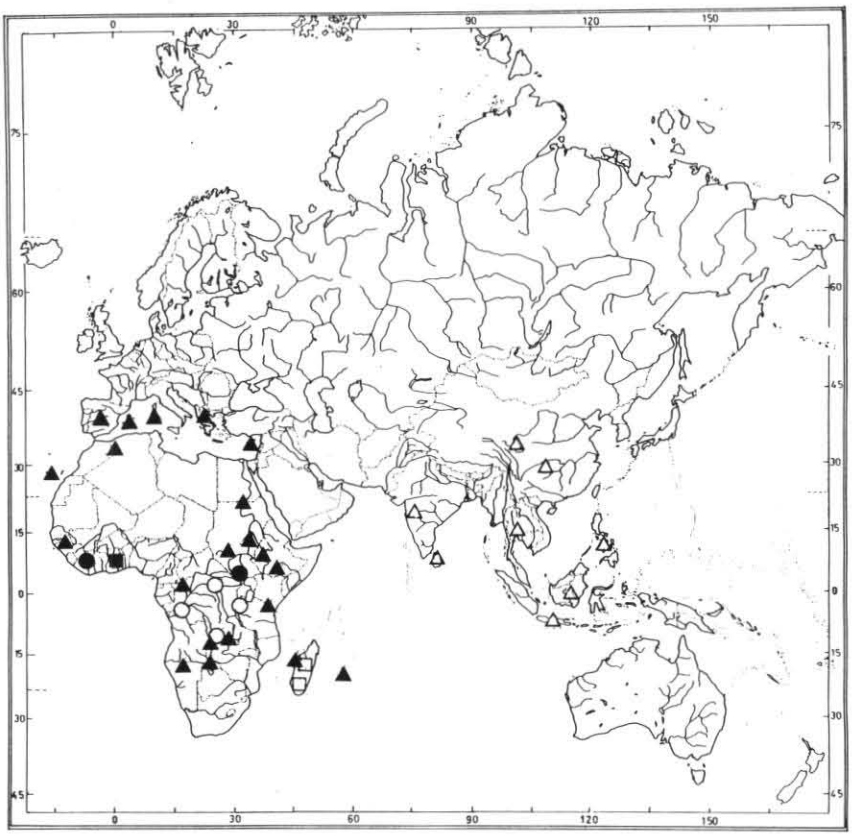


Fig. 182. Geographical distribution of *P. collarti* (black circles), *P. monodi* (open circles), *P. amieti* (black squares), *P. perinetensis* (open squares), *P. strepitans* (black triangles), and *P. lepturoides* (open triangles).

Peirates turpis Walker

(Figs 171-180, 184)

Pirates turpis Walker, 1873: 120; Distant 1902: 284.
Pirates brachypterus Horváth, 1879: 148 (subgenus *Cleptocoris*); Distant 1902: 284 (= *turpis*).
Pirates concolor Jakovlev, 1881: 213; Lethierry & Severin 1896: 124 (= *brachypterus*); Distant 1902: 284 (= *turpis*).
Pirates moestus Reuter, 1881: 311 (subgenus *Cleptocoris*); Lethierry & Severin 1896: 124 (= *brachypterus*); Distant 1902: 284 (= *turpis*).
Reduvius turpis; Lethierry & Severin 1896: 119, incertae sedis.
Pirates atromaculatus Stål; Maruta 1929: 32 (misidentification teste Maldonado-Capriles 1990).
Pirates turpes (sic); China 1940: 252 (subgenus *Cleptocoris*).
Cleptocoris turpis; Maldonado-Capriles 1990: 348.
Cleptocoris brachypterus; Maldonado-Capriles 1990: 348 (as valid species). **Syn. rev.**

Material examined. - Holotype ♀, Hong Kong, 78. *Pirates turpis* (BMNH). Japan: 1 ♀ [Kyushu] Tukuoka, 16-VI-1957, S. Miyamoto (AMNH); 1 ♂ Kurume, 14-V-1955, M. Miyamoto (AMNH); 1 ♀ Japonia, n° 9934 (ZMB).

Description. - Male and female: Head dark brown almost black. In lateral view, eyes neither attaining superior nor inferior edge of head. Ocelli not on a tubercle. Antennae uniformly coloured or not, dark brown almost black.

Pronotum anterior lobe, dark brown almost black, except sulci with pilosity, hairs over surface and edges. Sulci distinct, with whitish to light brown pilosity, and brown hairs, with granulations. Depression distinct. Lateral internal sulci distally united and extending to transversal sulci, and lateral external sulci divided in two and attaining transversal sulci. Posterior lobe dark brown almost

Fig. 183. Geographical distribution of *P. ochripennis* (black circles), *P. atromaculatus* (open circle), *P. balteatus* (black square), *P. aurigans* (open squares), *P. tellini* (black triangles), and *P. areatus* (open triangles).

black, dark brown hairs, reduced granulations. Scutellum, uniformly dark brown almost black; principal body with reduced granulations over surface and edges.

Both macropterous and brachypterous forms known. Machropterous form: Hemelytra (Fig. 171) passing the apex of the abdomen. Dark brown almost black.

Legs dark brown almost black.

Connexivum not dorsally visible, dark brown almost black. Urosternites dark brown almost black. Last segment of abdomen dark brown almost black.

Male genitalia (Figs 172-177). Parameres (Figs 174-177) subtriangular, with hairs.

Female genitalia (Figs 178-180). Gonocoxites VIII (Fig. 178) straight edges. Gonocoxite IX (Fig. 179) internal edge hairs thin. IX and X tergites (Fig. 180) subquadrangular; intersegmental line not entire.

Measurements, see Tables 1 and 2.

Distribution. – Indomalayan and Palearctic: China, Hong-Kong, Japan, and Russia (Fig. 184).

Discussion. – Separated from *P. niger* by having the junction between the connexival segments light brown, female macropterous, and parameres subrectangular.

Cladistics and biogeography

The analysis using equal weights yielded 87 equally parsimonious cladograms, each with 85 steps, a consistency index of 0.36, and a retention index of 0.52. When successive weighting was applied, two

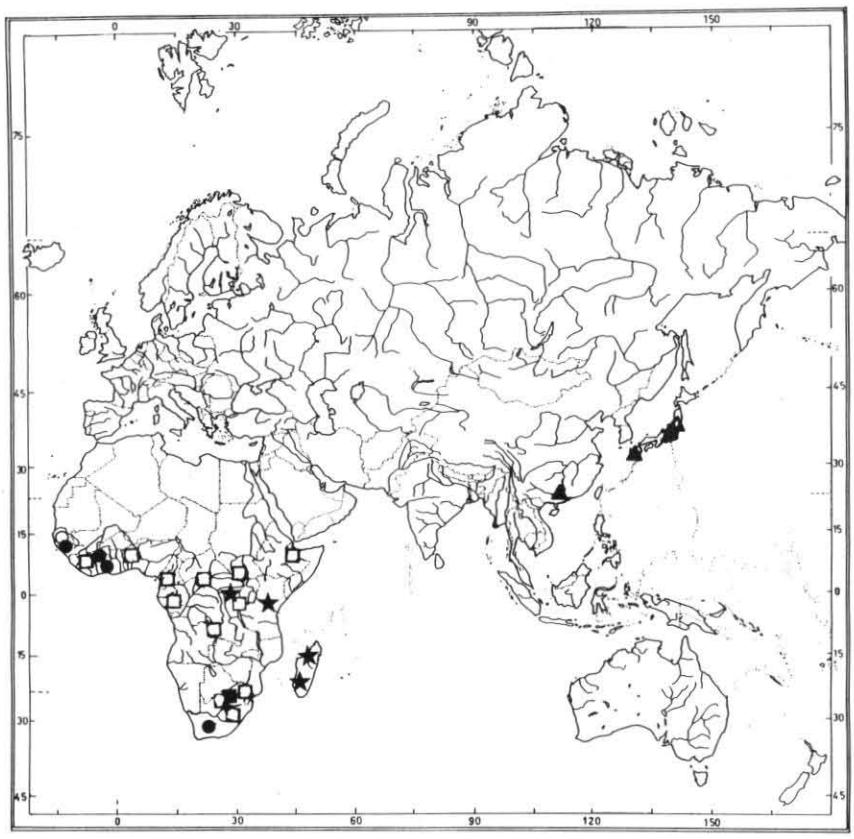


Fig. 184. Geographical distribution of *P. maurus* (black circles), *P. diola* (open circle), *P. macilentus* (black square), *P. nitidicollis* (open squares), *P. turpis* (black triangles), *P. cinctiventris* (open triangles), and *P. niger* (black star).

cladograms resulted after the second round of weighting, with length 132, a consistency index of 0.65, and a retention index of 0.81. Their strict consensus tree (Fig. 181), however, is no longer than them, showing that the extra branches, although possibly supported, are not necessary to account for the characters (Carr et al. 1990). The *P. collarti* and *P. lepturoides* species groups are monophyletic and sister taxa. Within the latter, *P. amieti* is the sister species to the trichotomy composed by *P. perinetensis*, *P. strepitans,* and the clade including the remaining species. The latter comprises, in phylogenetic order, the pair *P. niger - P. turpis;* the group containing *P. cinctiventris, P. lepturoides, P. areatus,* and *P. ochripennis;* and the group including *P. atromaculatus - P. aurigans, P. balteatus, P. tellini, P. macilentus - P. nitidicollis, P. diola - P. maurus*.

The geographical distribution (Figs 182-184) of both species of the *P. collarti* species group and *P. amieti* (the most basal species of the *P. lepturoides* species group), delimits a basal (paraphyletic) African component. When localities of the most apomorphic species are mapped and linked according to the cladistic information available, they show that three different clades have the same African-Indopacific pattern: (1) *P. niger - P. turpis* (Fig. 185); (2) *P. lepturoides - P. areatus / P. ochripennis* (Fig. 186); and (3) *P. atromaculatus - P. aurigans* (Fig. 187). Based on this generalized track, an Indian Ocean baseline is proposed.

Previous biogeographic analyses of other taxa, namely, the Miridae (Heteroptera) *Dioclerus* and *Prodromus* (Schuh & Stonedahl 1986) and *Hypseloecus* (Schuh 1991), also show a clear relationship between Africa and the Indopacific, with Afri-

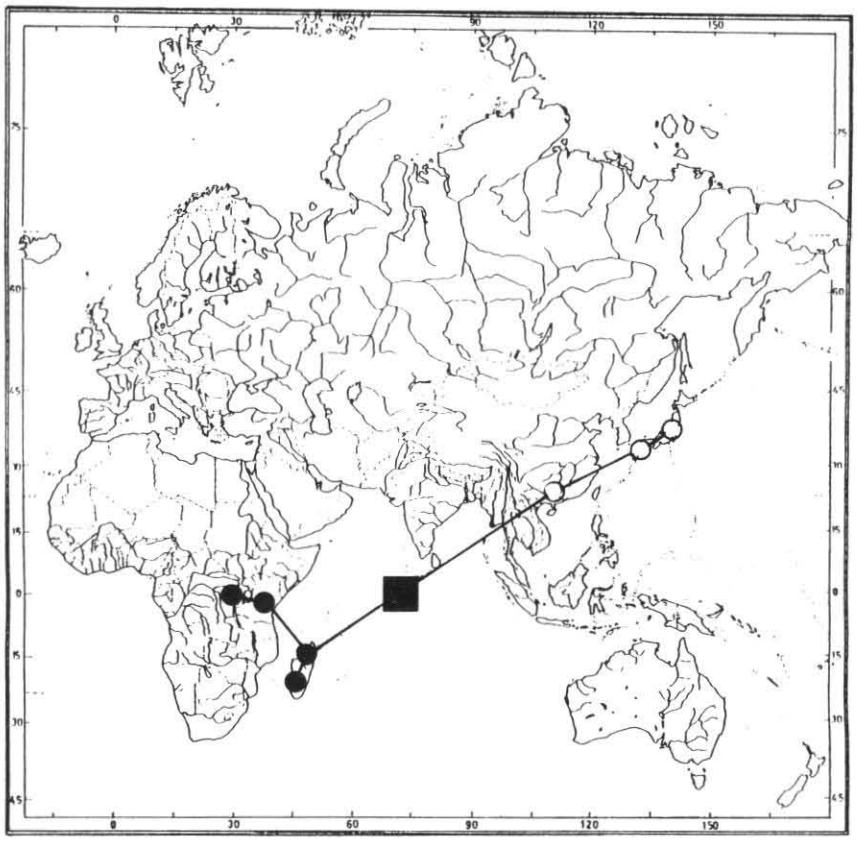


Fig. 185. Individual track: *P. niger* (black circles) – *P. turpis* (open circles). Black square = baseline.

can taxa basal to those occurring further east. In addition, several Lepidoptera, namely *Tirumala, Amauris - Ideopsis / Parantica, Idea - Protoplea*, Tinissinae, Perissomasticini, and Callidulidae, show an Indian Ocean baseline (Grehan 1991). (In Fig. 188 we present the track of the Tinissinae to show the remarkable similarity of their distributional patterns). The *P. collarti* and *P. lepturoides* species groups and these other taxa are hypothesized to be tropical Gondwanan elements, with minor subsequent spread into the Palearctic (Schuh 1991).

Acknowledgements

We want to express our gratitude to the persons and institutions who kindly sent the material for the study. We are grateful to Dr A. Jansson and Dr J. Muona for the useful suggestions and critical reading of the manuscript, to Dr I. M. Kerzhner and Dr H. Silfverberg for solving nomenclatural problems, and to Dr O. Biström, Prof. Dr M. Meinander, and the staff of the Division of Entomology from the Zoological Museum of the University of Helsinki for their help and assistance. Besides, we thank N. Caligaris for drawing some of the illustrations.

This work was supported by the Consejo Nacional de Investigaciones Científicas y Técnicas (CONICET) from Argentina and by the Ministry of Education, Societas Entomologica Helsingforsiensis from Finland.

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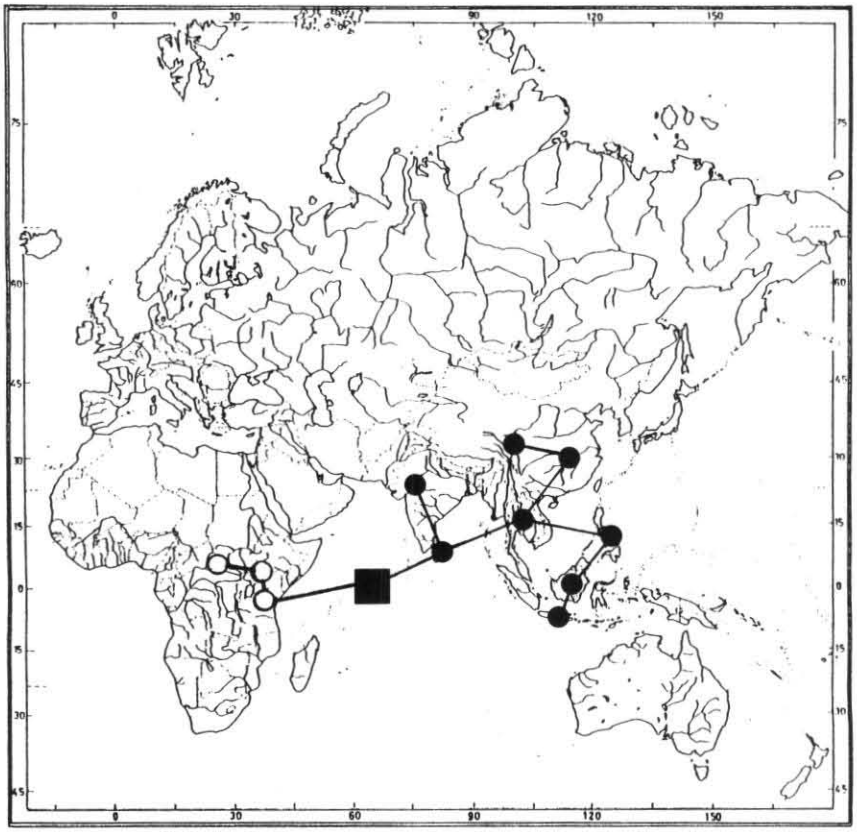

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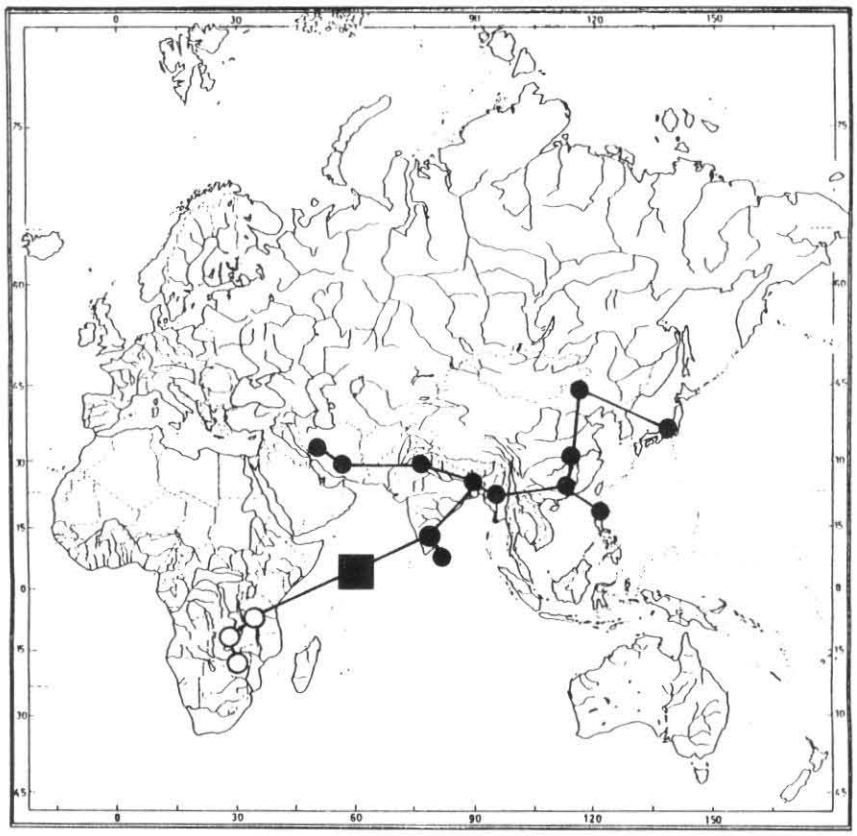

Fig. 187. Individual track: *P. atromaculatus* (black circles) – *P. aurigans* (open circles). Black square = baseline.

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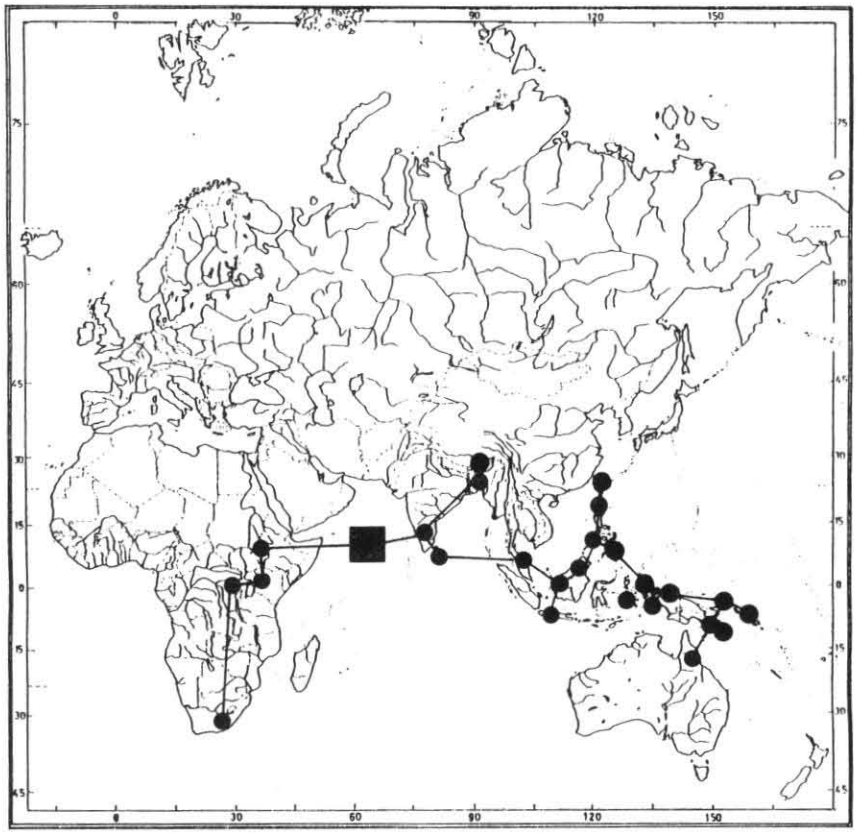

Fig. 188. Individual track: Tinissinae (black circles) (after Grehan 1991). Black square = baseline.

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Revised manuscript accepted April 1995.