

Revision of the genus *Paroosternum* Scott, 1913
(Coleoptera: Hydrophilidae: Sphaeridiinae)
by Franz Hebauer

ABSTRACT

The hydrophilid genus *Paroosternum* SCOTT, 1913 is revised. In addition to five known species four new ones, *P. africanum* sp.n., *P. ceylonense* sp.n., *P. jayanum* sp.n. and *P. melanesinum* sp.n. are described and illustrated. Distribution maps are given.

KEY WORDS

Insecta, Coleoptera, Hydrophilidae, Sphaeridiinae, *Paroosternum*, revision, new species.

INTRODUCTION

As HANSEN (1991,1999) has already discussed, there is some confusion about the generic concept around *Oosternum* and *Paroosternum*. HANSEN (1991) redefined the two genera and transferred some species from *Oosternum* to *Paroosternum*. He also made some taxonomic changes. Another cause of confusion in the past is that genera were once described from a single or only a few specimens (as in *Oosternum* and *Paroosternum*): the generic characters are sometimes not clearly separated from the specific characters. The more species of a genus and the more specimens of a species are available, the more exact will be the characterization a genus and of a species.

The wide distribution, especially of *P. sorex* and *P. saundersi*, results in a relatively large variation in size and sculpture of these species, often with overlap. Identification of the *Paroosternum* species is rather difficult, because of the great uniformity of all species, with only a few (variable) distinguishing characters (in contrast to the much more differentiated genus *Oosternum*), also the small size and weakly chitinated and differentiated aedeagus.

Genus *Paroosternum* SCOTT, 1913

Paroosternum SCOTT, 1913: 220. - Type species: *Paroosternum degayanum* SCOTT (orig. des.). = *Oosternum*; Zaitzev, 1908: 414 (partim: *sorex*) (cat.). - JAKOBSON, 1913: 858 (*sorex*). - D'ORCHYMONT, 1914: 324 (partim: *sorex*). - KNISCH, 1921: 71 ("*horni*"). - D'ORCHYMONT, 1924: 262 (partim: *sorex*). KNISCH, 1924: 154 (partim: "*horni*", *sorex*) (cat.). - D'ORCHYMONT, 1928: 69, 78 (partim: *sorex*, *saundersi*). - D'ORCHYMONT, 1935: 203 ("*horni*") (cat.). - BALFOUR-BROWNE, 1950: 37. - NAKANE, 1970: 27 (cat.). (nec SHARP, 1882). = *Meroosternum* BALFOUR-BROWNE in coll. ("*horni*", *saundersi*).

Very small species, 1.2-1.6 mm, oval, moderately convex. Surface with very fine and decumbent pubescence. Labrum soft and pale, retracted under clypeus. Paraglossa densely ciliate. Maxillary palpi rather short, 2nd segment club-shaped, ultimate segment longer than penultimate, almost symmetrical, bending inward. Antennae 9-segmented, club compact. Pronotum almost parallel-sided in basal half, with more or less evident or barely indicated series of punctures along posterior margin.

Elytra (Fig. 16) with 9 punctate striae, the 6th, 8th and 9th stria abbreviated basally, the 5th, 6th and 7th striae obliquely united with 8th stria, interstriae very finely and sparsely punctate and pubescent. Mentum slightly trapezoidal, anterior margin shallowly excavated. Raised middle portion of prosternum abruptly excised from the sides in anterior third by antennal grooves (Figs. 14, 15). The latter well defined, not attaining lateral prothoracic margin. Mesocoxae rather widely separated. Preepisternal elevation of mesothorax oval, in some species widened or even almost horizontal posteriorly (Figs 8-13). Metasternum with raised middle portion, which projects a little anteriorly where it contacts preepisternal elevation of mesothorax in a single point. Femoral lines always present and sharply impressed, attaining anterolateral metaventral corners, while an anterolateral arcuate ridge of metasternum is always absent. Epipleura almost horizontal, wide anteriorly, reaching metacoxae. Metepiventerites anteriorly narrower than posteriorly. First ventrite strongly carinate medially, generally with tra-

ces of shorter longitudinal ridges on each side, rugously punctate and with reticulate micro-sculpture, 2nd – 5th ventrite impunctate and smooth. Middle and posterior femora glabrous, without hydrofuge pubescence; middle and posterior tarsi without swimming hairs, their first segment much longer than second. Male: 9th sternite (genital segment) of a primitive type (with a well developed, elongate median sclerite. In some males the elevated middle portion of metasternum has a characteristically shaped median impression.

The specific characters are extremely variable (size, punctuation of pronotum, color, shape and punctuation of the preepisternal elevation of mesothorax and of elevated middle portion of metasternum). This necessitates dissection of every male. An aggravating feature is the shortage of available material for examination, mainly caused by cryptic habit.

To separate the genera *Paroosternum* and *Oosternum* it is necessary to examine the underside as follows:

- 1 Elevated middle portion of prosternum deeply excised laterally by the antennal grooves. metasternum with sharply defined femoral lines attaining anterior corners of metasternum, without anterolateral arcuate ridge. _____ ***Paroosternum***
- Elevated middle portion of prosternum not (or at most slightly) excised laterally by the antennal grooves. Metasternum without or with anteriorly abbreviated femoral lines and with anterolateral arcuate ridge corresponding to the arc described by the tip of the posterior femora _____ ***Oosternum***

Key to *Paroosternum*

- 1 Prosternum without median carina; preepisternal elevation of mesothorax widest behind middle, almost impunctate, excavated medially; pronotum very finely, distantly punctate _____ ***P. degayanum* SCOTT**
- Prosternum with distinct median carina _____ **2**
- 2 Elytral interstriae clearly alternating convex in whole apical half; pronotum very strongly and densely punctate _____ ***P. alternans* HEBAUER**
- Elytral interstriae 2 (and) 4 at most alternating apically _____ **3**
- 3 Elytral interstriae 2 and 4 apically not or hardly lower and not narrower than interstriae 2 and 3 _____ **4**
- Elytral interstria 2 (and 4) apically distinctly narrower and lower than adjacent interstriae **5**
- 4 Metaventral elevation finely and distantly punctate; elytral interstriae 2 and 4 hardly lower than adjacent interstriae _____ ***P. leytense* HEBAUER**
- Metaventral elevation coarsely and densely punctate; elytral interstriae 2 and 4 not lower or narrower than adjacent interstriae _____ ***P. ceylonense* sp.n.**
- 5 Only interstria 2 apically lower than interstriae 1 and 3 _____ ***P. jayanum* sp.n.**
- Both interstriae 2 and 4 apically much narrower and lower than adjacent interstriae _____ **6**
- 6 Elevated middle portion of prosternum flat, with median carina and an additional ridge on each side in anterior half _____ ***P. africanum* sp.n.**
- Elevated middle portion of prosternum tectiform, with simple median carina _____ **7**
- 7 Preepisternal elevation of mesothorax widest posteriorly _____ ***P. saundersi* (D'ORCHYMONT)**
- Preepisternal elevation of mesothorax elongate oval, widest in the middle _____ **8**
- 8 Elevated middle portion of metaventrite moderately finely, moderately densely, somewhat irregularly punctate; pronotum and head finely punctate, both with distinct reticulate microsculpture; head black _____ ***P. sorex* (SHARP)**
- Elevated middle portion of metaventrite very coarsely and densely punctate, shining, pronotum coarsely and densely punctate, shining, head ferrugineous _____ ***P. melanesinum* sp.n.**

***Paroosternum degayanum* SCOTT**

***Paroosternum degayanum* SCOTT, 1913: 222.**

***Oosternum ecarinatum* ORCHYMONT, 1942: 13 (Singapore).**

***Paroosternum ecarinatum*; HANSEN, 1991:261.**

MATERIAL EXAMINED Types of *P. degayanum*: 2 exs. Seychelles, Mahé: near Mome Blanc. Types of *Oosternum ecarinatum*: Type + 3 paratypes from Singapore: 1 male: Paratype [orange label] Singapore \ Bi ½ 2 rubbish [red handwriting] \ A. d'ORCHYMONT det. *Oosternum ecarinatum* m. \ *Paroosternum degayanum* SCOTT \ det. F. HEBAUER (IRSNB).

REDESCRIPTION

Total length: 1.3 mm; total width: 0.75 mm.- Regularly oval, moderately convex. Entirely ferrugineous; mouthparts and tarsi yellow.

Head finely, moderately densely punctate, finely reticulate. Eyes very small, separated by c. 7 x eye width (seen from above). Antennae 9-segmented. Pronotum rather convex, twice as wide (basally) as long (medially) seen from above, almost parallel-sided posteriorly, moderately narrowed anteriorly, very finely and distantly punctate, punctural interstices about 4 - 5 x punctural diameter, obsoletely reticulate, with distinct series of punctures along posterior margin. Lateral rim rather strong, somewhat deflexed. Elytra widest in basal third, 1.3 x as long as their combined width, with 9 punctate striae, serial punctures moderately coarse in basal third, more elongate and shallow posteriorly, interstriae slightly convex, shining, with setiferous pores, 2nd and 4th interstriae strongly narrowed and lower than adjacent interstriae apicad, not abbreviated before apex. Mentum shallowly impressed anteromedially, coarsely reticulate, without distinct punctation. Raised middle portion of prosternum abruptly excised from the sides by the antennal grooves, rugously punctate, not distinctly carinate medially. Preepisternal elevation of mesothorax 2 x as long as wide, anteriorly point, posterior margin almost transverse, closely abutted to the elevated middle portion of metventrite, concave beneath, almost impunctate except for the rugously elevated dark margins (Fig.10). Metaventrte with sharp and complete femoral lines attaining anterolateral metaventral corners, without anterolateral arcuate ridge. Elevated middle portion indistinctly defined, rather finely and densely punctate, shining, with longitudinal reticulate impression in the male. First ventrite strongly carinate medially, without longitudinal ridges on each side. Epipleura almost horizontal. Metepiventrtes c. 7 x as long as wide in the middle. Femora and tibiae shining, without hydrofuge pubescence beneath, middle and hind tibiae somewhat flattened. Aedeagus: Length 0.46 mm; width: 0.08 m; median lobe somewhat filiform, apically point, as long as parameres; the latter slightly concave on whole outer face, convex, strongly narrowed and thin in apical third of inner face. Genital segment (9-th ventrite) with tongue-shaped median sclerite, struts simple (Fig.1).

DISCUSSION

Distinct from all other known species by the non carinate middle portion of prosternum and by the peculiar shape and sculpture of the preepisternal elevation of mesothorax .

DISTRIBUTION

Seychelles, Singapore.

BIONOMICS:

In cut grass and detritus (d'ORCHYMONT, 1942).

***Paroosternum saundersi* (d'ORCHYMONT)**

***Oosternum saundersi* d'ORCHYMONT, 1925: 289.**

***Paroosternum saundersi*; HANSEN, 1991: 261.**

MATERIAL EXAMINED

Type in IRSNB; Described from Singapore, Malacca + Hoa Binh, Indo-Chine (= "Tonkin", = Vietnam) (d'ORCHYMONT, 1925).

Paratypes: 2 exs.: 'Paratype' [orange label] Hoa Binh Tonkin de Cooman / A. d'ORCHYMONT det. *Oosternum saundersi* ORCH. \ pron. t. fait pnct. trace de chagrin de la fond \ *Paroosternum saundersi* (ORCH.) det. F. HEBAUER (IRSNB).

ADDITIONAL MATERIAL EXAMINED

MYANMAR: 1 ex.: BURMA (central) Mandalay, 20.9.1984, D. Grohmann leg. (CFH).
 THAILAND: 1 ex.: N-THAILAND: Lom Sak 40 km N Phetchabun, ca. 120 m, August 1987, leg. W. Thielen (CFH); 1 ex.: Thail. 10.-12.90, Ko Chang NP, leg. Forster (NMW); 1 ex.: Thail. Kao Chamao NP, 12.12.90, leg. Forster (CFH); 1 ex.: Thailand, Mae Ping, Licht, VI.-IX.1991, leg. Malicky (NMW);
 VIETNAM: 5 exs.: VIETNAM, N, 180 km SSW Hanoi, 40 km SW Than Hoa Ben En Nat.Park, 05.-08.VIII.1997, leg. A. Napolov (2 NME, 3 CFH); 3 exs.: same data, but 01.-05.VIII.1997 (NME); 1 ex.: VIETNAM N. (Sa Pa) Lao Cai prov., 250 km SW Hanoi, SAPa VIII. env., Hoang Lien Son Nat. Res., 1250 m, 11.-19.vi.1998, leg. A. Napolov (CFH); 1 ex.: S-Vietnam, 40 km NW An Khe Buon Luoi, 60-750 m \ 1010'N, 10830'E, 28.3.-12.4.1995, Pacholatko & Dembicky (NMW); 1 ex.: N-Vietnam, CUC PHUONG N.P., 100 km S Hanoi, 2.-12-V.1991, leg. E. Jendek (NMW);
 NEPAL: 2 exs: NEPAL c. Proc. Narayany Sauraha, Rapti River, 2734'51"N, 8429'30"E, 14.-15.07.2002, LF, 180 m, riverside, leg. Kopetz (CFH); 1 ex.: 632 NEPAL: Kathmandu Baneshwar, 1350 m, 18.-24.VI.2000, leg. W. Schawaller (CFH); 1 ex.: NEPAL: 308 Ilam Dist. 5 km N Sanishare, Siwalik Mts., 3.-5-IV.1988, 270-300 m, leg. W. Schawaller (CFH); 2 exs.: NEPAL: Phewa-Tal: Pokhara, 8559'E, 2814'N, 2500 ft. 8.-10.v.1954, K.H. Hyatt \ in cattle dung \ B.M. Nepal Exptd. B.M. 1954-540 (ZMUC).
 CHINA: 2 exs.: Guangxi, Bama, i.1988 \ cow dung S.V. Fowler B.M. 1988-92 (ZMUC).
 JAPAN: 30 exs.: Kanagawa, Jap. Sauter (NMW);
 MALAYSIA: 1 ex.: E.Sumatra, Lam pung prov. Bukit Barisan Selatan N.P., 54'S 1044'E, 600 m, 5 km SW Liwa, 7.-17.ii.2000, D. Hauck leg. (CFH); 1 ex.: E.Sumatra, Riau prov. Bukit Tigapuluh N.P. 050'S 10226'E, 18.-25.i.2000, D. Hauck leg. (CFH); 1 ex.: Sumatra: Fort de Kock, E. Jacobson (NMW); 2 exs.: MALAYSIA: Pahang, Taman Negara, 1.-13.iii. 1984 \ dung-baited pitfall trap \ L. Jessop, B.M. 1984-230 (ZMUC); 2 exs.: SABAH: 200 ft. R. Karamuak, 7 m SSE Telupid. 1.-7.ix.1977 (ZMUC). 2 exs.: SARAWAK: 4th Division Gn. Mulu NP \ camp, 50 - 100 m \ alluvial forest litter \ P.M. Hammond & J.E. Marshall, v.-viii.1975, B.M. 1978-49; 1 ex.: SARAWAK (Borneo) ca. 25 km E Kapit, III.1994, Kodada leg. (NMW); 3 exs.: Malaysia: Kedah Kampung Merbok, 20 km NW Sungai Petani, 9.8.1993, leg. Schuh (NMW); 2 exs.: MAL Pahang Prov. Kuala Lipis, 26.XII.1994 (CFH, CHB); 2 exs.: MAL Perak Pr., Slim River, 01..1995 (CFH, CHB).
 INDONESIA: 1 ex.: JAVA: Bogor, 25.iv.1954, A.H.G. Alston. B.M. 1954-414 (ZMUC); 1 ex.: S-SULAEI, Bantimurung NÖ U.P. (25), leg. Schödl, 28.IV.1992 (NMW); 1 ex.: E-JAVA: 50 km S Surabaya, WF Tretes, Kekek Bodo WF, 20.9.1995, leg. Schillhammer (1) (NMW);

REDESCRIPTION

Total length: 1.2 – 1.4 mm; total width: 0.90 mm.- Regularly oval, strongly convex. Entirely ferruginous, mouthparts and tarsi yellow.

Head rather coarsely and densely punctate, shining, without distinct microsculpture. Eyes of moderate size, separated by 5 x eye width (seen from above). Antennae 9-segmented. Pronotum rather convex transversally, not so longitudinally, 2.2 x as wide (basally) as long (medially) seen from above, almost parallel-sided posteriorly, moderately narrowed anteriorly, moderately strong and moderately dense punctate, punctural interstices c. 3 – 4 x punctural diameter, shining, with hardly recognizable microsculpture, with distinct series of punctures along posterior margin; lateral rim rather strong. Elytra widest in basal third, 1.25 x as long as their combined width, with 9 punctate striae, serial punctures coarse, increasing more elongate posteriorly, elytral interstriae rather flat basally, rather convex behind, shining, with setiferous pores, 2nd and 4th interstriae much narrower and lower than adjacent interstriae apicad, not abbreviated before apex. Mentum rectangular, shallowly impressed anteromedially, coarsely, distantly punctate, intervals of punctation coarsely reticulate. Raised middle portion of prosternum abruptly excised from the sides by the antennal grooves with concave sides, tectiform. coarsely, rugously punctate, distinctly carinate medially, carina straight and broad, flattened beneath, not interrupted. Preepisternal elevation of mesothorax 1.7 x as long as wide, anteriorly point, widest posteriorly, widely rounded, almost transverse there, closely abutted to the elevated middle portion of metaventrite, flat, very coarsely punctate (barely c. 3 punctures transversally), shining, without microsculpture (Fig. 9). Metaventrite with sharp and complete femoral lines attaining anterolateral metaventral corners, without arcuate ridge anterolaterally; elevated middle portion well defined pentagonal, very coarsely, very densely punctate (as mesoventrite), shining, without median depression in male and female. First ven-

trite strongly carinate medially, without longitudinal ridges on each side. Epipleura almost horizontal. Metepiventrites c. 6 x as long as wide in the middle. Femora and tibiae shining, without hydrofuge pubescence beneath, middle and hind tibiae somewhat flattened. Aedeagus: Length: 0.64 mm; width 0.09 mm; median lobe narrow, evenly attenuated from base to sharply point apex, slightly longer than parameres, the latter similarly attenuated and point, tips slightly curved inwards apically. Genital segment (9.th ventrite) with narrow tongue-shaped median sclerite; struts simple (Fig. 2).

DISCUSSION

Characterized by the shape of preepisternal elevation of mesothorax in combination with the carinate prosternal elevation and the rather coarsely punctate pronotum and metaventral elevation. It differs from *P. sorex* mainly in the shape and coarser punctate metaventral elevation, from *P. degayanum* of similarly shaped but almost impunctate preepisternal elevation of mesothorax, it differs also in the carinate middle portion of prosternum.

DISTRIBUTION

Singapore, Myanmar, Vietnam, Thailand, Nepal, Sumatra.

BIONOMICS

In decaying detritus at riversides; in cattle dung, as indicated in label information.

Paroosternum melanesinum sp.n.

Paroosternum sorex; HEBAUER, 2001 p. 60.

TYPE MATERIAL

Holotypus (unsexed): "Papua Nlle Guinée, Morobe I. 80 env.de Gurakor, W.G. Ullrich" (ZMUC).- Paratypes: 2 females: same data as holotype (ZMUC, CFH). 1 female: New Guinea \ SE \ Kiunga, 23.Vii.-2.VIII.1969 \ No. NGK-M.5 \ leg. Dr. J. Balogh (TMB); 1 female: N.Guinea, Biró 1901/Mt. Hanseman, Astrolabe Bay (TMB); 1 ex.: Indonesia: Irian Jaya: Jayapura, Lake Sentani, Südufer, 100 m NN, VI.1999, leg. M. Balke (NME).

DESCRIPTION

Total length: 1.36 – 1.57 mm; total width: 0.86 mm.- Oval, moderately convex, ferrugineous, mouthparts and tarsi yellow.

Head coarsely and densely punctate, shining, without microsculpture. Eyes of moderate size, separated by c. 6 x eye width (seen from above). Antennae 9-segmented. Pronotum rather convex transversally, 2.2 x as wide (basally) as long (medially) seen from above, almost parallel-sided posteriorly, moderately narrowed anteriorly, coarsely and densely punctate, punctural interstices c. 1-2 x punctural diameter, shining, without microsculpture, without distinct series of punctures along posterior margin; lateral rim rather strong, a little retracted. Elytra widest behind shoulders, 1.25 x as long as their combined width, with 9 punctate striae, serial punctures of moderate size, elongate, elytral interstriae rather convex from base to apex, shining, with setiferous pores; 2nd and 4th interstriae apically strongly narrowed and lower than adjacent interstriae, not abbreviated before apex. Mentum almost rectangular, shallowly impressed anteromedially, coarsely punctate with dense reticulate microsculpture between punctures. Raised middle portion of prosternum abruptly excised from the sides by the antennal grooves, with concave sides, tectiform, coarsely, rugously punctate, strongly carinate medially, carina high and strong, not interrupted. Preepisternal elevation of mesothorax elongate oval, 2.0 x as long as wide, widest in the middle, point anteriorly, narrowed and obtusely rounded posteriorly, flat, coarsely punctate beneath (c. 4 punctures transversally), shining, without microsculpture. Metaventrite with sharp and complete femoral lines attaining antero-lateral metaventral corners, without anterolateral arcuate ridge; elevated middle portion well defined pentagonal, with regular coarse and moderately dense punctation (as mesoventral tablet), punctural distances c. 2 x punctural diameter, shining, without microsculpture. First ventrite strongly carinate medially, with traces of longitudinal ridges on each side. Epipleura almost horizontal. Metepiventrites c. 5 x as long as wide in the middle. Femora and tibiae shining, without hydrofuge pubescence beneath, middle and hind tibiae somewhat flat-tened.

DISCUSSION

This species comes closest to *P. saundersi* and *P. jayanum* in size, colour and sculpture. It differs from the former clearly in the shape of the preepisternal elevation of mesothorax not widened posteriorly, also in the pronotum still more densely punctate; from the latter it differs

in the elytral striae 2 and 4 narrowed and lower than adjacent interstriae in their apical extension.

DISTRIBUTION

Known only from the type locality.

BIONOMICS

Obviously terrestrial.

Paroosternum sorex (SHARP)

Cercyon sorex SHARP, 1874: 418.

Oosternum sorex; SHARP, 1884: 460.

Oosternum sorex; JAKOBSON, 1913: 861.

Oosternum sorex; D'ORCHYMONT, 1914: 327. (misint.: with 10 striae)

Oosternum sorex; D'ORCHYMONT, 1941: 12.

Oosternum sorex; NAKANE, 1963: 64.

Oosternum sorex; NAKANE, 1970: 27.

Paroosternum sorex; HANSEN, 1999:242

Oosternum horni D'ORCHYMONT, 1914: 326.

Oosternum horni; KNISCH, 1921: 81.

Oosternum horni; BALFOUR-BROWNE, 1950: 38.

Oosternum horni; NAKANE, 1970: 27.

Paroosternum horni; HANSEN, 1991: 261.(Syn. Hansen, 1999: 242).

TYPE MATERIAL

Paroosternum sorex (SHARP, 1874): (See HANSEN, 1999:242).- Type (male) in NHML (examined): "Type [red margined round label] \ Japan G. LEWIS 1910 - 320 \ *Cercyon sorex* Type D.S." - 1 ex.: "Japan. G. LEWIS. 1910-320. \ Nagasaki. 13.II.-21.IV.81. \ *Oosternum sorex* SHARP. J. BALFOUR-BROWNE det. \ *Paroosternum sorex* SHP. det. F. HEBAUER" (NHML).

Paratypes: 2 ex.: Paratype [orange label] Hong Kong Wa ?Ekar coll. S3-S8 [in handwriting] / *A. d'Orchymont* det. *Oosternum Horni* / Coll. A. d'ORCHYMONT \ *Paroosternum sorex* SHARP, det. F. HEBAUER (IRSNB); 1 male: Paratype [orange label] Taihorin Formosa, H. SAUTER, 1911 / *A. d'ORCHYMONT* det. *Oosternum horni* ORCHYM. / *Paroosternum sorex* SHARP, det. F. HEBAUER (IRSNB). '*Oosternum horni*'" (D'ORCHYMONT): Type in "Deutsches Entomologisches Museum"; Described from Taihorin and Tappani and from Hong Kong (Orch.1914).- Paratypes: Taihorin (89 exs.) July 1911, Tappani (1 ex.): July 1910; 1 ex.: (IRSNB): "Paratype" [red label] \ Taihorin, Formosa, H. SAUTER, 1911 \ *Oosternum Horni*, A. d'ORCHYMONT, A. d'ORCHYMONT det. \ *Paroosternum sorex* SHARP, det. F. HEBAUER".

ADDITIONAL MATERIAL EXAMINED

JAPAN: (Sharp 1874), "Hon., Kyu." (Nakane, 1970) (NHML).- Japan: Izu (Hachi) (Nakane 1970). CHINA: 2 exs.: CHINA Guangxi Bama, i.1988 / cow dung / S.V. Fowler BM 1988-92 (ZMUC); 1 ex.: China: Hainan (181) 6 km W Qionghai, 10 m, 13.1.1996, leg. Ji & Wang (NMW); VIETNAM: 1 ex.: Vietnam, N, 55 km NNW Hanoi, Tam Dao viii. env. 800-900 m NN, 22.-30.VII.1998, leg. A. Napolov (CFH); 3 exs.: VIETNAM-N, 180 km SSW Hanoi, 40 km SW Than Hoah Ben En Nat. Park, 05.-08.VIII.1997, leg. A.Napolov (1 NME, 2 CFH). 16 exs.: S-VIETNAM, Nam Cat Tien Nat. Park, 1.-15.5.1994, Pacholatko & Dembicky (NME); 1 ex.: N-Vietnam: 25.V.-10.VI.1991, Sata (Lao Cai), 2220'N, 10350'E, leg. Jendek (NMW); LAOS: 1 ex.: Laos-NE; Hua Phan prov. 25 km SE Vieng Xai (by road) Ban Kang-Pabong env. 2019'N 10425'E, 14.-18.5.2001, D. Hauck leg. (CFH). THAILAND: 1 ex.: N-Thailand: Lom Sak, 40 km N Phetchabun, ca. 120 m, August 1987, leg. W. Thielen (CFH); 1 ex.: C-Thailand: Lan-Sak, 20km W Uthai-Thani ca. 80 m Juli 1986, leg. W. Thielen / *Paroosternum* M. HANSEN det. (CFH); 1 ex.: S-Thail. Betong Gunung Cang dun vill. Yale distr. 26.3.-22.4.1993, leg. Horak & Strnad (NMW); HAWAII: 1 ex.: Univ. Hawaii Honolulu, Hawaii VIII-25-65, light trap / J.W. Beardsley Collector / *Paroosternum horni* D'ORCH. M. HANSEN det. (ZMUC); 1 ex.: Honolulu 4-7 54 C.R.Joyce / *Paroosternum horni* D'ORCH. M. HANSEN det. (ZMUC); 2 exs. (soft, 1.4 mm): "Univ. Hawaii Honolulu, Hawaii, viii - 25-65, lighth trap \ J.W. Beardsley Collector \ *Paroosternum horni* D'ORCH. M. HANSEN det." (ZMUC); NEPAL: 2 exs.: NEPAL: Phewa-Tal, Pokhara, 8559'E

2814'N, 2,500 ft. 8-10.v.1954, K.H.Hyatt / In cattle dung / B.M. Nepal Expdt. B.M. 1954-50 (ZMUC); 1 ex.: NEPAL Gurjakhani, 8314'E 2837'N, 8,500 ft. 30.vi.1954, K.H. Hyatt / Litter under trees (ZMUC); Zentral-Nepal, IX.-X.1971, Ig. H. Franz \ Dinguari Kola-Tal, oberh. Trisuli Basar (NMW); SRI LANKA:: 4 exs. (slightly soft, 1.30 mm): Sri Lanka \ Sinharaya, 4.12.1979 (ZMUC).- Ceylan (Knisch, 1921); 1 ex.: Sri Lanka, \ Paradeniya 29.II.1978 (ZMUC). INDIA: (Barway + Nilgiri Hills) and "possibly Ceylon" (d'Orchymont 1925); 1 ex.: NE-India: Meghalaya W Garotti ls., Bagmara, ca. 100 m, \ 2511.5'N, 9038.5'E, leg. Jendek & Sausa (NMW); MALAYSIA: 5 exs.: Malaysia: Pahang / Johor, Endau Rompin NP, 100 m, Salendang, 28.2.-12.3.1995, leg. Strba & Hergovits (NMW). INDONESIA: 2 exs.: E.Sumatra, Lam pung prov. Bukit Barisan Selatan N.P. 54'S 1044'E, 600 m, 5 km SW Liwa, 7.-17.II.2000, D. Hauck leg. (CFH); 1 ex.: Sumatra: Fort de Kock, E. Jacobson (NMW).

REDESCRIPTION

Total length: 1.56 mm; total width: 0.86 mm.- Regularly oval, moderately convex, surface and underside ferruginous; head black; mouthparts and tarsi yellow.

Head finely, moderately dense punctate, shining; eyes rather large, separated by c. 3 x eye width. Antennae 9-segmented. Pronotum rather convex, twice as wide (basally) as long (in the middle) seen from above, almost parallel-sided posteriorly, moderately narrowed anteriorly, moderately coarse, moderately densely punctate, punctural interstices c. 2 x punctural diameter, obsolete reticulate; with hardly traceable series of punctures along posterior margin; lateral rim rather strong. Elytra widest in basal third, 1.33 x as long as their combined width, with 9 punctate striae; serial punctures moderately coarse, rather shallow, somewhat elongate, distinct only in basal third, interstriae slightly convex, 2nd and 4th interstriae strongly narrowed and lower than adjacent interstriae apicad, not abbreviated before apex (Fig. 16). Mentum deeply impressed anteromedially, coarsely reticulate, without distinct punctation. Raised middle portion of prosternum abruptly excised from the sides by the antennal grooves, with concave sides, tectiform, very densely and rugously punctate, strongly carinate medially, carina narrow and sharp, not interrupted (Fig. 14). Preepisternal elevation of mesothorax elongate oval, widest in the middle, anteriorly obtusely point, posteriorly broadly rounded, c. 2.4 x as long as wide, very coarsely and densely punctate, punctural interstices less than punctural diameter, shallowly impressed medially, margin finely rugose, edged (Fig. 8). Metaventrite well delimited pentagonal, with sharp and complete femoral lines attaining anterolateral metaventral corners, without anterolateral arcuate ridge corresponding to the arc described by the tip of posterior femora; elevated middle portion slightly depressed longitudinally in male, moderately finely, moderately densely, rather irregularly punctate, shining, 1st segment strongly carinate medially, with indicated longitudinal ridges on each side. Epipleura almost horizontal. Metepiventrites c. 5 x as long as wide in the middle. Femora and tibiae shining, without hydrofuge pubescence beneath, middle and hind tibiae somewhat flattened. Aedeagus [conserved in a small glass tube]: Length: 0.64 mm; width: 0.1 mm; median lobe evenly attenuated from base to apex, as long as parameres; the latter slightly constricted in apical 5th, apices convex on outer face, concave on inner face, tips curved to midline. Genital segment (9th sternite) missing (Fig. 6).

DISCUSSION

P. sorex differs from *P. saundersi* and *P. degayanum* mainly in the shape of the preepisternal elevation of mesothorax, from the latter also in the carinate prosternum, from the former also in the coarsely punctate and shining pronotum and metasternal pentagon (the latter without median impression in the male). From *P. africanum* it differs mainly in the different shape of the raised middle portion of prosternum, also in the weaker and finer punctation and reticulation of head and pronotum, in the male it differs in the longitudinally (not circularly) impressed elevated middle portion of metaventrite, also in the quite different aedeagus.

DISTRIBUTION

A widely distributed species, ranging from Japan "Izu (Hachi)"; Honshu, Kyushu), over Taiwan (Taihorin, Tappani) and Hong Kong to central and southern India (Barwah ["Barway"], Nilgiri Hills), Nepal and Sri Lanka; Sumatra, Hawaii.

BIONOMICS

Terrestrial in litter and dung.

***Paroosternum africanum* sp.n.**

***Paroosternum sorex*; Fig. 20, HEBAUER, 2002**

TYPE MATERIAL:

Holotypus (male): "Afrika RUANDA Pref. Cyangugu Umg. Nyekabuye, 1.4.1983, leg. H. Mühle (CFH).- Paratypes 2 males: same locality, but 1.-22.12.1982 (CFH).- Paratypes: AFRICA: UGANDA: 1 female: Uganda, Ruwenzori Expdt. 1952 Ibanda, 4,700 ft. 26.viii.1952, No. 120, G.O. Evans, B.M. 1952-566 \ Damp decaying vegetation & Soil to depth of line under Elephant Grass \ B.M. Ruwenzori Expd. B.M. 1952-566 (ZMUC); 1 ex.: CONGO: Pool Region, Voka, 04-40S, 14-41E, 620 m, 30-31 May 1993 / Collectors: J. Rawlius, G. Onore, R. Davidson and D. Schlitter (CFH); 2 exs: GAMBIA Sangajor, 24.1.68. Palm (CFH); 1 ex.: KENYA, Mt. Elgon, 12.1.-5.2.1979, T. Palm leg. (CFH); 1 ex.: (1.58 mm) NIGERIA NC St. Kagoro forest, 7.8.1973, R. Linnavuori \ Zool. Mus. Helsinki Loan No. C89 1738 [yellow label] (ZMUC).- E.Africa (Kanyabayongo + Rutshuru) and W.Africa (Nimba Mounts, after Balfour-Browne 1950, under *P. sorex*).

DESCRIPTION

Total length: 1.4 mm; total width: 0.85 mm.- Oval moderately convex, ferrugineous, with black head; mouthparts and tarsi yellow.

Head coarsely but shallowly punctate; punctural intervals covered with strong and dense reticulate microsculpture. Eyes of moderate size, separated by c. 6 x eye width. Antennae 9-segmented. Pronotum twice as wide (basally) as long (medially) seen from above, almost parallel-sided posteriorly, moderately narrowed anteriorly, sparsely punctate, punctural intervals c. 3 - 4 x punctural diameter, covered with fine reticulate microsculpture, with distinct series of punctures along posterior margin; lateral rim rather strong. Elytra widest in basal third; c. 1.1 x as long as their combined width, with 9 punctate striae, serial punctures strongly elongate from base to apex, interstriae moderately convex, shining, with setiferous pores; 2nd and 4th interstriae strongly narrowed and lower than adjacent intervals before apex, not abbreviated apically. Mentum somewhat trapezoid, shallowly impressed anteromedially, covered with coarse reticulate microsculpture, without distinct punctation.

Raised middle portion of prosternum abruptly excised from the sides by the antennal grooves, with concave sides, flat, not at all tectiform; rugously punctate and reticulate, sharply but finely carinate medially, with an additional ridge on each side in anterior half (Fig. 15). This character seems to be unique in *Paroosternum*. Preepisternal elevation of mesothorax elongate oval, 2.2 x as long as wide, widest in the middle, point anteriorly and obtusely rounded posteriorly, slightly concave, strongly punctate beneath, with c. 4 punctures transversally, shining (Fig. 13). Metaventrite with sharp and complete femoral lines attaining anterolateral meta-ventral corners, without anterolateral arcuate ridge; elevated middle portion well defined pentagonal, irregularly punctate, punctures of diverse sizes and distances, shining, without distinct microsculpture; margins obtusely rounded, widely depressed in the male; 1st ventrite strongly carinate medially, with indicated longitudinal ridges on each side. Epipleura almost horizontal. Metepiventrites c. 6 x as long as wide, in the middle. Femora and tibiae shining, without hydrofuge pubescence beneath, middle and hind tibiae somewhat flattened. Aedeagus very characteristic; length 0.64 mm, with the parameres strongly expanded and bent outwards apically; median lobe shorter than parameres, point apically; genital segment (9th ventrite) with narrow and long median sclerite, and with the struts subapically triangularly expanded on inner face (Fig. 4).

DISCUSSION

This species comes close to *P. sorex* and has frequently been attached to this species in the past, but it differs clearly in some features, such as the peculiar sculpture of prosternum, in the widely depressed metaventral elevation of the male, and in the quite different aedeagus and 9th ventrite. Externally it is slightly different from *P. sorex* in the shape of the serial punctures of elytra, also in the finer punctation of the metaventral pentagon.

DISTRIBUTION

Africa (Congo, Gambia, Kenya, Nigeria, Rwanda, Uganda).

BIONOMICS

Terrestrial, under damp decaying vegetation and soil, as indicated in label information.

Paroosternum alternans* HEBAUER, 2001**Paroosternum alternans* HEBAUER, 2001: 59.****TYPE MATERIAL**

Holotype (male): Indonesia: Irian Jaya, Nabire area, road Nabire-Illaga, km 54, 0329°51'7"S-13543°9'13"E, 750 m NN, X.1997, LEK, leg. M. Balke (NME).- Paratypes: 1 ex.: same locality as holotype (CFH).

REDESCRIPTION

Total length: 1.2 – 1.3 mm; total width: 0.80 mm.- Oval, moderately convex, widest behind shoulders. Elytra piceous, clypeus, pronotum and sides of elytra dark ferrugineous, underside and legs paler ferrugineous, mouthparts and tarsi yellow.

Head coarsely but shallowly punctate, shining, without distinct microsculpture. Eyes of moderate size, separated by 5 x eye width (seen from above). Antennae 9-segmented. Pronotum rather convex transversally, not so longitudinally, 2.25 x as wide (basally) as long (medially) seen from above, almost parallel-sided posteriorly, moderately narrowed anteriorly, coarsely and densely punctate, punctural interstices c. 1 - 3 x punctural diameter, shining, without recognizable microsculpture, without distinct series of punctures along posterior margin; lateral rim rather strong, somewhat retracted. Elytra widest behind shoulders, 1.3 x as long as their combined width, with 9 punctate striae, serial punctures coarse, increasing more elongate posteriorly, elytral interstriae rather flat basally, increasing convex behind, shining, with setiferous pores, alternating interstriae narrower and lower than adjacent ones at least in posterior half, not abbreviated before apex. Mentum rectangular, shallowly impressed antero-medially, with coarse reticulate microsculpture, almost impunctate. Raised middle portion of prosternum abruptly excised from the sides by the antennal grooves with concave sides, tectiform, laterally rugously punctate, distinctly carinate medially, carina straight and broad, a little flat-tened beneath, not interrupted. Preepisternal elevation of mesothorax twice as long as wide, widest in the middle, obtusely rounded anteriorly and posteriorly, slightly concave, with dark rugose margin, very coarsely punctate (barely c. 3 punctures transversally and a few very fine punctures), shining, without microsculpture. Metaventrite with sharp and complete femoral lines attaining anterolateral metaventral corners, without arcuate ridge anterolaterally; elevated middle portion less defined pentagonal, slightly convex, finely and sparsely punctate, shining, without microsculpture and without median depression in the male. First ventrite strongly carinate medially, without longitudinal ridges on each side. Epipleura almost horizontal. Metepiventrites c. 5 x as long as wide in the middle. Femora and tibiae shining, without hydrofuge pubescence beneath, middle and hind tibiae somewhat flattened. Aedeagus: Length: 0.50 mm; width 0.1 mm; median lobe parallel-sided, not attenuated until triangular apex, much shorter than parameres, the latter slender, narrowed preapically, apices convex on outer face and concave on inner face, curved inwards. Genital segment (9.th ventrite) with narrow tongue-shaped median sclerite; struts simple (Fig. 3).

DISCUSSION

Up to now this is the only known species of the genus with all elytral intervals distinctly alternating at least in posterior half, therefore clearly separated from all other allies.

DISTRIBUTION

Known only from the type locality.

BIONOMICS

Nothing is known about the habits of this species.

Paroosternum ceylonense* sp.n.**Paroosternum sores*; HEBAUER, 2000 (Sri Lanka).*****Paroosternum leytensis*; HEBAUER, 2002 (Sri Lanka).****TYPE MATERIAL**

Holotype (male): Sri Lanka: Ceylon, Centr. Prov. Kunundu Oya, Alt. 2900 ft. 11 mls NE Nuwara Ellya, 15.III.62, Loc. 147 \ Under stones / Ravine with stream / Lund University Ceylon Expedition 1962, Brinck-Andersson-Cederholm (ZML).- Paratypes: 1 female: Sri Lanka: Ceylon, S. Prov. Stream 6 mls NW Hulandawa, 20 mls NE Galle, 29.I.62, Loc. 35 \ Grassy

ground \ In swamp net \ Lund University Ceylon Expedition 1962, Brinck-Andersson-Cederholm (ZML); 5 exs.: Ceylon Peradeniya, 22.5.02, Dr. Uzel (4, NMW, 1 CFH).

DESCRIPTION

Total length: 1.3 - 1.4 mm; total width: 0.7 mm.- Broadly oval, moderately convex, ferrugineous, frons besides eyes darkened, mouthparts and tarsi yellow.

Head coarsely and very densely punctate, punctural interstices c. punctural diameter, shining, without microsculpture. Eyes of moderate size, separated by 5 x eye width (seen from above). Antennae 9-segmented. Pronotum rather convex transversally, 2.2 x as wide (basally) as long (medially) seen from above, almost parallel-sided posteriorly, moderately narrowed anteriorly, moderately coarsely and rather densely punctate, punctural distances c. 1-2 x punctural diameter, shining, without microsculpture, with a distinct series of punctures along posterior margin; lateral rim rather strong, somewhat retracted. Elytra widest in basal third, 1.2 x as long as their combined width, with 9 punctate striae, serial punctures coarse, less elongate in anterior half. Interstriae slightly convex, not alternating wide and high apicad. Mentum subrectangular, shallowly impressed anteromedially with coarsely reticulate microsculpture, without distinct punctation. Raised middle portion of prosternum tectiform, abruptly excised from the sides by the antennal grooves, rugously punctate, strongly carinate medially, carina robust, irregularly interrupted. Preepisternal elevation of mesothorax elongate oval, widest in the middle, c. 2.6 x as long as wide, flat, very coarsely punctate beneath (2-3 punctures transversally), shining. Metaventrite with sharp and complete femoral lines attaining anterolateral metaventral corners, without anterolateral arcuate ridge; elevated middle portion less defined pentagonal, very coarsely and densely punctate, punctural interstices frequently less than punctural diameter, shining, without median depression in the male, shining, without microsculpture. First ventrite strongly carinate medially, without longitudinal ridges on each side. Epipleura almost horizontal. Metepiventrites c. 6 x as long as wide in the middle. Femora and tibiae shining, without hydrofuge pubescence beneath, middle and hind tibiae somewhat flattened. Aedeagus: Length 0.5 mm; width: 0.09 mm; with the median lobe evenly narrowed in distal half, obtusely rounded apically, as long as the parameres; the latter almost straight on outer face, slightly rounded apically. Genital segment (9th ventrite) with well developed and long median sclerite (Fig. 7).

DISCUSSION

This species comes closest to *P. leytense* but differs from that in the coarser punctation of the metasternal pentagon, in the shape of the prosternal carina, and in the elytral interstriae not at all alternating wide and high before apex.

DISTRIBUTION

Sri Lanka.

BIONOMICS

Terrestrial "in swamp net", "under stones" (label indication).

Paroosternum leytense HEBAUER, 2002

Paroosternum leytensis HEBAUER, 2002: 17.

TYPE MATERIAL

Holotype (male) Philippines: Leyte, Visca, N. Baybay, cultiv. land, 1991, leg. Schawaller & al. (MNS).

REDESCRIPTION

Total length: 1.3 - 1.4 mm; total width: 0.7 mm.- Broadly oval, moderately convex, ferrugineous, frons besides eyes darkened, mouthparts and tarsi yellow.

Head moderately finely and rather densely punctate, shining, without microsculpture. Eyes of moderate size, separated by 4 x eye width (seen from above). Antennae 9-segmented. Pronotum rather convex transversally, 2.2 x as wide (basally) as long (medially) seen from above, almost parallel-sided posteriorly, moderately narrowed anteriorly, moderately finely and distantly punctate (as head), punctural distances c. 2-3 x punctural diameter, shining, without microsculpture, with a distinct series of punctures along posterior margin; lateral rim rather strong, somewhat retracted. Elytra widest in basal third, 1.2 x as long as their combined width, with 9 punctate striae, serial punctures coarse, less elongate in anterior half. Interstriae slightly convex, not alternating wide and high apicad. Mentum subrectangular, shal-

lowly impressed anteromedially with coarsely reticulate microsculpture, without distinct punctation. Raised middle portion of prosternum tectiform, abruptly excised from the sides by the antennal grooves, rugosely punctate, strongly carinate medially, carina robust, flat beneath, not interrupted. Preepisternal elevation of mesothorax elongate oval, widest in the middle, c. 2.6 x as long as wide, flat, very coarsely punctate beneath (2-3 punctures transversally), shining. (Fig. 11). Metaventrite with sharp and complete femoral lines attaining anterolateral metaventral corners, without anterolateral arcuate ridge; elevated middle portion less defined pentagonal, finely and distantly punctate, punctural interstices frequently less than punctural diameter, shining, without median depression in the male, shining, without microsculpture. First ventrite strongly carinate medially, without longitudinal ridges on each side. Epipleura almost horizontal. Metepiventrites c. 6 x as long as wide in the middle. Femora and tibiae shining, without hydrofuge pubescence beneath, middle and hind tibiae somewhat flattened. Aedeagus: Length 0.5 mm; width: 0.12 mm; with the median lobe evenly narrowed in distal half, sharply point apically, surpassing the parameres; the latter convex on outer face medially, with short and stout distal hook. Genital segment (9th ventrite) with well developed and long median sclerite (Fig. 5).

DISCUSSION

This species differs from all known *Paroosternum* (except for *P. ceylonense*) in the elytral interstriae not alternating wide and high in apical third, also in the slender shape of the preepisternal elevation of mesothorax. It differs from *P. ceylonense* mainly in the much finer punctation of the metaventral pentagon.

DISTRIBUTION

Known only from the type locality.

BIONOMICS

Obviously terrestrial in decaying vegetation, "in cultivated land" (label indications).

Paroosternum jayanum sp.n.

TYPE MATERIAL

Holotype (female): "INDONESIA, Irian Jaya, Jayapura distr. 10 mNN, Demta, Coast, lux, IV-V.1999, leg. M. Balke" (CFH).

DESCRIPTION

Total length: 1.43 mm; total width: 0.85 mm.- Oval, moderately convex, ferruginous; mouthparts and tarsi yellow.

Head coarsely and densely punctate, shining; eyes small, separated by c. 9 x eye width (seen from above). Antennae 9-segmented. Pronotum rather convex, 2.2 x as wide (basally) as long (in the middle) seen from above, almost parallel-sided posteriorly, moderately narrowed anteriorly, coarsely and densely punctate, punctural interstices c. 1-3 x punctural diameter, shining, without microsculpture, series of punctures along posterior margin very indistinct; lateral rim rather strong, somewhat retracted. Elytra widest in basal third, 1.17 x as long as their combined width, with 9 punctate striae; serial punctures coarse, rather shallow, somewhat elongate, interstriae slightly convex, only 2nd interstria narrowed and lower than adjacent interstriae apicad, not abbreviated before apex. Mentum shallowly impressed anteromedially, very coarsely punctate with dense reticulate microsculpture between punctures. Raised middle portion of prosternum abruptly excised from the sides by the antennal grooves, with concave sides, tectiform, very densely and rugosely punctate, strongly carinate medially, carina slightly arcuate, not interrupted. Preepisternal elevation of mesothorax elongate oval, widest in the middle, anteriorly almost point, posteriorly obtusely rounded, c. 2.0 x as long as wide, not depressed, very coarsely and irregularly punctate (c. 2 - 3 punctures of different sizes transversally) punctural interstices here and there less than punctural diameter. Metaventrite with sharp and complete femoral lines attaining anterolateral metaventral corners, without anterolateral arcuate ridge; elevated middle portion, slightly convex, less delimited anterolaterally, coarsely and densely punctate (punctural interstices c. 1-3 x punctural diameter), shining. Abdominal segments covered with reticulate microsculpture, 1st ventrite strongly carinate medially, without longitudinal ridges on each side. Epipleura almost horizontal. Metepiventrites c. 5 x as long as wide in the middle. Femora and tibiae shining, without hydrofuge pubescence beneath, middle and hind tibiae somewhat flattened. Aedeagus unknown.

DISCUSSION

This single female cannot be clearly attached to one of the known species. It differs from *P. melanesinum* in the elytral interstria 4 not clearly narrowed and lower than the adjacent interstriae in their apical extension. Furthermore the strikingly small eyes are much widely separated from one another than in any other known species.

DISTRIBUTION

Known only from the type locality.

BIONOMICS

Nothing is known.

ACKNOWLEDGEMENTS

For the loan of material for the present study I would like to thank the Staatliches Museum für Naturkunde Stuttgart (W. Schawaller), the Természettudományi Múzeum, Budapest (Gy. Szél), the Naturkundemuseum Erfurt (M. Hartmann), the Zoological Museum of the University of Copenhagen (M. Hansen, J. Pedersen), the Institut royal des Sciences naturelles de Belgique (Ph. Desender), the Natural History Museum London (C. Taylor), the Zoological Museum Lund, Sweden (R. Danielsson), the Naturhistorisches Museum Wien (M.A.Jäch, A. Komarek). Special thanks to Prof. Garth N. Foster for reading the manuscript.

ABBREVIATIONS

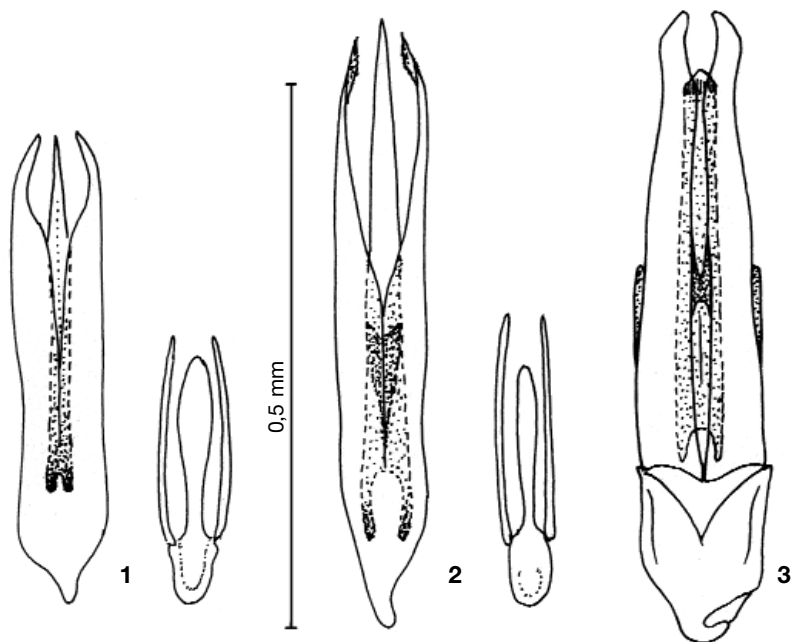
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| CFH | Coll. Franz Hebauer, Plattling, Germany |
| CHB | Coll. Lars Hendrich, Berlin, Germany |
| IRSNB | Institut royal des Sciences naturelles de Belgique |
| MNS | Staatliches Museum für Naturkunde, Stuttgart |
| NHML | Natural History Museum, London |
| NME | Naturkundemuseum Erfurt |
| NMW | Naturhistorisches Museum, Wien |
| TMB | Természettudományi Múzeum, Budapest |
| ZML | Zoological Museum Lund, Sweden |
| ZMUC | Zoological Museum of the University of Copenhagen |

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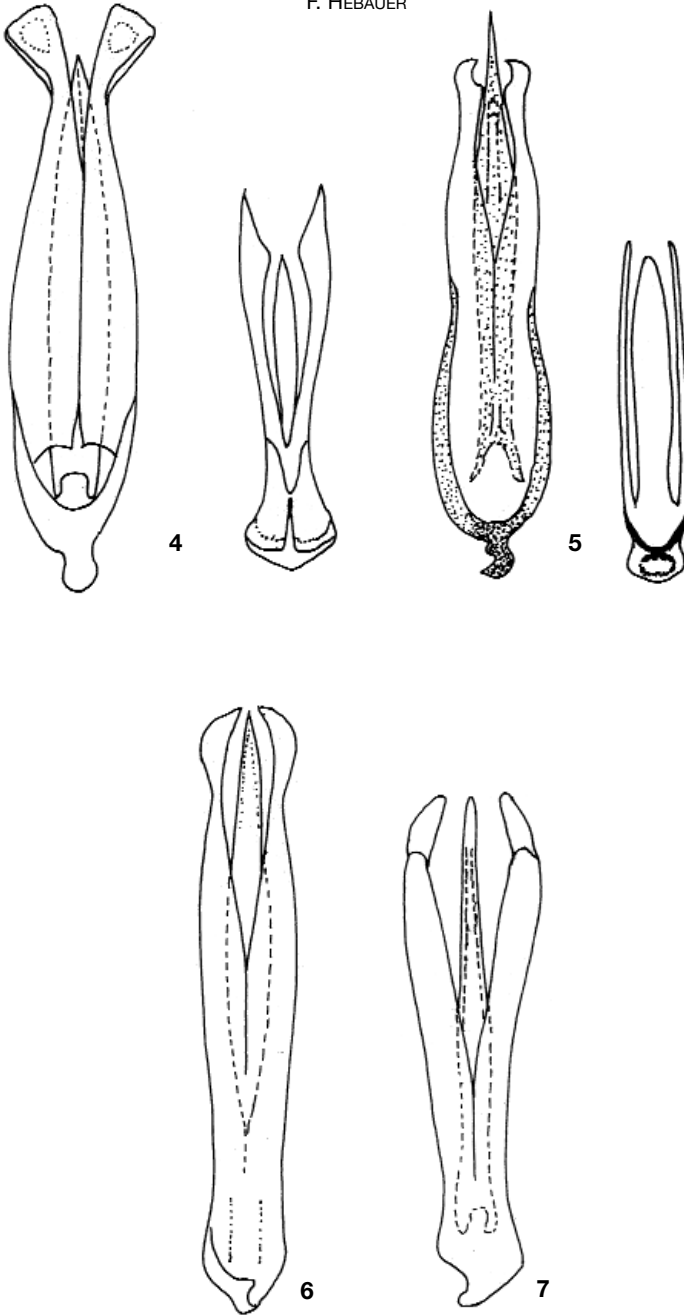
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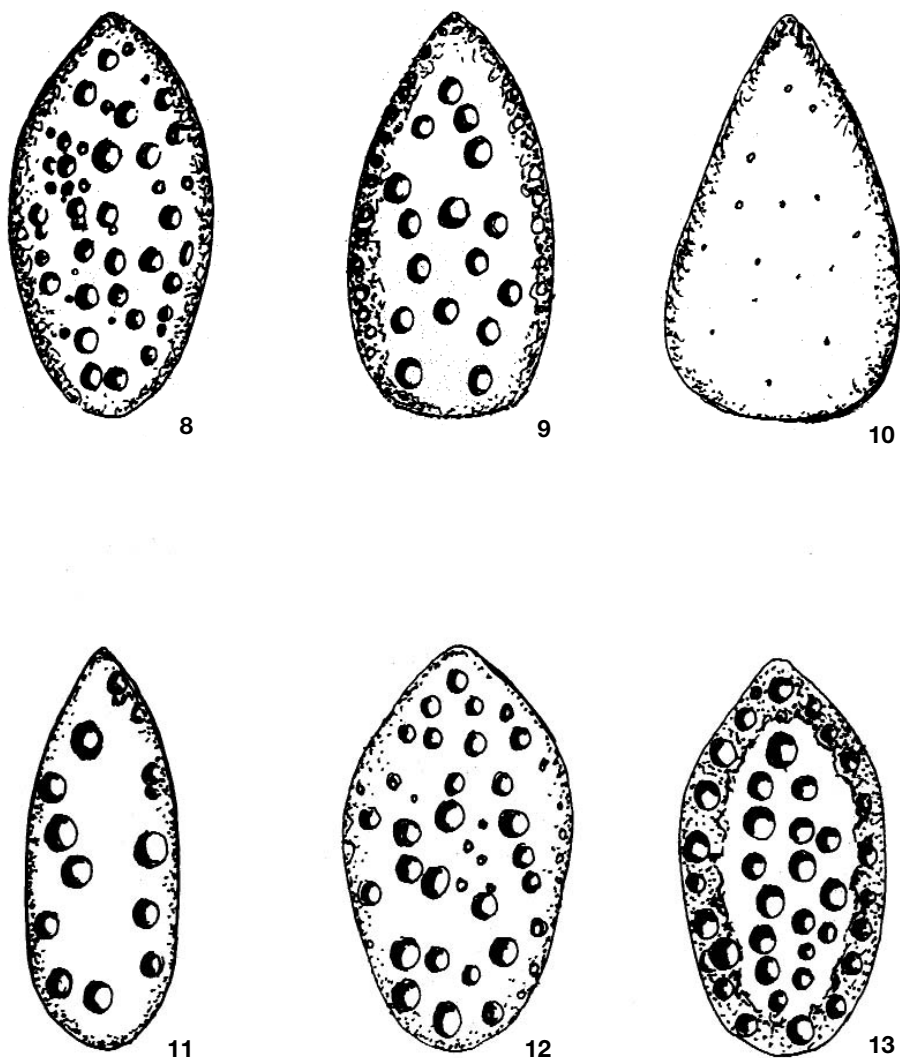
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Germany



Figs. 1-3: Male genitalia of *Paroosternum*: **1** *P. degayanum* SCOTT; **2** *P. saundersi* (D'ORCHYMONT),; **3** *P. alternans* HEBAUER;



Figs. 4-7: Male genitalia of *Paroosternum*: **4** *P. africanum* sp.n.; **5** *P. leytnense* HEBAUER; **6** *P. sores* (SHARP); **7**. *P. ceylonense* sp.n.



Figs. 8-13: Preepisternal elevation of mesothorax: **8** *Paroosternum sores* (SHARP), **9** *P. saundersi* (D'ORCHYMONT); **10** *P. degayanum* SCOTT, **11** *P. leytense* HEBAUER, **12** *P. jayanum* sp.n.; **13** *P. africanum* sp.n.

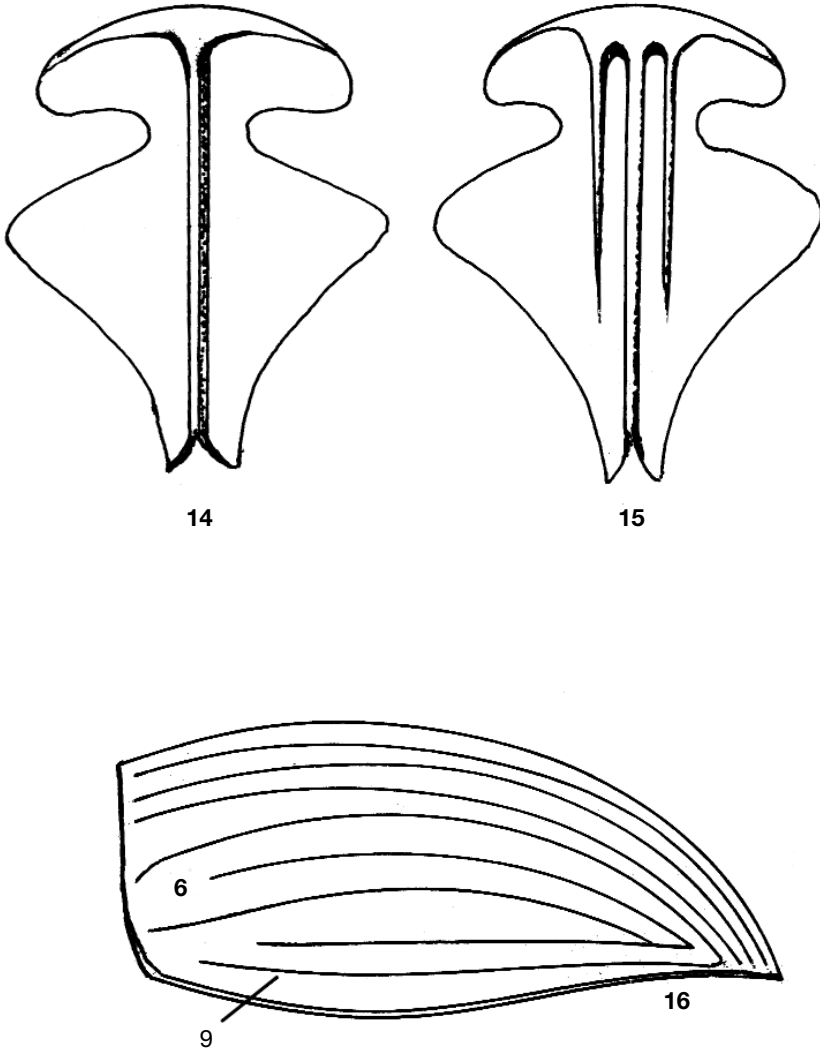


Fig. 14-15: Prosternum of *Paroosternum*: **14.** *P. sorex* (SHARP); **15:** *P. africanum* sp.n.
Fig. 16: *Paroosternum sorex* (SHARP): Left elytron

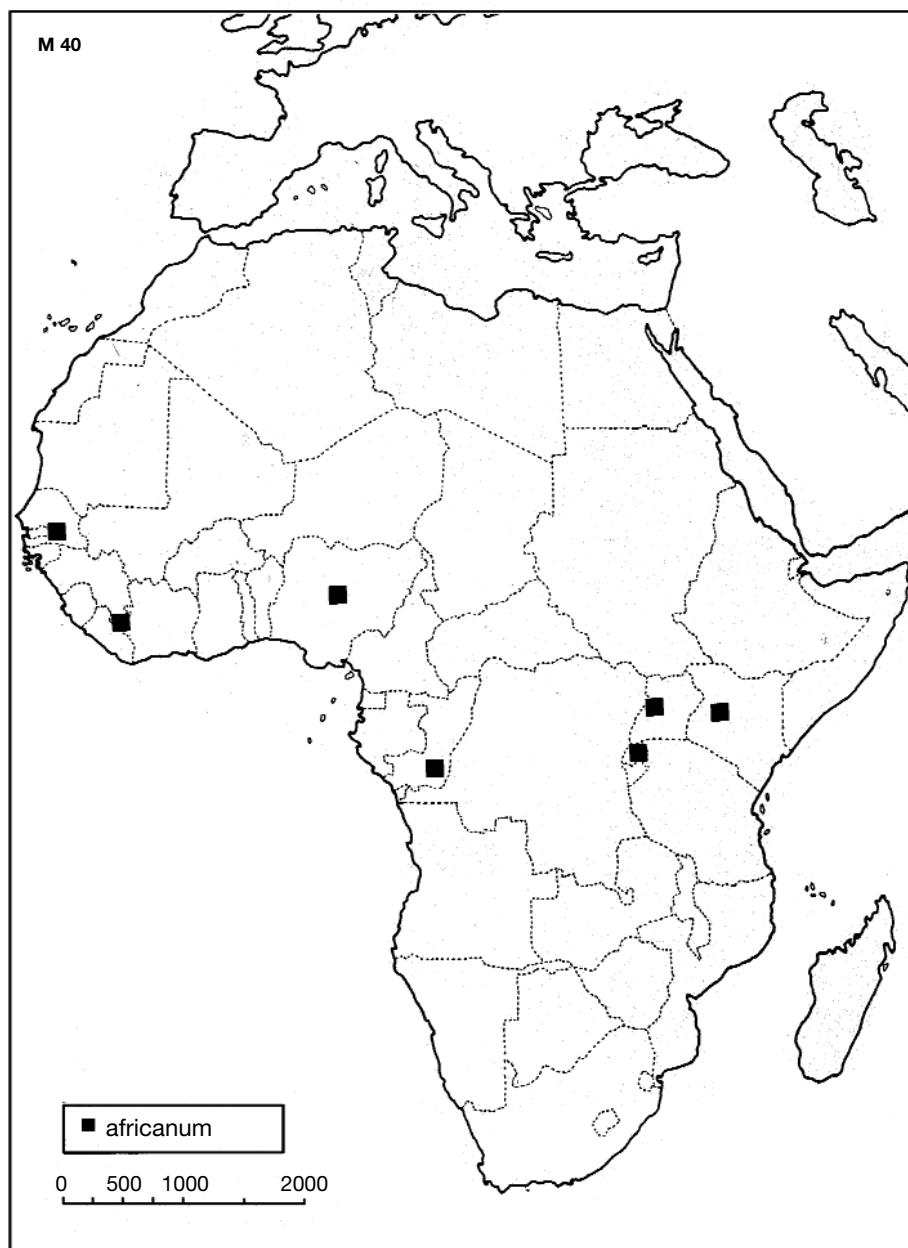


Fig. 17: Geographical distribution of *Paroosternum* in Africa.

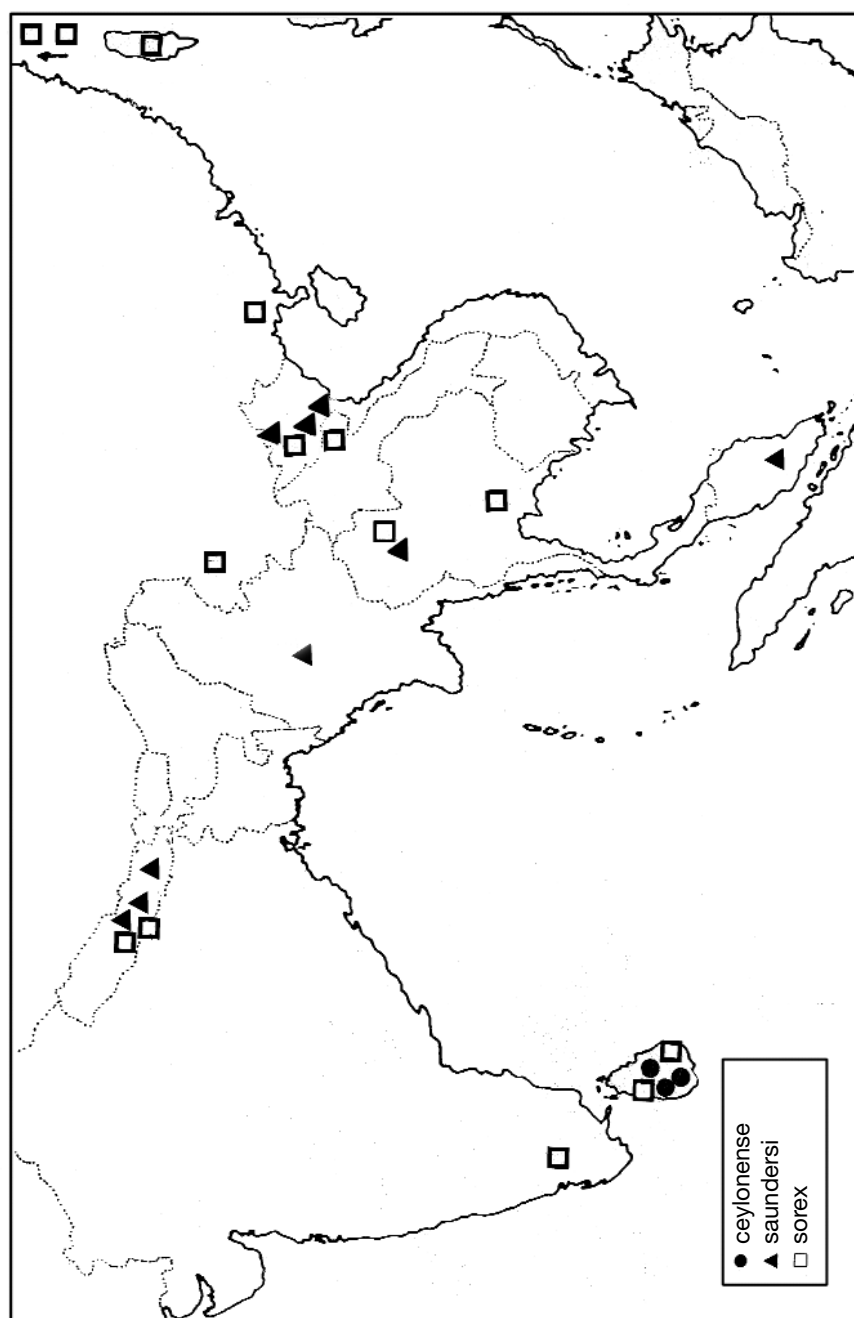


Fig.18: Geographical distribution of *Paroosternum* in the Indian subcontinent, Southeast Asia and Japan.

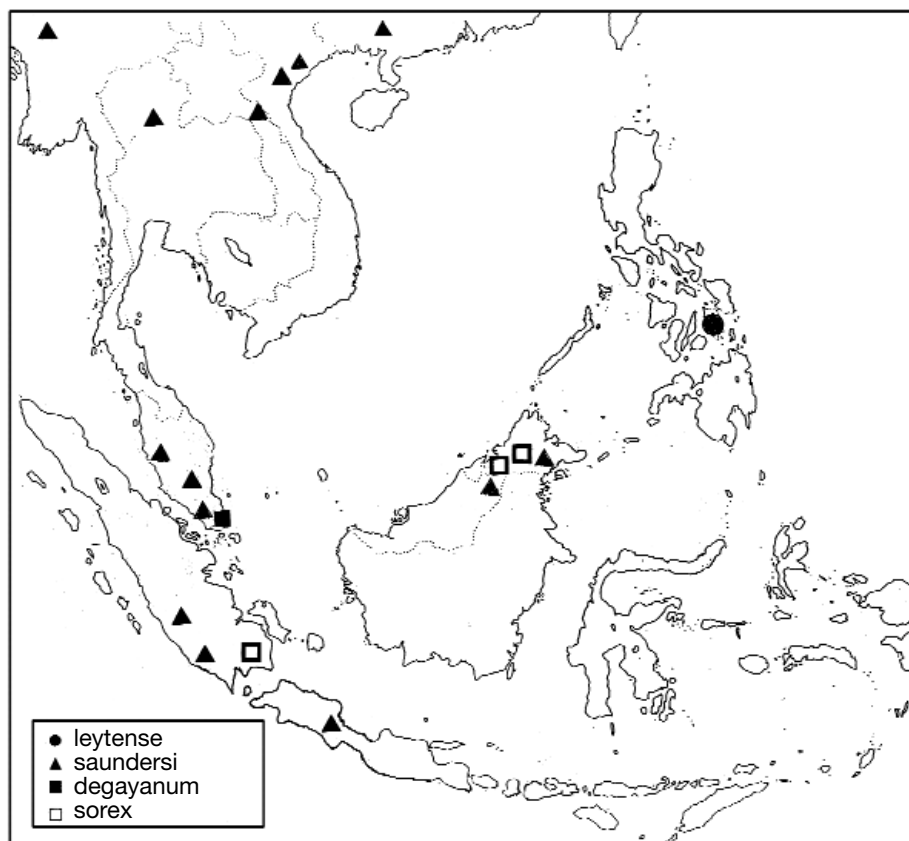


Fig. 19: Geographical distribution of *Paroosternum* in Malaysia, Indonesia and the Philippines.

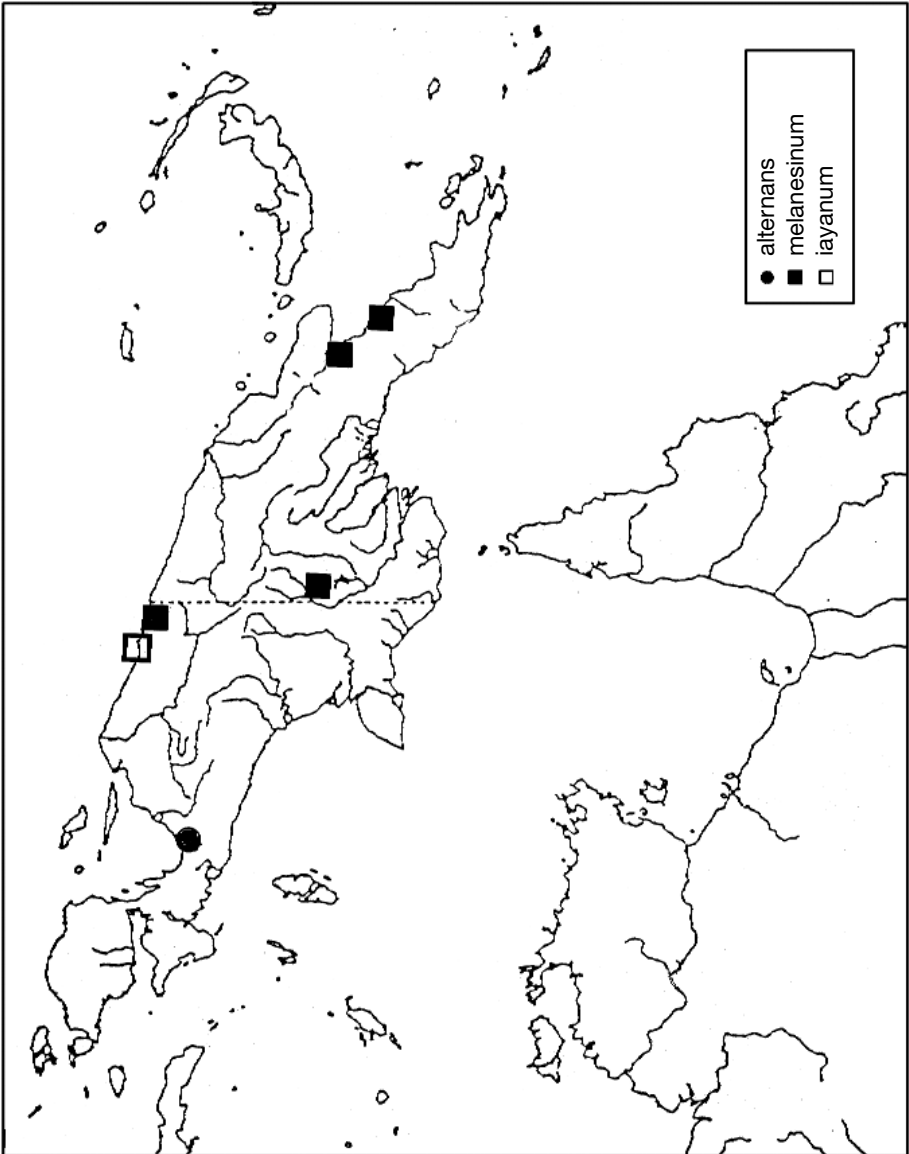


Fig. 20: Geographical distribution of *Paroosternum* in Papua-New Guinea.

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