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SPIXIANA	28	3	223–257	München, 01. November 2005	ISSN 0341-8391

The genus *Pheropsophus* Solier, 1833 in New Guinea

(Insecta, Coleoptera, Carabidae, Brachininae)

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Giachino, P. M. (2005): The genus *Pheropsophus* Solier, 1833 in New Guinea (Insecta, Coleoptera, Carabidae, Brachininae). – Spixiana **28/3:** 223-257

A revision is given of the New Guinean species of the genus *Pheropsophus* Solier, 1833. This genus is represented by three distinct species groups: the "*verticalis* group", the "*macleayi* group", and the "*catulus* group".

Members of the "*verticalis* group" in New Guinea are: *P. verticalis* (Dejean, 1825) (widespread also in all Australia and probably with *P. papuensis* Macleayi, 1877, as a synonym), *P. baehri*, spec. nov., *P. galloi*, spec. nov., *P. claudiae*, spec. nov., *P. baliothorax* Heller, 1910 (with *P. intermedius* Hubenthal, 1914, and *P. verticalis* v. *niger* Hubental, 1914, as synonyms), *P. brussinoi*, spec. nov., and *P. adrianae*, spec. nov. Members of the "*macleayi* group" in New Guinea are: *P. amnicola* Darlington, 1968, *P. wolfi*, spec. nov., *P. delmastroi*, spec. nov., *P. riedeli*, spec. nov., *P. balkei*, spec. nov., *P. aptinomorphus* Heller, 1910, and *P. pedes* Darlington, 1968. Members of the "*catulus* group" are: *P. catulus* Darlington, 1968, and *P. canis Darlington, 1968.*

Comparative morphological data are provided and phyletic and zoogeographical hypotheses are proposed.

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Introduction

Among the material of *Pheropsophus* Solier, 1833, kindly sent me for study by Dr. Martin Baehr of Zoologische Staatsammlung München (Germany) for the revision of the Australian species of this genus (Giachino, 2003), there was a series of specimens coming from different localities of New Guinea, not ascribable with certainty to species known in the literature (Darlington 1968, Moore et al. 1987). Therefore it was necessary to conduct a revision of the known taxa, including the examination of type material.

The examination of the material dealt with in this study permitted to ascertain the presence in New Guinea of 16 *Pheropsophus* species belonging to three distinct species groups.

Length of specimens was measured from tip of mandibles to apex of elytra.

Abbreviations

ANIC	Australian National Insect Collection, CSIRO, Canberra, A.C.T., Australia
BMH	Bishop Museum, Honolulu, U.S.A.
MCZ	Museum of Comparative Zoology, Harvard University, Cambridge, Massachussets, U.S.A.
MMS	Macleay Museum, University of Sydney, N.S.W., Australia
SMTD	Staatliches Museum für Tierkunde, Dresden, Germany
ZMB	Museum für Naturkunde, Humboldt Universität, Berlin, Germany
ZSM	Zoologische Staatsammlung, München, Germany
CBa	M. Baehr Collection, München, Germany
CGi	P. M. Giachino Collection, Torino, Italy

HT	Holotype
PT, PTT	Paratype; Paratypes
LT	Lectotype
PLT; PLTT	Paralectotype; Paralectotypes

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Key to the New Guinean *Pheropsophus* species

1. Each elytra with 8 costae equally prominent..2.
– Elytra with odd costae more prominent than even ones at least at the base..... 14.
2. Head completely black, with an orange V-shaped frontal spot (Fig. 34).....*pedes* Darlington
– Head completely yellow or reddish, with or without a dark frontal spot..... 3.
3. Head completely yellow or reddish without a dark frontal spot.....4.
– Head yellow or reddish with an obvious dark frontal spot ..... 5.
4. Pronotum completely yellow-reddish (Fig. 18). ..... *amnicola* Darlington
– Pronotum completely black (Fig. 24) ....*wolfi*, spec. nov.
5. Elytra wide and stocky, pronotum transverse (Figs 30, 31).....6.
– Elytra narrower and slender, pronotum less transverse..... 7.
6. Elytra and pronotum completely black (Fig. 30) .....*delmastroi*, spec. nov.
– Elytra and pronotum with obvious yellow median spots (Fig. 39e) .....*riedeli*, spec. nov.
7. Elytra black with two central light spots.....8.
– Elytra completely black ..... 9.
8. Elytral spots extremely small, yellow-brown. Pronotum black with the maximum width at the distal fourth (Fig. 16) .....*brussinoi*, spec. nov.
– Elytral spots generally larger, yellow-reddish. Pronotum black, often with two obvious yellow-reddish spots and the maximum width between the distal third and the half (Fig. 1)..... .....*verticalis* (Dejean)
9. Pronotum more elongated, in some cases slightly dolioliform .....10.
– Pronotum shorter and transverse..... 13.
10 Elytra subrectangular, with subrectilinear sides (Fig. 17) ..... *adrianae*, spec. nov.
– Elytra ovoidal or oval..... 11.
11. Pronotum more elongated, sometimes slightly dolioliform, with the maximum width between the distal third and the half. Elytra black, pronotum black with or without yellow-reddish spots.....*verticalis* (Dejean)
– Pronotum less elongated, not dolioliform, with the maximum width at the distal third. Elytra and pronotum always completely black ..... 12.
12. Pronotum distinctly wider in the distal part, with the basal angles prominent posteriorly, elytra centrally not flattened (Fig. 6) ....*galloi*, spec. nov.
– Pronotum less wide in the distal part, with the basal angles not prominent posteriorly, elytra centrally flattened (Fig. 14) .... *claudiae*, spec. nov.
13. Elytra subrectangular, or slightly tapered posteriorly, with subrectilinear sides. Elytra completely black, pronotum completely black or with obvious yellow-orange discal spots (Fig. 15)..... .....*baliothorax* Heller
– Elytra ovoidal or oval (Fig. 2)..... .....*baehri*, spec. nov.
14. Head completely yellow or reddish without a dark frontal spot (Fig. 32) ..... *balkei*, spec. nov.
– Head bicolourous, at least with the post-ocular part distinctly dark.....15.
15. Head distinctly rugose in the supraocular areas, reddish, with the post-ocular area distinctly browned (Fig. 38) .....*canis* Darlington
– Head not rugose in the supraocular areas, black with a more or less expanded yellow or reddish spot ..... 16.
16. Head black with a frontal yellow-orange V-shaped spot. Larger size, 15.1-16.0 mm (Fig. 35)..... ..... *catulus* Darlington
– Head black with a frontal yellow-orange V-shaped spot extended to the whole frons, clypeus and labrum. Smaller size, 11.7 mm (Fig. 33)..... .....*aptinomorphus* Heller

verticalis group

Diagnosis. A group of medium-large sized species (10.8-17.7 mm), winged (in New Guinea), winged or brachypterous (in Australia), having black elytra and pronotum with yellow-reddish spots of variable shape and extension, sometimes completely black; body altogether slenderer, with elytra elongated; aedeagus big, median lobe relatively slender, with the distal part less curved than the basal part.

As far as we know, the following species belong to this group in New Guinea: *P. verticalis* (Dejean, 1825), *P. baehri*, spec. nov., *P. galloi*, spec. nov., *P. claudiae*, spec. nov., *P. baliothorax* Heller, 1910, *P. brussinoi*, spec. nov., and *P. adrianae*, spec. nov.

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The position of *P. papuensis* Macleay, 1876, remains uncertain, because the type was not found.

Pheropsophus verticalis (Dejean, 1825)

Figs 1, 3, 9

Brachinus verticalis Dejean, 1825: 302.

Locus typicus: Nouvelle Hollande.

Pheropsophus australis Castelnau, 1867; Arrow 1901: 205; Darlington, 1968: 236.
Pheropsophus hypoxanthus Chaudoir, 1876.
Pheropsophus (Parapheropsophus) verticalis Dejean, 1825: Csiki, 1933: 1604.
Pheropsophus (Parapheropsophus) verticalis var. *australis* Castelnau, 1867: Csiki, 1933: 1604.
Pheropsophus (Parapheropsophus) verticalis var. *hypoxanthus* Chaudoir, 1876: Csiki, 1933: 1604.
Pheropsophus (Parapheropsophus) verticalis var. *papuensis* Macleayi, 1876: Csiki, 1933: 1604.
Pheropsophus verticalis Dejean, 1825; Darlington, 1968: 236; Moore et al. 1987: 48; Giachino, 2003: 31.
Pheropsophus papuensis Macleayi, 1876: Darlington 1968: 236.
Pheropsophus verticalis var. *howitti* Sloane in litt.

Examined material: Papua New Guinea: 2♂♂, 2♀♀, Neu Guinea (ZMB); 1♂, 1♀, Bisiatabu, Port Moresby, W.N. Look (SAMA, CGi); 6♂♂, 2♀♀, N.E. Papua, Mt. Lamington, 1300 to 1500 feet, C.T. Mc Namara (SAMA, CGi); 2♂♂, 2♀♀, Neu Guinea (ZMB). – **Irian Jaya**: 1♂, Pr. Jayawijaya, Bime-Taramiu, 800-1700 m, 7-9.9.1993, A. Riedel leg. (CBa); 1♂, J. Waropen prov., Wapoga Riv., ca. 100 m, Kwadewa logging camp, km 62, 28.II.1999, lux, A. Riedel leg. (CBa).

Diagnosis. A medium-large sized *Pheropsophus* (10.8-16.4 mm) closely related to *galloi*, spec. nov., *baehri*, spec. nov., and *claudiae*, spec. nov. for the ovoidal shape of the elytra. It differs from *claudiae*, spec. nov. by the shape of the pronotum not subdolioliform, while it differs from *baliothorax* Heller, *brussinoi*, spec. nov., and *adrianae*, spec. nov. by the ovoidal and not subrectangular shape (with subparallel sides) of the elytra. It differs from *galloi*, spec. nov. by the apex of the median lobe of the aedeagus, in dorsal view, without the dorsal circular dimple, while it differs from *baliothorax*, *brussinoi* and *baehri* by the shape of the median lobe of the aedeagus that, in lateral view, is more bent basally.

Description and variability. See Giachino (2003).

Distribution and ecology. *P. verticalis* is a very widespread species (Giachino 2003: fig. 22), it occupies all Australia, excluding only Tasmania, whereas northwards it reaches New Guinea and the Solomon Islands. The specimens mentioned as *verticalis* by Giachino (2003) from the Island of Nila (East of Timor) and from Oksaomin (W N. Guinea) belong actually to *P. baliothorax*.

Pheropsophus papuensis Macleay, 1877

Pheropsophus papuensis Macleay, 1877: 166.

Locus typicus: Katow, Papua.

Moore et al. (1987) mention the types of *P. papuensis* as probably deposited in MMS, University of Sydney. Research for finding these types, carried out by Tom Weir at ANIC (where the types of the species described by Macleay are located as permanent loan), gave not result. Some checks made at MMS, after Tom Weir's suggestion and thanks to the kindness of Margaret Humphrey, had a similar negative result. In Macleay's collection in Sydney there are 6 specimens of *Pheropsophus* that I could examine: 5 of them are *P. verticalis* and come from different localities of Australia, while the 6th specimen is a *P. verticalis* from New Guinea, but from Port Moresby, a different locality from the type locality of *papuensis* (Katow).

In the SMTD collections there is a female specimen of *Pheropsophus* labelled as *papuensis* bearing the following indications: "N. Guinea, Staatl. Museum für Tierkunde Dresden". This specimen was probably determined by Heller and could represent *P. papuensis* sensu Heller; actually it is a specimen of *P. verticalis*.

Without the examination of type material and basing only on the original description of Macleay (1877), it is impossible to reach any certainty about the real validity of this taxon. However, it is probable but not certain that *P. papuensis* is nothing else than an individual form of *P. verticalis* in accordance with what was believed already by Darlington (1968).

Pheropsophus baehri, spec. nov.

Figs 2, 4, 10

Types. HT: ♂, Irian Jaya, Nabire Dist. Cemara Riv., m 150, VIII.1998, leg. M. Balke (CBa).

Diagnosis. A medium sized *Pheropsophus* (12.9 mm) closely related to *verticalis*, *galloi*, spec. nov., and *claudiae*, spec. nov. for the ovoidal shape of the elytra. It differs from *claudiae* by the shape of the pronotum which is shorter and transverse, while it differs from *baliothorax* Heller, *brussinoi*, spec. nov., and *adrianae*, spec. nov. by the ovoidal and not subrectangular shape (with subparallel sides) of the elytra. It differs from *galloi* by the apex of the median lobe of the aedeagus in dorsal view without the dorsal circular

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Fig. 1. *Pheropsophus verticalis* (Dejean), HT ♂, habitus. Scale: 2 mm.

dimple, while it differs from *verticalis*, *baliothorax*, and *brussinoi* by the shape of the apical blade of the median lobe of the aedeagus which in dorsal view is less stocky and more elongated.

Description of the ♂ holotypus

Maximum length 12.9 mm; head orange yellow with an obvious frontal black trapezoidal spot, pronotum and elytra black, but with the median areas marked by imperceptible, asymmetrical, and undefined spots tending to yellow-brown; elytral apex and apical part of the costae light yellow. Palpi, antennae, and legs orange yellow; clypeus, labrum, and mandibles orange yellow more or less browned marginally; apex of femora obviously browned. Last abdominal segments, visible in dorsal view, pubescent, black, bordered by lighter stripes.

Head slightly elongated, with the maximum width just behind the eyes. Neck restriction missing. Frontal furrows wide and poorly impressed, but

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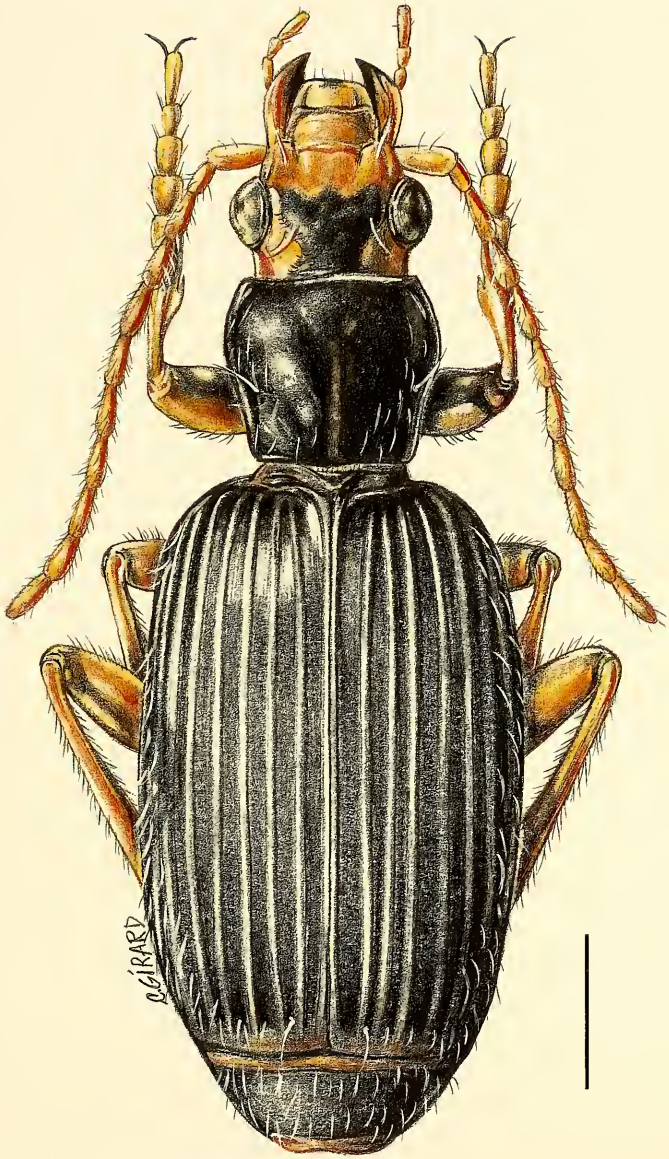

Fig. 2. *Pheropsophus baehri*, spec. nov., HT ♂, habitus. Scale: 2 mm.

obvious, long and converging posteriorly. Eyes big, globose, and prominent. Supraorbital area bearing one seta. Labrum transverse, with the anterior margin slightly convex and bearing 6 setae. Clypeus trapezoidal, with the anterior margin slightly concave, glabrous, bearing one seta at about the half of the lateral margin. Occipital area rugose, post-ocular region pubescent. Mandibles robust and relatively stocky, poorly and regularly curved; lateral groove short, strongly concave and limited to the basal half, bearing one seta. Labial palpi elongated, with the penultimate article much longer than the first one and polychete, the last article remarkably dilated and neatly truncate apically. Maxillary palpi with the last article longer than the penultimate one, poorly dilated and neatly truncate apically; penultimate palpomere bearing a crown of 5-6 setae apically.

Antennae relatively short, hardly reaching the basal third of the elytron, when stretched backwards.

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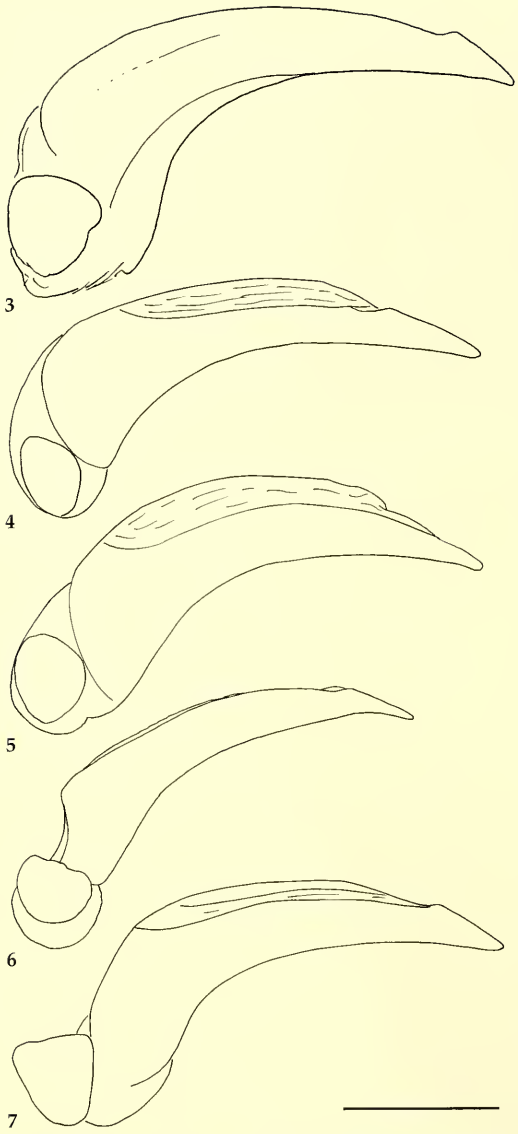

Figs 3-7. Aedeagus, lateral view, of *Pheropsophus* spp. **3.** *P. verticalis* (Dejean), HT. **4.** *P. baehri*, spec. nov., HT. **5.** *P. galloi*, spec. nov., HT. **6.** *P. baliothorax* Heller, HT. **7.** *P. brussinoi*, spec. nov., HT. Scale: 1 mm.

Antennomeres pubescent starting from the apex of the 2nd article, with the 1st article big, stocky, and subcylindrical; 2nd article much shorter than the 3rd one that is the longest; antennomeres 4-11 subcylindrical. Elongation index of the antennae (total body length/antennal length = 1.71).

Pronotum cordiform (max. width/max. length ratio = 1.36), with the maximum width at the distal third, decidedly narrower than the elytra. Base of the pronotum subrectilinear; anterior edge about as wide as the base. Sides sinuate in the basal third, basal angles slightly obtuse, blunt and without setae; anterior angles not prominent, blunt. Lateral groove thin, bearing one seta at about the half. Disc poorly convex, almost flat, shiny, covered with few weakly impressed punctures bearing a seta; neck furrow weak but present, median furrow thin, poorly impressed, basal impressions imperceptible.

Elytra oval elongated (max. length/max. width ratio = 1.52), with the maximum width at about the half, neatly truncate apically. Humeri marked, elytral base not bordered. Elytral disc poorly convex, flattened centrally, strongly and abruptly dehiscent along the lateral edge; provided with 8 costae, smooth and strongly prominent, separated by flat spaces, strongly rugose, of an opaque aspect, bearing long and sparse setae displayed in longitudinal series; elytral striae and scutellar stria missing. All costae reach the elytral base. Metathoracic wings developed.

Legs robust; male protarsi with three dilated articles. Mesotibiae and metatibiae simple, strongly spinose.

Aedeagus (Figs 4, 10) small (3.06 mm), poorly and not regularly arcuate; median lobe, in lateral view, narrow in the basal part, with the basal bulb swollen and the apical part progressively tapered; median lobe, in dorsal view, bent at the level of the basal narrowing. Apex of the median lobe, in lateral view, distinctly lanceolate, stumpy and slightly rounded; apical blade, in dorsal view, triangular, acute but not acuminate, slightly rounded. Parameres typical of the genus: the left one semicircular, neatly truncate apically, the right one atrophied.

Female unknown.

Etymology. This new species is dedicated to Dr. Martin Baehr of the ZSM who, with his usual courtesy, gave me for study the interesting material of his collection.

Distribution and ecology. *P. baehri*, spec. nov. is currently known only from the type locality, Cemara River at 150 m a.s.l. in the Nabire District (Irian Jaya), where it lives with *P. brussinoi*, spec. nov. and *P. adrianae*, spec. nov. Data concerning the ecology of this species are unknown.

Pheropsophus galloi, spec. nov.
Figs 5, 8, 11

Types. HT: ♂, West Papua, Japen Mambo, m 1000, Garten in Sek.wald, Schüle/Stüben, 9.8.1996 (44) (CBa). – PT: 1♂, Irian Jaya, Pr. Jayawijaya, Bime-Taramiu, 800-1700 m, 7-9.9.1993, A. Riedel leg. (CGi).

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Diagnosis. A medium sized *Pheropsophus* (14.7 mm) closely related to *verticalis*, *baehri*, spec. nov., and *claudiae*, spec. nov. for the ovoidal shape of the elytra. It differs from *claudiae* by the shape of the basal angles of the pronotum which are clearly prominent posteriorly, while it differs from *baliothorax* Heller, *brussinoi*, spec. nov., and *adrianae*, spec. nov. by the ovoidal and not subrectangular shape (with subparallel sides) of the elytra. In the morphology of the aedeagus *galloi* differs from all known *Pheropsophus* species of New Guinea by the apex of the median lobe of the aedeagus having an obvious dorsal circular dimple in dorsal view.

Description of the ♂ holotypus

Maximum length 14.7 mm; head yellow-brown with an obvious frontal black U-shaped spot, pronotum and elytra completely black; elytral apex marked by a very thin light line. Palpi, antennae and legs yellow-brown; clypeus, labrum, and mandibles yellow-brown and more or less browned marginally; apex of femora sometimes browned. Last abdominal segments, visible in dorsal view, pubescent, black, bordered by lighter thin lines or stripes.

Head slightly elongated, with the maximum width just behind the eyes. Neck restriction missing. Frontal furrows wide and poorly impressed, but obvious, long and converging posteriorly. Eyes big, globose, and prominent. Supraorbital area bearing one seta. Labrum transverse, with the anterior margin decidedly convex and bearing 6 setae. Clypeus trapezoidal, with the anterior margin slightly concave, glabrous, bearing one seta at about the half of the lateral margin. Occipital area rugose, post-ocular region slightly pubescent. Mandibles robust and relatively stocky, poorly and regularly curved; lateral groove short, strongly concave and limited to the basal half, bearing one seta. Labial palpi elongated, with the penultimate article much longer than the first one and polychete, the last article remarkably dilated and neatly truncate apically. Maxillary palpi with the last article longer than the penultimate one, slightly dilated and neatly truncate apically; penultimate palpomere bearing a crown of 5-6 setae apically.

Antennae relatively short, reaching the basal third of the elytron, when stretched backwards. Antennomeres pubescent starting from the apex of the 2nd article, with the 1st article big, stocky, and subcylindrical; 2nd article much shorter than the 3rd one that is the longest; antennomeres 4-11 subcylindrical. Elongation index of the antennae (total body length/antennal length = 1.66).

Pronotum cordiform (max. width/max. length ratio = 1.10), with the maximum width at the distal third, decidedly narrower than the elytra. Base of the pronotum slightly arcuate, with the basal angles slightly prominent posteriorly; anterior edge about as wide as the base. Sides sinuate in the basal third, basal angles almost right, blunt and without setae; anterior angles not prominent, blunt. Lateral groove thin and poorly obvious, bearing one seta at about the half. Disc poorly convex, almost flat, shiny, covered with few weakly impressed punctures bearing a seta; neck furrow weak but present, median furrow thin, poorly impressed, basal impressions imperceptible.

Elytra oval elongated (max. length/max. width ratio = 1.53), with the maximum width at about the half, neatly truncate apically. Humeri marked, elytral base not bordered. Elytral disc convex, not flattened centrally, strongly and abruptly dehiscent along the lateral edge; provided with 8 costae, smooth and strongly prominent, separated by flat spaces, strongly rugose, of an opaque aspect, bearing long and sparse setae displayed in longitudinal series; elytral striae and scutellar stria missing. All costae reach the elytral base. Metathoracic wings developed.

Legs robust; male protarsi with three dilated articles. Mesotibiae and metatibiae simple, strongly spinose.

Aedeagus (Figs 5, 11) small (3.10 mm), poorly and not regularly arcuate; median lobe, in lateral view, narrow in the basal part, with the basal bulb swollen and the apical part progressively tapered; median lobe, in dorsal view, not bent at the level of the basal narrowing. Apex of the median lobe, in lateral view, not lanceolate, stumpy, slightly curved and rounded; apical blade, in dorsal view, triangular, acute but not acuminate, slightly rounded, with an obvious round preapical dimple. Parameres typical of the genus: the left one semicircular, slightly truncate apically, the right one atrophied.

Female unknown.

Variability. The ♂ paratype is slightly smaller (14.3 mm) and does not show appreciable variations in body shape and coloration.

Etymology. This new species is dedicated to Dr. Lorenzo Mariano Gallo of the Museo Regionale di Scienze Naturali of Turin (Italy), as a token of esteem and friendship.

Distribution and ecology. *P. galloi*, spec. nov. is presenly known only from two localities that are separated by several hundreds of kilometres: the island of Japen, off the NW coast of New Guinea (where it lives with *P. delmastroi*, spec. nov.) and Bime located in the central mountains of Irian Jaya. Both localities are situated at rather high altitudes, between 800 and 1700 m a.s.l. The holotype was captured in "garden within secondary forest". No other data are known about the ecology of this species.

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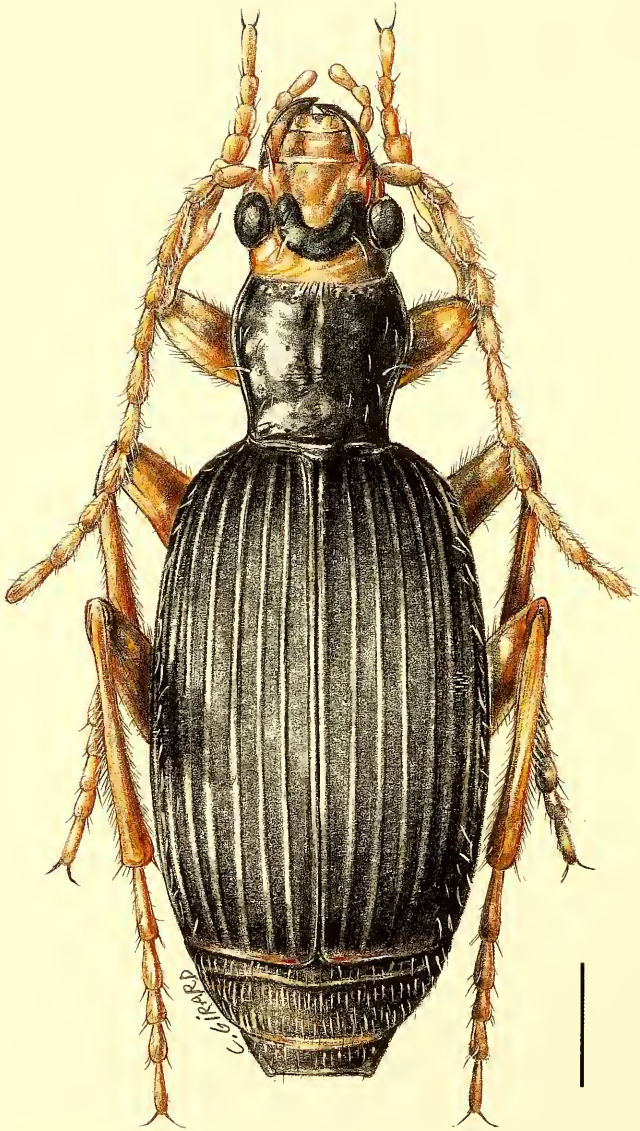

Fig. 8. *Pheropsophus galloi*, spec. nov., HT ♂, habitus. Scale: 2 mm.

Pheropsophus claudiae, spec. nov.
Figs 14, 39a

Types. HT: ♀, Papua N.G., Morobe Pr. Ladekamu, Tekadu, m 300-400, 28.II.-6.III.1998, A. Riedel leg. (CBa). – PT: 1♀, same data (CGi).

Diagnosis. A medium sized *Pheropsophus* (14.7 mm) closely related to *verticalis*, *galloi*, spec. nov., and *baehri*, spec. nov. for the ovoidal shape of the elytra. It differs from *galloi* by the shape of the basal angles of the pronotum which are not prominent posteriorly, while it differs from *baliothorax* Heller, *brussinoi*, spec. nov., and *adrianae*, spec. nov. by the ovoidal and not subrectilinear shape (with subparallel sides) of the elytra. It differs from *verticalis* by the pronotum less elongated and, finally, from *baehri* by the less transverse pronotum.

Description of the ♀ holotypus

Maximum length 14.7 mm; head reddish yellow with an obvious frontal black U-shaped spot, pronotum black with the central part of the disc

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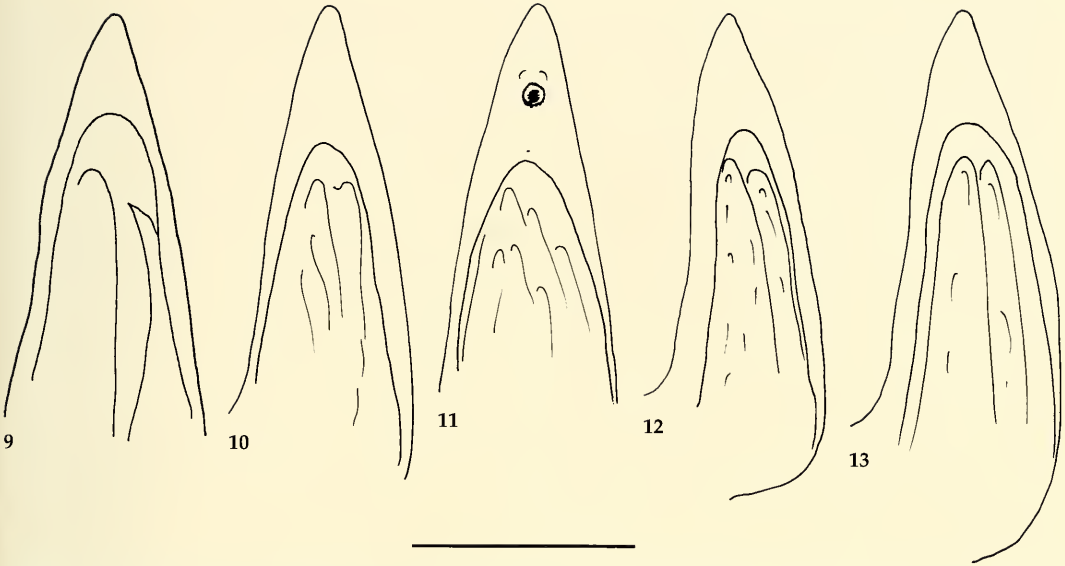

Figs 9-13. Aedeagus, apex in dorsal view, of *Pheropsophus* spp. **9.** *P. verticalis* (Dejean), HT. **10,** *P. baehri*, spec. nov., HT. **11.** *P. galloi*, spec. nov., HT. **12.** *P. baliothorax* Heller, HT. **13.** *P. brussinoi*, spec. nov., HT. Scale: 1 mm.

slightly reddish, elytra completely black; elytral apex marked by a very thin reddish yellow line extending to the final part of the costae and of the elytral suture. Palpi, antennae and legs reddish yellow. Clypeus reddish yellow with the edges browned; labrum light reddish yellow with a small black centro-apical spot, mandibles yellow-brown strongly browned along the margins; apex of femora slightly browned. Last abdominal segments, visible in dorsal view, pubescent, black, bordered by lighter thin lines.

Head slightly elongated, with the maximum width just behind the eyes. Neck restriction missing. Frontal furrows wide and poorly impressed, hardly visible, long and converging posteriorly. Eyes big, globose, and prominent. Supraorbital area bearing one seta. Labrum transverse, with the anterior margin decidedly convex and bearing 6 setae. Clypeus trapezoidal, with the anterior margin concave, pubescent, bearing one seta at about the half of the lateral margin. Occipital area rugose, post-ocular region pubescent. Mandibles robust and relatively stocky, poorly and regularly curved; lateral groove short, strongly concave and limited to the basal half, bearing one seta. Labial palpi elongated, with the penultimate article much longer than the first one and polychete, the last article poorly dilated and neatly truncate apically. Maxillary palpi with the last article longer than the penultimate one, slightly dilated and neatly truncate apically; penultimate palpomere bearing a crown of 5-6 setae apically.

Antennae short, hardly reaching the basal third of the elytron, when stretched backwards. Antennomeres pubescent starting from the apex of the 2nd article, with the 1st article big, stocky, and subcylindrical; 2nd article much shorter than the 3rd one that is the longest; antennomeres 4-11 subcylindrical. Elongation index of the antennae (total body length/antennal length = 1.75).

Pronotum cordiform (max. width/max. length ratio = 1.15), with the maximum width at the distal third, decidedly narrower than the elytra. Base of the pronotum subrectilinear, with the basal angles not prominent posteriorly; anterior edge about as wide as the base. Sides sinuate in the basal half, basal angles almost right, blunt and without setae; anterior angles not prominent, blunt. Lateral groove thin but obvious, bearing one seta at about the half. Disc poorly convex, flattened centrally, shiny, covered with many well impressed punctures bearing a seta; neck furrow extremely weak, median furrow thin, very poorly impressed, basal impressions imperceptible.

Elytra ovoidal, relatively stocky (max. length/max. width ratio = 1.49), with the maximum width at the distal third, neatly and obliquely truncate apically. Humeri marked, elytral base not bordered. Elytral disc convex, flattened centrally, strongly and abruptly dehiscent along the lateral edge; provided with 8 costae, smooth and strongly prominent, separated by flat spaces, strongly rugose, of an opaque aspect, bearing many long setae displayed in longitudinal series; elytral striae and scutellar stria

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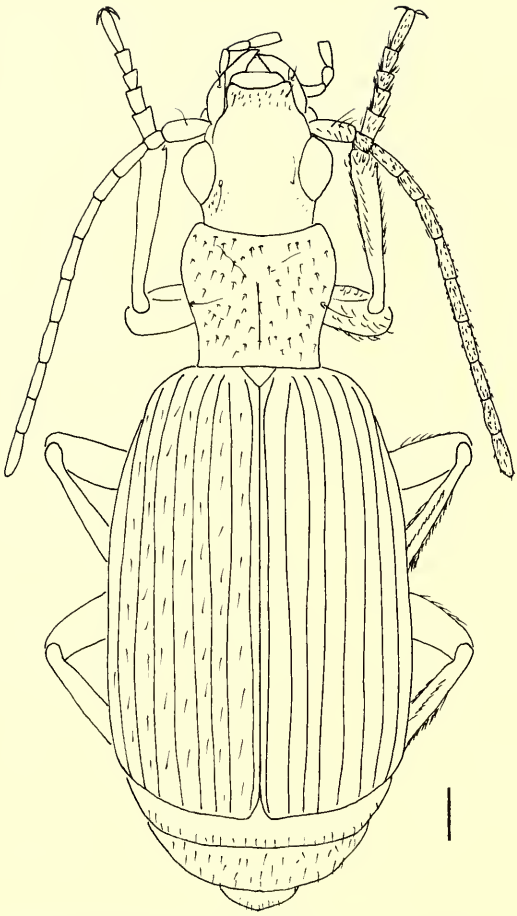

Fig. 14. *Pheropsophus claudiae*, spec. nov., HT ♀, habitus. Scale: 2 mm.

missing. All costae reach the elytral base. Metathoracic wings developed.

Legs robust; mesotibiae and metatibiae simple, strongly spinose.

Male unknown.

Variability. The other known specimen of this species, also a female, does not show substantial differences in size, shape or colour.

Etymology. This new species is dedicated to Dr. Claudia Filippini of the University of Turin (Italy), as a token of esteem and friendship.

Distribution and ecology. *P. claudiae*, spec. nov. is currently known only from the type locality: Ladekamu, Tekadu, located at a height of 300-400 m a.s.l., in the province of Morobe (Papua N.G.). No other data about the ecology of this species are known.

Pheropsophus baliothorax Heller, 1910

Figs 6, 12, 15

Pheropsophus baliothorax Heller, 1910: 6; Moore et al. 1987: 48; Giachino 2003: 30.

Pheropsophus intermedius Hubenthal, 1914: 440 (**syn. nov.**)

P. verticalis v. *niger* Hubental, 1914: 442 (**syn. nov.**)

Types. Of *baliothorax*. HT: ♂ (SMTD): Finschhafen, Dr. Brehme (white printed); Gehr. W. Müller Wermächt. 1909 (blue printed); *baliothorax* Typus (red handwritten and printed); Staatl. Museum für Tierkunde Dresden (white printed); *Pheropsophus baliothorax* Heller P.M. Giachino det. 2001 (white handwritten and printed).

Locus typicus: Finschhafen.

Of *intermedius*. LT: ♂ (ZMB): Neu Britain, 6. 1 Ralum 97, F. Dahl S. (grey printed); Gunantambo (white handwritten); Gunantambo Wiese ... (illegible), 6.1.97 (white handwritten); 55♂, (white handwritten); *Kolbei* m. Type, det. Hubenthal (white handwritten and printed); Type (red printed); Kolbei Hubthl. Typen nov. sp. (white handwritten); Lectotypus ♂, *Pheropsophus intermedius* Hubthl., P.M. Giachino det. 2001 (red printed and handwritten). – PLTT: 4♂♂ (ZMB): Neu Britain, Ralum, F. Dahl S. (grey printed); 1089 (white handwritten); 55♂ (white handwritten); *Kolbei* m. Type, det. Hubenthal (white handwritten and printed); Type (red printed); Paralectotypus ♂, *Pheropsophus intermedius* Hubthl., P.M. Giachino det. 2001 (red printed and handwritten). PLT: 1♂ (SMTD): Neu Britain, Ralum, F. Dahl S. (grey printed); 1089 (white handwritten); 55♂ (white handwritten); *intermedius* Type Hubthl. nov. sp. C. Langenhan (white handwritten and printed); Samml. O. Langenhan Kauf 1931.18 (blue printed); Staatl. Museum für Tierkunde Dresden (white printed); Paralectotypus ♂, *Pheropsophus intermedius* Hubthl., P.M. Giachino det. 2001 (red printed and handwritten). PLT: 1♀ (SMTD): Sao Paulo Bras. (white handwritten); Banana 31.3.1903 Zenta '03, R. v. Skerl. (white handwritten); d. Rolle (white handwritten); Patria falsch! Australien Continent oder N. Guinea oder N. Britannien (white handwritten); C. Langenhan (white printed); *intermedius* Type Hubthl. nov. sp. det. Hubenthal (white handwritten and printed); Samml. O. Langenhan Kauf 1931.18 (blue printed); Staatl. Museum für Tierkunde Dresden (white printed); Paralectotypus ♀, *Pheropsophus intermedius* Hubthl., P.M. Giachino det. 2001 (red printed and handwritten). PLT: 1♂ (SMTD): Banana 31.3.1903 Zenta '03, R. v. Skerl. (white handwritten); Australien Continent oder N. Guinea oder N. Britannien (white handwritten); d. Rolle (white handwritten); C. Langenhan penis 5 (white printed); *intermedius* Type Hubthl. nov. sp. det. Hubenthal (white handwritten and printed); Samml. O. Langenhan Kauf 1931.18 (blue printed); Staatl. Museum für Tierkunde Dresden (white printed); Paralectotypus ♂, *Pheropsophus intermedius* Hubthl., P.M. Giachino det. 2001 (red printed and handwritten).

Locus typicus: Ralum, Neu Britain.

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Of *intermedius* v. *niger*: LT: ♂ (ZMB): Neu Guinea (grey printed); *Mac Leayi* Sl. v. *nigrinus* m. Type, det. Hubenthal (white handwritten and printed); 54♂ (white handwritten); Type (red printed); *Mac Leayi* Sl. v. *nigrinus* Hubthl., Typen nov. var. (white handwritten); Lectotypus ♂, *Pheropsophus verticalis* v. *niger* Hubenthal, P.M. Giachino det. 2001 (red printed). – PLTT: 2♀♀ (ZMB): Neu Guinea (grey printed); *Mac Leayi* Sl. v. *nigrinus* m. Type, det. Hubenthal (white handwritten and printed); 54♀ (white handwritten); Type (red printed); Paralectotypus ♀, *Pheropsophus verticalis* v. *niger* Hubenthal, P. M. Giachino det. 2001 (red printed). – PLT: 1♀ (ZMB): N. Guinea Astrolabe B. Rhode. (white printed); *Mac Leayi* Sl. v. *nigrinus* m. Type, det. Hubenthal (white handwritten and printed); 54♀ (white handwritten); Type (red printed); Paralectotypus ♀, *Pheropsophus verticalis* v. *niger* Hubenthal, P.M. Giachino det. 2001 (red printed). – PLT: 1♀ (SMTD): Neu Guinea (grey printed); 54♀ (white handwritten); *Mac Leayi* Sl. v. *nigrinus* m. Type, det. Hubenthal (white handwritten and printed); *baliothorax* Heller v. *aptinomorphus* Heller (white handwritten); Samml. O. Langenhan Kauf 1931.18 (blue printed); Staatl. Museum für Tierkunde Dresden (white printed); Paralectotypus ♀, *Pheropsophus verticalis* v. *niger* Hubenthal, P.M. Giachino det. 2001 (red printed).

Locus typicus: Neu Guinea.

Remarks. In the SMB collections there are no *Pheropsophus* specimens labelled as *intermedius* (B. Jaeger, personal communication), but 5 specimens were found labelled as "*kolbei* m. Type" and coming from New Britain (type locality of *P. intermedius*); the data of these labels correspond perfectly with those given by Hubenthal for the type series of *P. intermedius*. Perhaps Hubenthal intended to describe, at first, this species of New Britain with the name of *kolbei*; then he decided to give this name to *P. kolbei* from the Cameroons and to name differently the species from New Britain. But, obviously, he never replaced in his collection the labels he had already placed beneath the specimens of *P. intermedius!*

In the SMTD collections there are 3 specimens (2♂♂, 1♀) correctly labelled as types of *P. intermedius* Hubenthal (two of which with the locality manifestly wrong and recognized as so by Hubenthal himself); the mentioned specimens, clearly belonging to the type series, are here designated as Paralectotypes.

Hubenthal (1914) mentions four species, belonging to the subgenus *Parapheropsophus* that he described on that occasion: *P. verticalis* Dejean (with the varieties: *australis* Castelnau, *papuensis* Mac Leay, *hypoxanthus* Chaudoir, and *niger* nov.), *P. intermedius* Hubenthal, *P. baliothorax* Heller (with the var. *aptinomorphus* Heller), and *P. macleayi* Sloane. Always Hubenthal (1914) describes briefly his var. *niger*, underlining that they are specimens with features corresponding to the dark specimens of *P. australis* Castelnau mentioned and described by Arrow (1901) but without attributing them a name. In his contribution, Hubenthal (1914) does not mention the origin and the number of specimens he holds; in the ZMB collections there are four specimens (see the type series) labelled as types of *Pheropsophus macleayi* var. *nigrinus* Hubenthal and coming from New Guinea. These specimens correspond to the short description given by Hubenthal himself and, considering the poor accuracy in card writing showed also on other occasions by this German author (see what was said about *P. intermedius*), they are here considered as the types of the taxon in question.

Material examined. Papua New Guinea: ♂ HT (SMTD); ♂ LT, 4♂♂ PLTT of *P. intermedius* (ZMB); ♂ LT, 3♀♀ PLTT of *P. verticalis* v. *niger* (ZMB); 1♀ PLT of *P. verticalis* v. *niger* (SMTD); 3♂♂, Deutsch. N. Guinea, Gehr. W. Müller Wermächt. 1909, Staatl. Museum für Tierkunde Dresden (SMTD); 1♂, K. Wilhelm Land, Bongu, Staatl. Museum für Tierkunde Dresden (SMTD); 1♂, Bismarck Archipel, Neu Lauenburg, *baliothorax* Heller, Abhandl. Zool Mus. Dresden, 1910.6., Staatl. Museum für Tierkunde Dresden (SMTD); 4♂♂, Bismarck Archipel, Neu Lauenburg, Samml. O. Langenhan Kauf 1931.18, Staatl. Museum für Tierkunde Dresden (SMTD; CGi); 1♂, Jule Ins., Samml. O. Langenhan Kauf 1931.18, Staatl. Museum für Tierkunde Dresden (SMTD); 1♂, Astrolabe Bai, C. Wahnes, Staatl. Museum für Tierkunde Dresden (SMTD); 1♂, W N. Guinea, Oksaomin Patrol Post, 4800', cleared and semicultivated land, 24 May 1965, TA Hayllar (CGi). **Indonesia**: 1♀, Nila–Shortlands, B.S.I.P., 14 Nov. 1961, M. Mc Callum (SAMA, CGi); 1♂, Nila–Shortlands, B.S.I.P., 14 Apr. 1962, M. Mc Callum (SAMA, CGi).

Diagnosis. A medium sized *Pheropsophus* (12.7-13.5 mm) closely related to *verticalis*, *brussinoi*, spec. nov., and *adrianae*, spec. nov. for the subrectangular (with subparallel sides) and not ovoidal shape of the elytra. It differs from *galloi*, spec. nov., *baehri*, spec. nov., and *claudiae*, spec. nov. by the subrectangular and not ovoidal shape of the elytra. It differs from *galloi* by the apex of the median lobe of the aedeagus in dorsal view without the dorsal circular dimple, while it differs from *verticalis* and *brussinoi* by the shape of the median lobe of the aedeagus that, in lateral view, is frailer and less bent basally. Finally, it differs from *baehri* by the apex of the median lobe of the aedeagus stockier and less elongated in dorsal view.

Redescription

Maximum length 12.7-13.5 mm; head, pronotum, and elytra of the colour indicated in the paragraph "variability"; palpi, antennae and legs yellow-reddish; clypeus, labrum, and mandibles yellow-reddish more or less browned; apex of femora sometimes browned. Last abdominal segments, visible in dorsal

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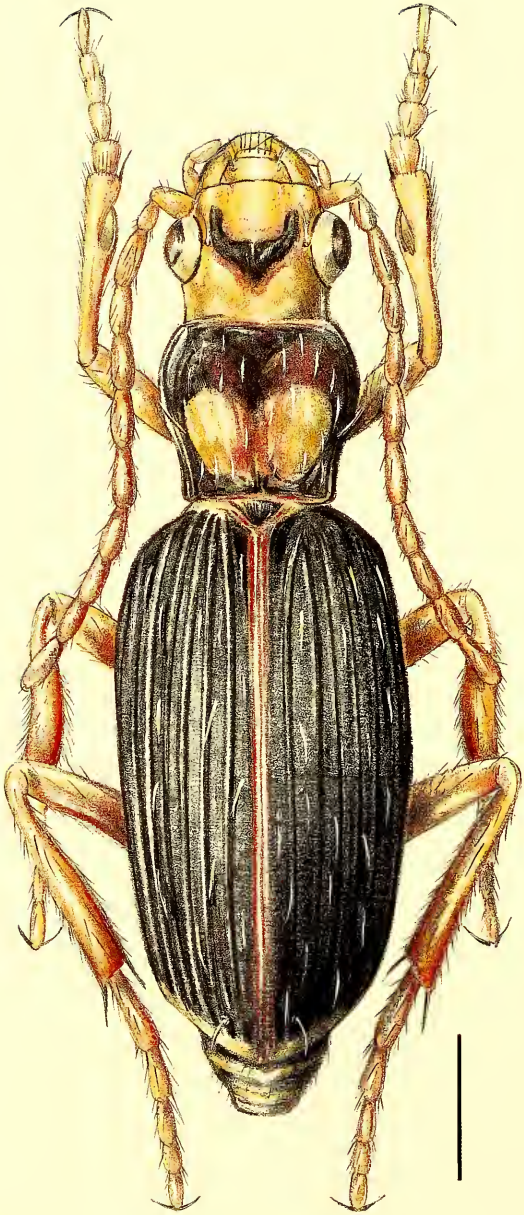

Fig. 15. *Pheropsophus baliothorax* Heller, HT ♂, habitus. Scale: 2 mm.

view, pubescent, black, often distinctly bordered by lighter stripes.

Head slightly elongated, with the maximum width just behind the eyes. Neck restriction missing. Frontal furrows long, converging posteriorly and very poorly impressed. Eyes big, globose, and prominent. Supraorbital area bearing one seta. Labrum transverse, with the anterior margin slightly convex and bearing 6 setae. Clypeus trapezoidal, with the anterior margin decidedly concave, slightly pubescent and bearing one seta at about the half of the lateral margin. Occipital area rugose and showing an obvious puncturation, post-ocular region pubescent. Mandibles robust and relatively stocky, abruptly curved apically; lateral groove short, strongly concave and limited to the basal third,

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bearing one seta. Labial palpi elongated, with the penultimate article much longer than the first one and polychete, the last article slightly dilated and neatly truncate apically. Maxillary palpi with the last article longer than the penultimate one, not dilated and neatly truncate apically; penultimate palpomere bearing a crown of 5-6 setae apically.

Antennae long, reaching the basal third of the elytron, when stretched backwards. Antennomeres pubescent starting from the apex of the 2nd article, with the 1st article big, stocky, and subcylindrical; 2nd article much shorter than the 3rd one that is the longest; antennomeres 4-11 subcylindrical. Elongation index of the antennae (total body length/antennal length = 1.68 ♂, 1.63 ♀).

Pronotum subquadrate (max. width/max. length ratio = 1.10 ♂, 1.04 ♀), with the maximum width at the distal third, decidedly narrower than the elytra. Base of the pronotum subrectilinear; anterior edge about as wide as the base. Sides distinctly sinuate before the basal angles that are almost right, blunt and without setae; anterior angles not prominent, blunt. Lateral groove thin, with an almost sharp edge, bearing one seta a little before the half. Disc poorly convex, almost flat, shiny, covered with sparse strongly impressed punctures bearing a seta; neck furrow weak but present, median furrow thin, well impressed, basal impressions imperceptible.

Elytra elongated, subparallel (max. length/max. width ratio = 1.98 ♂, 1.82 ♀), with the maximum width at about the half, regularly rounded, not truncate apically. Humeri poorly marked, elytral base not bordered. Elytral disc poorly convex, almost depressed centrally, strongly and abruptly dehiscent along the lateral edge; provided with 8 costae, smooth and strongly prominent, separated by flat spaces, strongly rugose, of an opaque aspect, bearing setae displayed in longitudinal series; elytral striae and scutellar stria missing. All costae reach the elytral base. Metathoracic wings developed.

Legs robust; male protarsi with three dilated articles. Mesotibiae and metatibiae simple, strongly spinose.

Aedeagus (Figs 6, 12) small (2.8 mm), poorly arcuate; median lobe, in lateral view, strongly narrowed in the basal part, with the basal bulb swollen and the apical part tapered; median lobe, in dorsal view, abruptly bent at the level of the basal narrowing. Apex of the median lobe, in lateral view, distinctly lanceolate, acute, and subacuminate; apical blade, in dorsal view, subtriangular, acute but blunt, not acuminate. Parameres typical of the genus: the left one semicircular, neatly truncate apically, the right one atrophied.

Variability. *Pheropsophus baliothorax* Heller is a rather variable species in colour. The typical coloration is represented by elytra completely black, pronotum black with an obvious central, transversal, yellow-reddish spot, head yellow-reddish with a black, frontal, V-shaped spot. The light spot of the pronotum is the one that shows the greatest variability, as in some specimens it is almost missing (limited to a small brownish central area); in melanic specimens (corresponding to the forms *niger* Hubenthal and *intermedius* Hubenthal) also the head appears mostly dark with an almost complete disappearance of the typical yellow-reddish coloration. In other specimens, vice versa, the light spot of the pronotum is broader, covering almost the whole disc. In some specimens (corresponding to the form *intermedius* Hubenthal) there are two small but obvious reddish spots in the middle of the elytral disc.

Distribution and ecology. It is a widespread species, known from different localities of Papua New Guinea, the Archipelago of the Bismarck Islands, New Britain and the Island of Nila in the Indonesian Archipelago.

The only available ecological data refer to Oksaomin in W. N. Guinea, where *baliothorax* was collected in May in a partially cultivated area.

Pheropsophus brussinoi, spec. nov.

Figs 7, 13, 16, 39b

Types. HT: ♂, Irian Jaya, Nabire Dist. Cemara Riv., m 150, VIII.1998, leg. M. Balke (CBa).

Diagnosis. A medium sized *Pheropsophus* (14.9 mm) closely related to *baliothorax* Heller and *adrianae*, spec. nov. for the subrectangular (with subparallel sides) and not ovoidal shape of the elytra. It differs from *verticalis*, *galloi*, spec. nov., *baehri*, spec. nov., and *claudiae*, spec. nov. by the subrectangular and not ovoidal shape of the elytra. It differs from *galloi* by the apex of the median lobe of the aedeagus in dorsal view without the dorsal circular dimple, while it differs from *verticalis* by the shape of the median lobe of the aedeagus that is frailer in lateral view. Finally, it differs from *baehri* by the apex of the median lobe of the aedeagus, in dorsal view, stockier and less elongated, while it differs from *baliothorax* by the shape of the median lobe of the aedeagus that is stockier in lateral view and bent at the base.

Description of the ♂ holotypus

Maximum length 14.9 mm; head yellow-light brown with an obvious black frontal U-shaped spot, pronotum completely black, elytra black with a small median yellow-brown spot, with undefined borders, placed between the 5th and the 6th costa; elytral apex marked by a very thin light line extending from the

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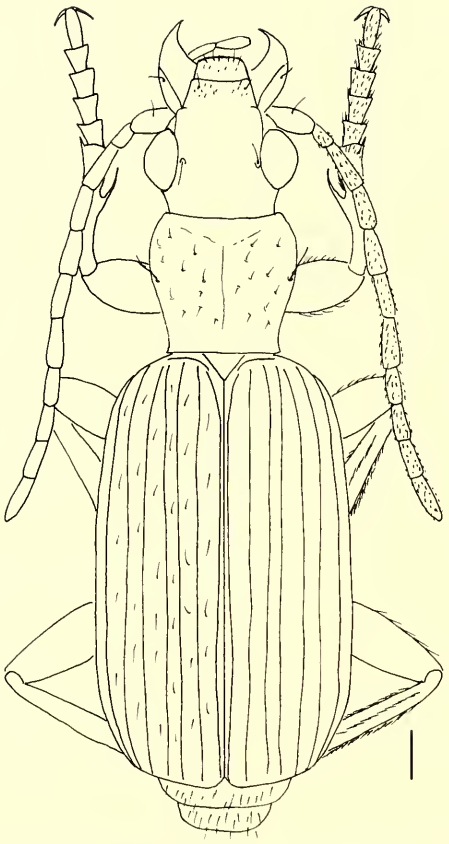

Fig. 16. *Pheropsophus brussinoi*, spec. nov., HT ♂, habitus. Scale: 2 mm.

terminal part of the costae. Palpi, antennae and legs yellow-light brown; 3rd and 4th antennomeres obviously browned in the basal half. Clypeus black with a central yellow spot; labrum yellow-light brown; mandibles yellow-brown, strongly browned along the margins; apex of femora obviously browned. Last abdominal segments, visible in dorsal view, pubescent, black, bordered by lighter thin lines or stripes.

Head slightly elongated, with the maximum width just behind the eyes. Neck restriction missing. Frontal furrows wide and poorly impressed but visible, long and converging posteriorly. Eyes big, globose, and prominent. Supraorbital area bearing one seta. Labrum transverse, with the anterior margin decidedly convex and bearing 6 setae. Clypeus trapezoidal, with the anterior margin slightly concave, pubescent, bearing one seta at about the half of the lateral margin. Occipital area rugose and with very few punctures poorly impressed and sparse, post-ocular region slightly pubescent. Mandibles robust and relatively stocky, poorly and regularly curved; lateral groove short, strongly concave and limited to the basal half, bearing one seta. Labial palpi elongated, with the penultimate article much longer than the first one and polychete, the last article slightly dilated and neatly truncate apically. Maxillary palpi with the last article longer than the penultimate one, slightly dilated and neatly truncate apically; penultimate palpomere bearing a crown of 5-6 setae apically.

Antennae relatively long, hardly reaching the half of the elytron, when stretched backwards. Antennomeres pubescent starting from the apex of the 2nd article, with the 1st article big, stocky, and subcylindrical; 2nd article much shorter than the 3rd one that is the longest; antennomeres 4-11 subcylindrical. Elongation index of the antennae (total body length/antennal length = 1.55).

Pronotum cordiform (max. width/max. length ratio = 1.08), with the maximum width at the distal fourth, decidedly narrower than the elytra. Base of the pronotum slightly arcuate, with the basal angles very prominent posteriorly; anterior edge about as wide as the base. Sides sinuate in the basal third, basal angles almost right, blunt and without setae; anterior angles not prominent, blunt. Lateral groove thin and poorly obvious, bearing one seta at about the half. Disc poorly convex, almost flat centrally, shiny, covered with sparse weakly impressed punctures bearing a seta; neck furrow weak but present, median furrow thin, poorly impressed, basal impressions imperceptible.

Elytra oval, elongated (max. length/max. width ratio = 1.68), with the maximum width at about the beginning of the distal third, neatly and obliquely truncate apically. Humeri poorly marked, elytral base not bordered. Elytral disc poorly convex, flat centrally, strongly and abruptly dehiscent along the lateral edge; provided with 8 costae, smooth and strongly prominent, separated by flat spaces, strongly rugose, of an opaque aspect, bearing long setae displayed in longitudinal series; elytral striae and scutellar stria missing. All costae reach the elytral base. Metathoracic wings developed.

Legs robust; male protarsi with three dilated articles. Mesotibiae and metatibiae simple, strongly spinose.

Aedeagus (Figs 7, 13) small (2.91 mm), poorly and not regularly arcuate; median lobe, in lateral view, narrowed in the basal part, with the basal bulb slightly swollen and the apical part progressively tapered; median lobe, in dorsal view, bent at the level of the basal narrowing. Apex of the median lobe, in lateral view, lanceolate, stocky, subrectilinear and subrounded; apical blade, in dorsal view, relatively short, triangular, acute but not acuminate,

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slightly rounded. Parameres typical of the genus: the left one semicircular, truncate apically, the right one atrophied.

Female unknown.

Etymology. This new species is dedicated to my friend Gianfranco Brussino of the Regional Phytosanitary Sector of Turin (Italy), as a token of esteem and friendship.

Distribution and ecology. *P. brussinoi*, spec. nov. is presently known only from the type locality, Cemara River at 150 m a.s.l., located in the Nabire District (Irian Jaya), where it lives with *P. baehri*, spec. nov. and *P. adrianae*, spec. nov. No data concerning the ecology of this species are known.

Pheropsophus adrianae, spec. nov.
Figs 17, 39c

Types. HT: ♂, Irian Jaya, Nabire Dist. Cemara Riv., m 150, VIII.1998, leg. M. Balke (CBa).

Diagnosis. A medium sized *Pheropsophus* (12.9 mm) closely related to *verticalis*, *baliothorax* Heller, and *brussinoi*, spec. nov. for the subrectangular (with subparallel sides) and not ovoidal shape of the elytra. It differs from *verticalis*, *galloi*, spec. nov., *baehri*, spec. nov., and *claudiae*, spec. nov. by the subrectangular and not ovoidal shape of the elytra. It differs from *brussinoi* by the elytra without light spots, while it differs from *baliothorax* by the more elongated shape of the pronotum.

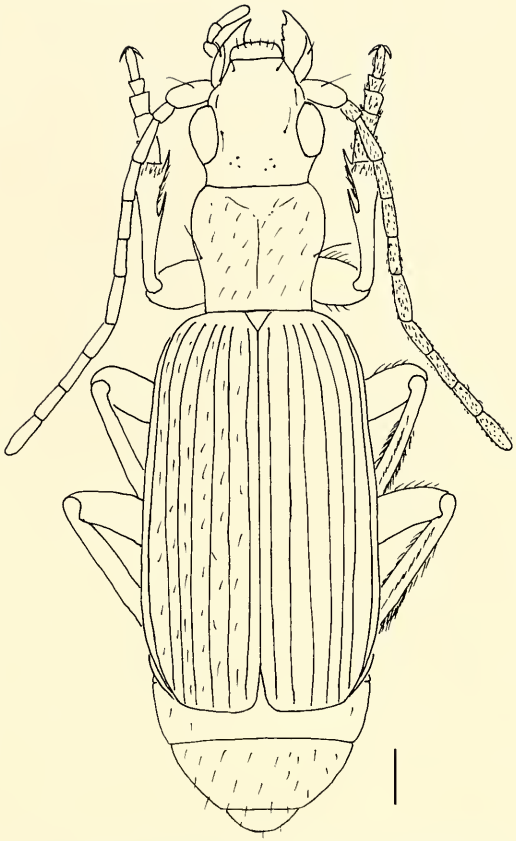

Fig. 17. *Pheropsophus adrianae*, spec. nov., HT ♂, habitus. Scale: 2 mm.

Description of the ♂ holotypus

Maximum length 12.9 mm; head yellow-reddish with an obvious black frontal V-shaped spot, pronotum and elytra completely black; elytral apex marked by a very thin light line extending from the terminal part of the costae. Palpi, antennae and legs yellow-reddish. Clypeus black with a central yellow-reddish spot; labrum yellow-light reddish with a centro-apical black spot; mandibles yellow-brown, strongly browned along the margins; apex of femora obviously browned. Last abdominal segments, visible in dorsal view, pubescent, black, bordered by lighter thin lines or stripes.

Head slightly elongated, with the maximum width just behind the eyes. Neck restriction missing. Frontal furrows wide and poorly impressed, hardly visible, short and converging posteriorly. Eyes big, globose, and prominent. Supraorbital area bearing one seta. Labrum transverse, with the anterior margin decidedly convex and bearing 6 setae. Clypeus trapezoidal, with the anterior margin slightly concave, glabrous, bearing one seta at about the half of the lateral margin. Occipital area rugose and with very few punctures poorly impressed and sparse, post-ocular region glabrous. Mandibles robust and relatively stocky, poorly and regularly curved; lateral groove short, strongly concave and limited to the basal half, bearing one seta. Labial palpi elongated, with the penultimate article much longer than the first one and polychete, the last article slightly dilated and neatly truncate apically. Maxillary palpi with the last article longer than the penultimate one, slightly dilated and neatly truncate apically; penultimate palpomere bearing a crown of 5-6 setae apically.

Antennae relatively long, reaching the half of the elytron, when stretched backwards. Antennomeres pubescent starting from the apex of the 2nd article, with the 1st article big, stocky, and subcylindrical; 2nd article much shorter than the 3rd one that is the longest; antennomeres 4-11 subcylindrical. Elongation index of the antennae (total body length/antennal length = 1.53).

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Pronotum cordiform (max. width/max. length ratio = 1.08), with the maximum width at the distal third, decidedly narrower than the elytra. Base of the pronotum slightly arcuate, with the basal angles not prominent posteriorly; anterior edge about as wide as the base. Sides sinuate in the basal third, basal angles almost right, blunt and without setae; anterior angles not prominent, blunt. Lateral groove thin and poorly obvious, bearing one seta at about the half. Disc poorly convex, flat centrally, shiny, covered with very shallow punctures bearing a seta; neck furrow extremely weak, median furrow thin, poorly impressed, basal impressions imperceptible.

Elytra oval, narrow and elongated (max. length/max. width ratio = 1.69), with the maximum width at the distal third, neatly truncate apically. Humeri marked, elytral base not bordered. Elytral disc convex, flat centrally, strongly and abruptly dehiscent along the lateral edge; provided with 8 costae, smooth and strongly prominent, separated by flat spaces, strongly rugose, of an opaque aspect, bearing long setae displayed in longitudinal series; elytral striae and scutellar stria missing. All costae reach the elytral base. Metathoracic wings developed.

Legs robust; male protarsi with three dilated articles. Mesotibiae and metatibiae simple, strongly spinose.

Aedeagus unknown, the only known specimen shows extraction marks, but the copulatory organ is missing.

Female unknown.

Etymology. This new species is dedicated to Adriana Favero, a former cooperator of the Museo Regionale di Scienze Naturali of Turin (Italy), as a token of esteem and friendship.

Distribution and ecology. *P. adrianae*, spec. nov. is presently known only from the type locality, Cemara River at 150 m a.s.l., located in the Nabire District (Irian Jaya), where it lives with *P. baehri*, spec. nov. and *P. brussinoi*, spec. nov. No data concerning the ecology of this species are known.

macleayi group

Diagnosis. It is a group of medium sized species (8.5-16.0 mm), winged or brachypterous, black pronotum and elytra with yellow-reddish spots having a variable shape and extension, sometimes completely black (elytra and pronotum) or completely reddish (pronotum); head black with a yellow or reddish spot, yellow with a black spot, or completely reddish. Head altogether stockier, with elytra short and stumpy. Aedeagus small, stocky, with the median lobe regularly curved.

This group includes also the brachypterous species *aptinomorphus* and *pedes*, characterized by a shape of the elytra rather different from that of the other macropterous species of this group. The examination of the aedeagus of *aptinomorphus* (only the female holotype of *pedes* is known) permitted to confirm, analogously with what happens for the Australian brachypterous species *darwini* (Giachino, 2003), that it belongs to the "macleayi group".

Members of this species group, as far as we presently know in New Guinea, are: *P. amnicola* Darlington, 1968, *P. wolfi*, spec. nov., *P. delmastroi*, spec. nov., *P. riedeli*, spec. nov., *P. balkei*, spec. nov., *P. aptinomorphus* Heller, 1910, and *P. pedes* Darlington, 1968.

Pheropsophus amnicola Darlington, 1968
Figs 18, 19, 25

Pheropsophus amnicola Darlington, 1968: 235.

Locus typicus: vic. Nadzab, N-E. N.G.

Types. HT: ♂, Vic. Nadzab, Brit. N.G. July 1944, Darlington (white printed); Outline Todd 1961 (green handwritten); Mers ♂ (azure handwritten); A46 (white handwritten); Drawn 1966 Mary Catron No. 335 (white handwritten and printed); M.C.Z. Holotype 31525 (red handwritten and printed); Holotype *Pheropsophus amnicola* Darl. (red handwritten); Jan.-Jul. 2004 MCZ Image Database (white printed) (MCZ). – PTT (from Darlington, 1968): 34 ♂♂, ♀♀ from Vic. Nadzab, N-E. N.G. (MCZ); 1♀, main R., Sepik, N-E. N.G., Febr. 1965 (MCZ).

Diagnosis. A medium sized, winged *Pheropsophus* (13.0 mm) closely related to *wolfi*, spec. nov., *delmastroi*, spec. nov., and *riedeli*, spec. nov. for the wide and stocky shape of the elytra and the transverse pronotum. It differs from *balkei*, spec. nov. by the elytra wider and stockier and from *aptinomorphus* Heller and *pedes* Darlington, both species with strongly reduced wings, by the non ovoidal shape of the elytra. It differs from *riedeli* by the elytra and the pronotum of one colour, without any spot, while it differs from *delmastroi* by the red pronotum. It differs from *balkei*, *delmastroi*, and *wolfi* by the shape of the apical blade of the median lobe of the aedeagus that, in dorsal view, is more elongated and less stocky, and from *aptinomorphus* by the median lobe of the aedeagus, in lateral view, more elongated and less curved.

Examined material: ♂ HT.

Redescription of the ♂ holotypus

Maximum length 13.0 mm; head, pronotum, palpi, antennae, and legs completely orange yellow; elytra entirely black. Last abdominal segments, visible in dorsal view, pubescent, black.

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Fig. 18. *Pheropsophus amnicola* Darlington, HT ♂, habitus. Scale: 2 mm.

Head slightly elongated, with the maximum width just behind the eyes. Neck restriction missing. Frontal furrows almost lacking, converging posteriorly. Eyes moderately big, globose, and prominent. Supraorbital area bearing one seta. Labrum transverse, with the anterior margin slightly convex and bearing 6 setae. Clypeus trapezoidal, with the anterior margin decidedly concave, slightly pubescent, and bearing one seta at about the half of the lateral margin. Occipital area obviously rugose but not punctured, post-ocular region pubescent. Mandibles of an orange colour with blackened margins, robust and relatively stocky, regularly curved from base to apex; lateral groove short, strongly concave and limited to the basal half, bearing one seta. Labial palpi elongated, with the penultimate article much longer than the first one and polychete, the last article slightly dilated and neatly truncate api-

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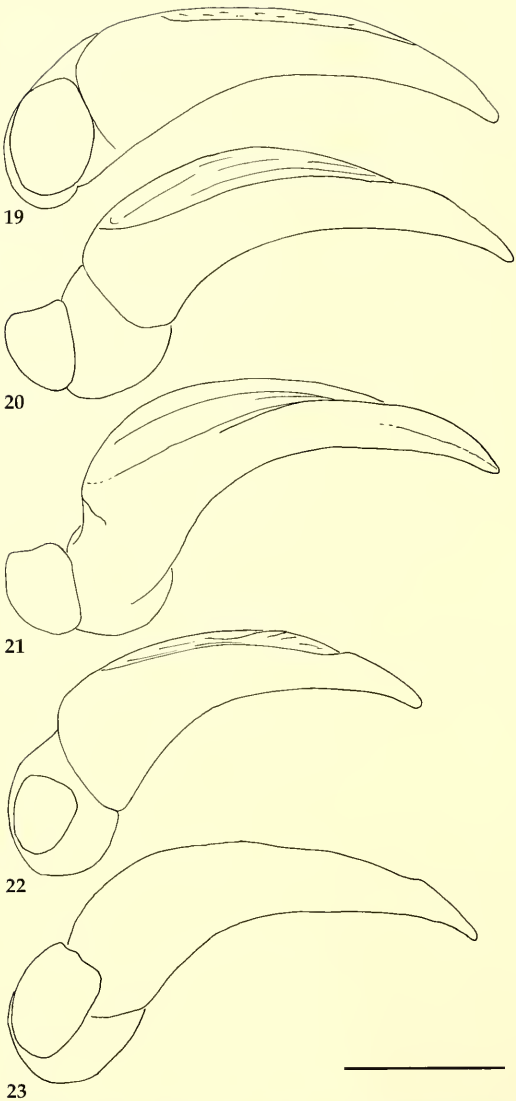

Figs 19-23. Aedeagus, lateral view, of *Pheropsophus* spp. **19.** *P. amnicola* Darlington, HT. **20.** *P. wolfi*, spec. nov., HT. **21.** *P. delmastroi*, spec. nov., HT. **22.** *P. balkei*, spec. nov., HT. **23.** *P. aptinomorphus* Heller, HT. Scale: 1 mm.

cally. Maxillary palpi with the last article longer than the penultimate one, not dilated and neatly truncate apically; penultimate palpomere bearing a crown of 5-6 setae apically.

Antennae long, reaching the half of the elytron, when stretched backwards. Antennomeres pubescent starting from the apex of the 2nd article, with the 1st article big, stocky, and subcylindrical; 2nd article much shorter than the 3rd one that is the longest; antennomeres 4-11 subcylindrical. Elongation index of the antennae (total body length/antennal length = 1.60).

Pronotum slightly transverse (max. width/max. length ratio = 1.21), with the maximum width at the distal third, decidedly narrower than the elytra. Base of the pronotum subrectilinear; anterior edge slightly wider than the base. Sides distinctly sinuate in the basal half, basal angles almost right, blunt and without setae; anterior angles not prominent, blunt. Lateral groove poorly obvious, but with an almost sharp edge, bearing one seta at about the half. Disc poorly convex, almost flat, shiny, covered with sparse impressed punctures bearing a seta; neck furrow weak but present, median furrow thin, well impressed but poorly obvious, basal impressions imperceptible.

Elytra poorly elongated, subparallel (max. length/max. width ratio = 1.61), with the maximum width at about the half, broadly truncate apically. Humeri marked, elytral base not bordered. Elytral disc poorly convex, flat centrally, strongly and abruptly dehiscent along the lateral edge; provided with 8 costae, smooth and strongly prominent, separated by flat spaces, strongly rugose, of an opaque aspect, bearing few and long setae not displayed in longitudinal series; elytral striae and scutellar stria missing. All costae reach the elytral base. Metathoracic wings developed.

Legs robust; male protarsi with three dilated articles. Mesotibiae and metatibiae simple, strongly spinose.

Aedeagus (Figs 19, 25) small (3.2 mm), poorly arcuate, median lobe with the basal bulb swollen and the apical part regularly tapered. Apex of the median lobe, in lateral view, poorly curved, stocky and distinctly rounded; apical blade, in dorsal view, slender, subtriangular, with an acute apex, but not acuminate, rounded. Parameres typical of the genus: the left one subquadrate, the right one atrophied.
Variability. Darlington (1968) does not mention any particular variability in the colour, while he points out a remarkable variability in the size that would range from 8.5 to 15.0 mm

Distribution and ecology. It is known only from two localities, Nadzab and Sepik in NE New Guinea, according to Darlington (1968) it was collected along the banks of the River Markham and it seems closely linked to this kind of environment.

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Pheropsophus wolfi, spec. nov.

Figs 20, 24, 26

Types. HT: ♂, Irian Jaya, Nabire Dist. Cemara River, m 150, VIII.1998, leg. M. Balke (CBa). – PTT: 1♀, Irian Jaya, Nabire Dist. Cemara River, m 150, VIII.1998, leg. M. Balke; 1♀, Indonesia, Irian Jaya, 50 km S Nabire, Pusspenssat, Jan. 1997, leg. Frank Wolf (CBa, CGi).

Diagnosis. A medium sized, winged *Pheropsophus* (12.2 mm), closely related to *amnicola* Darlington, *delmastroi*, spec. nov., and *riedeli*, spec. nov. for the wide and stocky shape of the elytra and for the transverse pronotum. It differs from *balkei*, spec. nov. by the elytra wider and stocky and from *aptinomorphus* Heller and *pedes* Darlington, both species with strongly reduced wings, by the non ovoidal shape of the elytra. It differs from *riedeli* by the elytra and the pronotum of one colour, without any spot, while it differs from *amnicola* by the pronotum black and from *delmastroi* by the pronotum more transverse. It differs from *balkei*, *amnicola*, *delmastroi*, and *aptinomorphus* by the shape of the apical blade of the median lobe of the aedeagus that, in dorsal view, is stockier and less elongated. This is a species close to *baliothorax* and to *balkei* by the shape of the median lobe of the aedeagus, narrowed, in dorsal view, curved in the basal area.

Description of the ♂ holotypus

Maximum length 12.2 mm; head completely yellow-brown, pronotum and elytra entirely black; palpi, antennae, and legs yellow-brown; clypeus, labrum, and mandibles yellow-brown, more or less browned on the margins; apex of femora slightly browned. Last abdominal segments, visible in dorsal view, pubescent, black, bordered with lighter stripes.

Head slightly elongated, with the maximum width just behind the eyes. Neck restriction missing. Frontal furrows wide and poorly marked, but visible, converging posteriorly. Eyes big, globose, and prominent. Supraorbital area bearing one seta. Labrum transverse, with the anterior margin slightly convex, and bearing 6 setae. Clypeus trapezoidal, with the anterior margin slightly concave, glabrous, and bearing one seta at about the half of the lateral margin. Occipital area rugose, post-ocular region pubescent. Mandibles robust and relatively stocky, poorly and regularly curved; lateral groove short, strongly concave and limited to the basal half, bearing one seta. Labial palpi elongated, with the penultimate article much longer than the first one and polychete, the last article moderately dilated and neatly truncate apically. Maxillary palpi with the last article longer than the penultimate one, poorly dilated and neatly truncate apically; penultimate palpomere bearing a crown of 5-6 setae apically.

Antennae long, almost reaching the half of the elytron, when stretched backwards. Antennomeres pubescent starting from the apex of the 2nd article, with the 1st article big, stocky, and subcylindrical; 2nd article much shorter than the 3rd one that is the longest; antennomeres 4-11 subcylindrical. Elongation index of the antennae (total body length/antennal length = 1.64).

Pronotum cordiform (max. width/max. length ratio = 1.16), with the maximum width at the distal fourth, decidedly narrower than the elytra. Base of the pronotum subrectilinear; anterior edge as wide as the base. Sides distinctly sinuate in the basal third, basal angles almost right, blunt and without setae; anterior angles not prominent, blunt. Lateral groove thin, with the edge marked, bearing one seta at about the half. Disc poorly convex, almost flat, semi-shiny, covered with sparse and strongly impressed punctures bearing a seta; neck furrow weak but present, median furrow thin, well impressed, basal impressions imperceptible.

Elytra subrectangular, stocky (max. length/max. width ratio = 1.47), with the maximum width at about the half, obliquely and neatly truncate apically. Humeri marked, elytral base not bordered. Elytral disc poorly convex, flat centrally, strongly and abruptly dehiscent along the lateral edge; provided with 8 costae, smooth and strongly prominent, separated by flat spaces, strongly rugose, of an opaque aspect, bearing some long and sparse setae displayed in longitudinal series; elytral striae and scutellar stria missing. All costae reach the elytral base, except for the 6th one that ends a little before the others. Metathoracic wings developed.

Legs robust; male protarsi with three dilated articles. Mesotibiae and metatibiae simple, strongly spinose.

Aedeagus (Figs 20, 26) small (2.8 mm), moderately arcuate, median lobe, in lateral view, distinctly narrowed in the basal part, with the basal bulb swollen and the apical part progressively tapered; median lobe, in dorsal view, abruptly bent at the level of the basal narrowing. Apex of the median lobe, in lateral view, not lanceolate, stocky and rounded; apical blade, in dorsal view, subtriangular, acute, but not acuminate, rounded. Parameres typical of the genus: the left one semicircular, neatly truncate apically, the right one atrophied.

Variability. The two female specimens of the type series do not show substantial differences in body shape and colour; only in a mature individual a slight tendency towards a bleaching of the central area of the pronotal disc can be seen.

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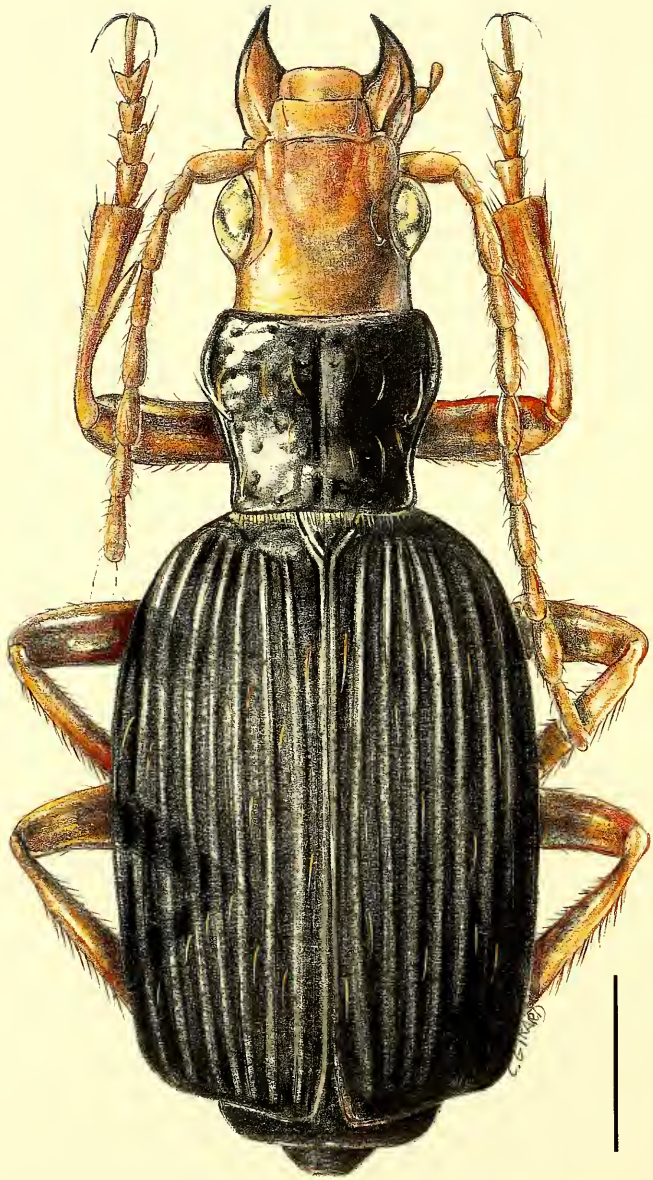

Fig. 24. *Pheropsophus wolfi*, spec. nov., HT ♂, habitus. Scale: 2 mm.

Etymology. This new species is dedicated to one of its collectors, Dr. Frank Wolf.

Distribution and ecology. This species is known only from two localities, both in the Nabire district (Irian Jaya): Cemara River and a site at 50 km S of Nabire. No data concerning the ecology of this species are known.

Pheropsophus delmastroi, spec. nov.

Figs 21, 27, 30, 39d

Types. HT: ♂, West Papua, Japen Mambo, m 1000, Garten in Sek.wald, Schüle/Stüben, 9.8.1996 (44) (CBa). – PTT: 2♀♀, same data (CBa, CGi).

Diagnosis. A medium sized, winged *Pheropsophus* (14.1 mm), closely related to *annicola* Darlington, *wolfi*, spec. nov., and *riedeli*, spec. nov. for the wide

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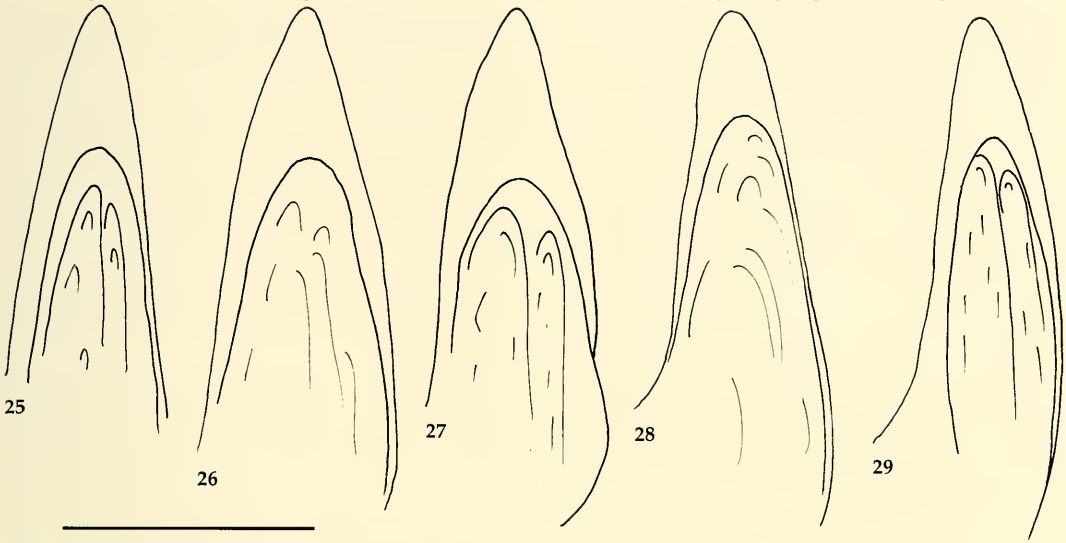

Figs 25-29. Aedeagus, apex in dorsal view, of *Pheropsophus* spp. **25.** *P. amnicola* Darlington, HT. **26.** *P. wolfi*, spec. nov., HT. **27.** *P. delmastroi*, spec. nov., HT. **28.** *P. balkei*, spec. nov., HT. **29.** *P. aptinomorphus* Heller, HT. Scale: 1 mm.

and stocky shape of the elytra and for the transverse pronotum. It differs from *balkei*, spec. nov. by the elytra wider and stocky and from *aptinomorphus* Heller and *pedes* Darlington, both species with strongly reduced wings, by the non ovoidal shape of the elytra. It differs from *riedeli* by the elytra and the pronotum of one colour, without any spot, while it differs from *amnicola* by the pronotum black and from *wolfi* by the pronotum less transverse. It differs from *balkei* and *aptinomorphus* by the shape of the apical blade of the median lobe of the aedeagus that, in dorsal view, is more acute and subtriangular; and from *amnicola* and *wolfi* by the median lobe of the aedeagus more arcuate in lateral view.

Description of the ♂ holotypus

Maximum length 14.1 mm; head yellow-brown with an obvious black U-shaped frontal spot, pronotum and elytra entirely black; apex of the elytra marked by a very thin light line. Palpi, antennae, and legs yellow-brown; clypeus, labrum, and mandibles yellow-brown, more or less browned on the margins; apex of femora sometimes browned. Last abdominal segments, visible in dorsal view, pubescent, black, bordered with lighter stripes.

Head slightly elongated, with the maximum width just behind the eyes. Neck restriction slight. Frontal furrows wide and poorly marked, but visible, short and weakly converging posteriorly. Eyes big, globose, and prominent. Supraorbital area bearing one seta. Labrum transverse, with the anterior margin decidedly convex, and bearing 6 setae. Clypeus trapezoidal, with the anterior margin slightly concave, pubescent, and bearing one seta at about the half of the lateral margin. Occipital area rugose, post-ocular region slightly pubescent. Mandibles robust and relatively stocky, poorly and regularly curved; lateral groove short, strongly concave and limited to the basal half, bearing one seta. Labial palpi elongated, with the penultimate article much longer than the first one and polychete, the last article moderately dilated and neatly truncate apically. Maxillary palpi with the last article longer than the penultimate one, slightly dilated and neatly truncate apically; penultimate palpomere bearing a crown of 5-6 setae apically.

Antennae relatively long, reaching the half of the elytron, when stretched backwards. Antennomeres pubescent starting from the apex of the 2nd article, with the 1st article big, stocky, and subcylindrical; the 2nd article much shorter than the 3rd one that is the longest; antennomeres 4-11 subcylindrical. Elongation index of the antennae (total body length/antennal length = 1.60).

Pronotum cordiform (max. width/max. length ratio = 1.07), with the maximum width at the distal fourth, decidedly narrower than the elytra. Base of the pronotum subrectilinear; anterior edge about as wide as the base. Sides sinuate in the basal third, basal angles almost right, blunt and without setae; anterior angles not prominent, blunt. Lateral groove thin, bearing one seta at about the half. Disc poorly convex, centrally flat and depressed in the basal third, shiny, covered with few weakly impressed

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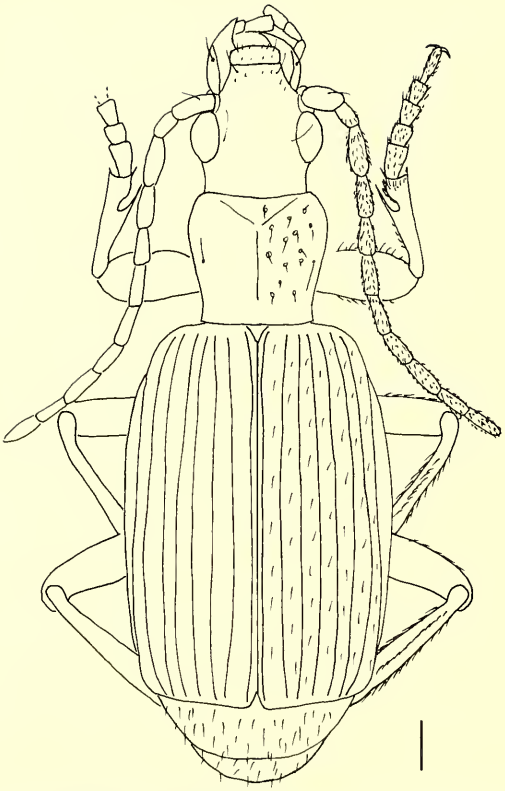

Fig. 30. *Pheropsophus delmastroi*, spec. nov., HT ♂, habitus. Scale: 2 mm.

punctures bearing a seta; neck furrow weak but present, median furrow thin, poorly impressed, basal impressions imperceptible.

Elytra subrectangular, stocky (max. length/max. width ratio = 1.45), with the maximum width at about the half, neatly truncate apically. Humeri very marked, almost right, elytral base not bordered. Elytral disc convex, slightly flat centrally, strongly and abruptly dehiscent along the lateral edge; provided with 8 costae, smooth and strongly prominent, separated by flat spaces, strongly rugose, of an opaque aspect, bearing some long and sparse setae displayed in longitudinal series; elytral striae and scutellar stria missing. All costae reach the elytral base. Metathoracic wings developed.

Legs robust; male protarsi with three dilated articles. Mesotibiae and metatibiae simple, strongly spinose.

Aedeagus (Figs 21, 27) small (2.81 mm), moderately and regularly arcuate, median lobe, in lateral view, narrowed in the basal part, with the basal bulb swollen and the apical part progressively tapered; median lobe, in dorsal view, poorly bent at the level of the basal narrowing. Apex of the median lobe, in lateral view, not lanceolate, laterally carinate, stocky, regularly curved and rounded; apical blade, in dorsal view, triangular, acute, but not acuminate. Parameres typical of the genus: the left one semicircular, truncate apically, the right one atrophied.

Variability. The ♀♀ paratypes measure between 12.5 and 13.0 mm and do not show appreciable variations in body shape or coloration.

Etymology. This new species is dedicated to Giovanni Battista Delmastro, curator of the Museum of Natural History of Carmagnola (Turin, Italy), as a token of esteem and friendship.

Distribution and ecology. *P. delmastroi*, spec. nov. is known at present only from the type locality, the island of Japen (Irian Jaya), where it lives together *P. galloi*, spec. nov. and where it was collected at a height of 1000 m a.s.l. All specimens were collected in "garden within secondary forest". No other data concerning the ecology of this species are known.

Pheropsophus riedeli, spec. nov.
Figs 31, 39e

Types. HT: ♀, Irian Jaya, Jayapura, Sentani, Cyclops-Mt., m 400-500, 10.VIII.1992, leg. A. Riedel (CBa). – PTT: 1♀, Neu Guinea, Bismark Gbg., Waghital, 5-7000 ft., 1963, leg. Cl. Voss (CGi).

Diagnosis. A medium sized, winged *Pheropsophus* (14.5-15.7 mm), closely related to *amnicola* Darlington, *wolfi*, spec. nov., and *delmastroi*, spec. nov. for the wide and stocky shape of the elytra and for the transverse pronotum. It differs from *balkei*, spec. nov. by the elytra wider and stocky and from *aptinomorphus* Heller and *pedes* Darlington, both species with strongly reduced wings, by the non ovoidal shape of the elytra. It differs from all other species by the elytra and the pronotum of one colour and bearing yellow-reddish spots.

Description of the ♀ holotypus

Maximum length 15.7 mm; head yellow-brown with an obvious black crescent-shaped frontal spot, pronotum black with two obvious yellow-brown lateral spots in a median position; elytra black with two median, narrow and vaguely L-shaped yellow-brown spots; apex of the elytra marked by an obvious yellow-brown line extending forwards, along the elytral margin up to about a half of the elytron; humeri with an obvious anterior yellow-brown spot, not visible in dorsal view. Palpi, antennae, and legs yellow-brown; clypeus, labrum, and mandibles yellow-brown; labrum and mandibles obviously browned on the margins; apex of femora clearly

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browned. Last abdominal segments, visible in dorsal view, pubescent, black, bordered with yellow-brown stripes.

Head slightly elongated, with the maximum width just behind the eyes. Neck restriction slight. Frontal furrows wide and poorly marked, but visible, long and converging posteriorly. Eyes big, globose, and prominent. Supraorbital area bearing one seta. Labrum transverse, with the anterior margin subrectilinear, and bearing 6 setae. Clypeus trapezoidal, with the anterior margin decidedly concave, glabrous, and bearing one seta at about the half of the lateral margin. Occipital area rugose, post-ocular region slightly pubescent. Mandibles robust and relatively stocky, poorly and regularly curved; lateral groove short, strongly concave and limited to the basal third, bearing one seta. Labial palpi elongated, with the penultimate article much longer than the first one and polychete, the last article slightly dilated and neatly truncate apically. Maxillary palpi with the last article longer than the penultimate one, slightly dilated and neatly truncate apically; penultimate palpomere bearing a crown of 5-6 setae apically.

Antennae relatively short, reaching the basal third of the elytron, when stretched backwards. Antennomeres pubescent starting from the apex of the 2nd article, with the 1st article big, stocky, and subcylindrical; the 2nd article much shorter than the 3rd one that is the longest; antennomeres 4-11 subcylindrical. Elongation index of the antennae (total body length/antennal length = 1.81).

Pronotum transverse (max. width/max. length ratio = 1.28), with the maximum width at about the half, decidedly narrower than the elytra. Base of the pronotum subrectilinear; anterior edge slightly wider than the base. Sides sinuate in the basal third, basal angles almost right, broadly blunt and without setae; anterior angles not prominent, blunt. Lateral groove thin, bearing one seta at about the half. Disc poorly convex, centrally flat and slightly depressed, semi-shiny, covered with few very weakly impressed punctures bearing a seta; neck furrow weak but present, median furrow thin, poorly impressed, basal impressions imperceptible.

Elytra oval, stocky (max. length/max. width ratio = 1.48), with the maximum width at about the distal third, neatly truncate apically. Humeri very marked, almost right, elytral base not bordered. Elytral disc convex, slightly flat centrally, strongly and abruptly dehiscent along the lateral edge; provided with 8 costae, smooth and strongly prominent, separated by flat spaces, strongly rugose, of an opaque aspect, bearing some long and sparse setae displayed in longitudinal series; elytral striae and scutellar stria missing. All costae reach the elytral base. Metathoracic wings developed.

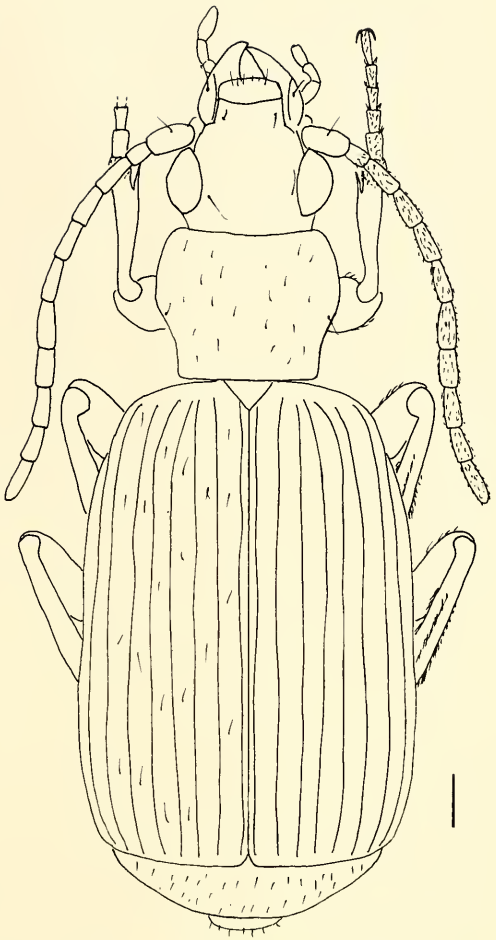

Fig. 31. *Pheropsophus riedeli*, spec. nov., HT ♀, habitus. Scale: 2 mm.

Legs robust; mesotibiae and metatibiae simple, strongly spinose.

Male unknown.

Variability. The ♀ paratype has a size of 14.5 mm and does not show appreciable variations in body shape or coloration.

Etymology. This new species is dedicated to its collector, Dr. Alexander Riedel of Karlsruhe.

Distribution and ecology. *P. riedeli*, spec. nov. is presently known only from two localities that are several hundreds of kilometres away from each other, Cyclops Mt, near Sentani (Jayapura, Irian Jaya), and Waghital, in the Bismark Range (Papua New Guinea), where it was collected at heights between about 400 and 2300 m a.s.l. No other data concerning the ecology of this species are known.

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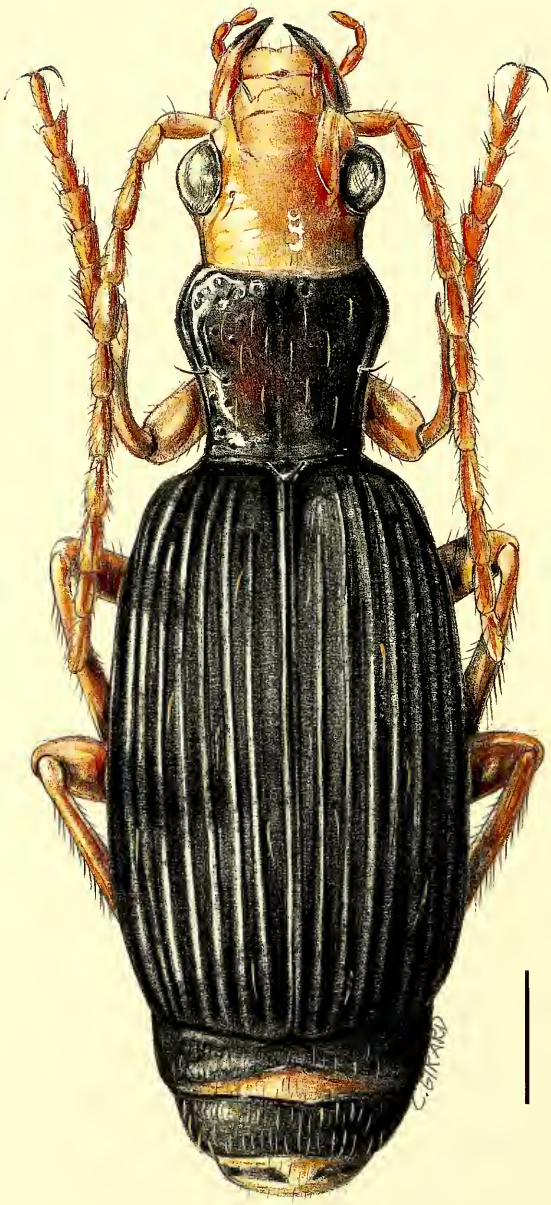

Fig. 32. *Pheropsophus balkei*, spec. nov., HT ♂, habitus. Scale: 2 mm.

Pheropsophus balkei, spec. nov.
Figs 22, 28, 32

Types. HT: ♂, Irian Jaya, Nabire-Ilaga, km 100, m 150, X.1997, leg. M. Balke (CBa).

Diagnosis. A medium sized, winged *Pheropsophus* (13.2 mm), closely related to *amnicola* Darlington, *wolfi*, spec. nov., *delmastroi*, spec. nov., and *riedeli*, spec. nov. for the wide and stocky shape of the elytra and for the transverse pronotum; but it differs from these species by the elytra clearly less wide and stocky, with some costae that do not reach the elytral base. It differs from *aptinomorphus* Heller and *pedes* Darlington, both species with strongly reduced wings, by the non ovoidal shape of the elytra. It differs from *riedeli* by the elytra and the pronotum

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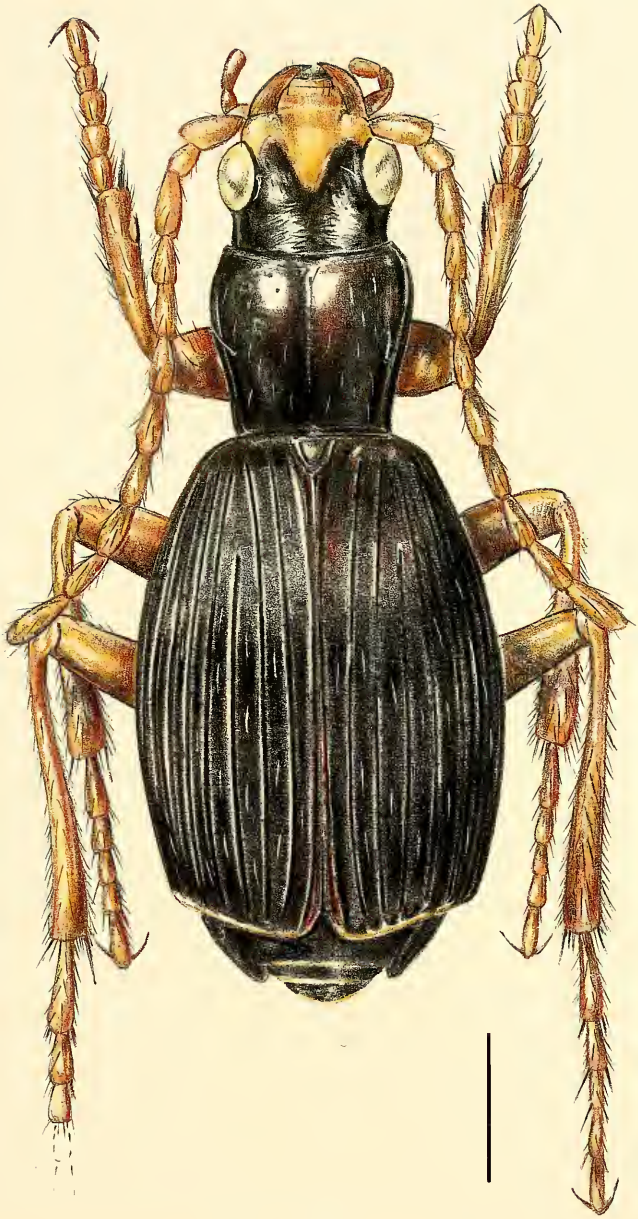

Fig. 33. *Pheropsophus aptinomorphus* Heller, HT ♂, habitus. Scale: 2 mm.

of one colour and without any spot, while it differs from *amnicola* by the black pronotum. It differs from *amnicola*, *wolfi*, *delmastroi*, and *aptinomorphus* by the shape of the apical blade of the median lobe of the aedeagus that, in dorsal view, is stocky and rounded.

Description of the ♂ holotypus

Maximum length 13.2 mm; head completely yellow-reddish, pronotum black, tending to brown towards the centre of the disc, elytra entirely black; palpi, antennae, and legs yellow-reddish; clypeus, labrum, and mandibles yellow-reddish, more or less browned; apex of femora sometimes browned. Last abdominal segments, visible in dorsal view, pubes-

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cent, black, distinctly bordered with lighter stripes.

Head slightly elongated, with the maximum width just behind the eyes. Neck restriction missing. Frontal furrows vanished, converging posteriorly. Eyes big, globose, and prominent. Supraorbital area bearing one seta. Labrum transverse, with the anterior margin rectilinear, and bearing 6 setae. Clypeus trapezoidal, with the anterior margin decidedly concave, slightly pubescent, and bearing one seta at about the half of the lateral margin. Occipital area rugose, post-ocular region pubescent. Mandibles robust and relatively stocky, poorly and regularly curved; lateral groove short, strongly concave and limited to the basal half, bearing one seta. Labial palpi elongated, with the penultimate article much longer than the first one and polychete, the last article dilated and neatly truncate apically. Maxillary palpi with the last article longer than the penultimate one, poorly dilated and neatly truncate apically; penultimate palpomere bearing a crown of 5-6 setae apically.

Antennae long, reaching the basal third of the elytron, when stretched backwards. Antennomeres pubescent starting from the apex of the 2nd article, with the 1st article big, stocky, and subcylindrical; the 2nd article much shorter than the 3rd one that is the longest; antennomeres 4-11 subcylindrical. Elongation index of the antennae (total body length/antennal length = 1.67).

Pronotum cordiform (max. width/max. length ratio = 1.11), with the maximum width at the distal third, decidedly narrower than the elytra. Base of the pronotum subrectilinear; anterior edge slightly wider than the base. Sides distinctly sinuate in the basal third, basal angles almost right, blunt and without setae; anterior angles not prominent, blunt. Lateral groove thin, with an almost sharp edge, bearing one seta at about the half. Disc poorly convex, almost flat, shiny, covered with some sparse and strongly impressed punctures bearing a seta; neck furrow weak but present, median furrow thin, well impressed, basal impressions imperceptible.

Elytra oval, elongated, with the sides subparallel in the median area (max. length/max. width ratio = 1.63), with the maximum width at about the apical third, obliquely and neatly truncate apically, with the posterior margin slightly concave. Humeri poorly marked, elytral base not bordered. Elytral disc convex, not flat centrally, strongly and abruptly dehiscent along the lateral edge; provided with 8 costae, smooth and strongly prominent, separated by flat spaces, strongly rugose, of an opaque aspect, bearing some long and sparse setae displayed in longitudinal series; elytral striae and scutellar stria missing. Not all costae reach the elytral base, the 2nd and the 6th ones end at about the basal sixth. Metathoracic wings developed.

Legs robust; male protarsi with three articles dilated. Mesotibiae and metatibiae simple, strongly spinose.

Aedeagus (Figs 22, 28) small (2.6 mm), moderately arcuate, median lobe, in lateral view, distinctly narrowed in the basal part, with the basal bulb swollen and the apical part progressively tapered; median lobe, in dorsal view, abruptly bent at the level of the basal narrowing. Apex of the median lobe, in lateral view, distinctly lanceolate, stocky and rounded; apical blade, in dorsal view, vaguely subtriangular and rounded. Parameres typical of the genus: the left one semicircular, neatly truncate apically, the right one atrophied.

Female unknown.

Etymology. This new species is dedicated to its collector, Dr. Michael Balke of Zoologische Staatsammlung München (Germany).

Distribution and ecology. *P. balkei*, spec. nov. is currently known only from the type locality, a site along the road Ilaga-Nabire at 100 km from Nabire (Irian Jaya), where it was collected at a height of 150 m a.s.l. No data concerning the ecology of this species are known.

Pheropsophus aptinomorphus Heller, 1910
Figs 23, 29, 33

Types. HT: ♂ (SMTD): Kais. Wilhelmsland, Toricelli Gebirge, Dr. Schlaginhaufen (blue printed), 120 m (handwritten on the opposite side of the card); 1910 1 (blue handwritten and printed); Typus (red printed), *aptinomorphus* (handwritten on the opposite side of the card); Staatl. Museum für Tierkunde Dresden (white printed); *Pheropsophus aptinomorphus* Heller, P.M. Giachino det. 2001 (white handwritten and printed).

Examined material: ♂ HT.

Diagnosis. A medium sized, brachypterous *Pheropsophus* (11.7 mm) closely related to *pedes* Darlington for the ovoidal shape of the elytra. It differs from *amnicola* Darlington, *wolfi*, spec. nov., *delmastroi*, spec. nov., *riedeli*, spec. nov., and *balkei*, spec. nov. by the strongly ovoidal elytra, with humeri strongly rounded. It differs from all the other species of this group, known for New Guinea, by the head black with a frontal yellow-orange spot and, with the exclusion of *balkei*, by the elytral costae not all reaching the elytral base. It differs from *riedeli* by the elytra and the pronotum of one colour and without any spot, while it differs from *amnicola* by the pronotum black. It differs from *wolfi* and *delmastroi* by the shape of the apical blade of the median lobe of the aedeagus

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that, in dorsal view, is less stocky and more rounded. It differs from *balkei* always by the apical blade of the aedeagus more elongated and less rounded; while it differs from *amnicola* by the shape of the apical part of the median lobe of the aedeagus that, in dorsal view, is distinctly curved leftwards.

Description of the ♂ holotypus

Maximum length 11.7 mm. Coloration characterized by elytra and pronotum completely without light spots; head brown-black with a yellow-reddish T-shaped spot that, anteriorly, involves the whole frons; clypeus, labrum, palpi, antennae, and legs yellow-reddish; mandibles yellow-reddish, browned on the edges. Last abdominal segments, visible in dorsal view, pubescent, black.

Head slightly elongated, with the maximum width just behind the eyes. Neck restriction missing. Frontal furrows long, weakly impressed and converging posteriorly. Eyes big, globose, and prominent. Supraorbital area bearing one seta. Labrum transverse, with the anterior margin slightly convex, and bearing 6 setae. Clypeus subrectangular, with the anterior margin decidedly concave, and bearing one seta at about the half of the lateral margin. Occipital area distinctly rugose, and bearing 3-4 small setae in the post-ocular region. Mandibles robust and stocky, regularly curved from base to apex; lateral groove strongly concave and limited to the basal half, bearing one seta. Labial palpi elongated, with the penultimate article much longer than the first one and polychete, the last article distinctly securiform and neatly truncate apically. Maxillary palpi with the last article longer than the penultimate one, not dilated and neatly truncate apically; penultimate palpomere bearing a crown of 5-6 setae apically.

Antennae long, reaching the half of the elytron, when stretched backwards. Antennomeres pubescent starting from the apex of the 2nd article, with the 1st article big, stocky, and subcylindrical; the 2nd article much shorter than the 3rd one that is the longest; antennomeres 4-11 subcylindrical. Elongation index of the antennae (total body length/antennal length = 1.45).

Pronotum subquadrate (max. width/max. length ratio = 1.05), with the maximum width at the distal third, decidedly narrower than the elytra. Base of the pronotum subrectilinear; anterior edge distinctly wider than the base. Sides slightly sinuate before the basal angles that are almost right, but blunt and without setae; anterior angles slightly prominent, blunt. Lateral groove thin, with an almost sharp edge, bearing one seta a little before the half. Disc poorly convex, almost flat, shiny, covered with some sparse and strongly impressed punctures bearing long and obvious setae; neck furrow very weak, median furrow long, thin and well impressed, basal impressions imperceptible.

Elytra poorly elongated, oval (max. length/max. width ratio = 1.39), with the maximum width at about the distal third, obliquely truncate apically. Humeri receding, elytral base not bordered. Elytral disc poorly convex, almost flat centrally, strongly and abruptly dehiscent along the lateral edge; provided with 8 costae, smooth and poorly prominent, separated by flat spaces, strongly rugose, of an opaque aspect, bearing some long setae displayed in longitudinal series; elytral striae and scutellar stria missing. All costae reach the elytral base, except for the 4th one that stops in the basal fourth. Metathoracic wings strongly reduced.

Legs robust; male protarsi with three articles moderately dilated. Mesotibiae and metatibiae simple, strongly spinose.

Aedeagus (Figs 23, 29) small (2.9 mm), arcuate, median lobe, in lateral view, slightly narrowed in the basal part, with the basal bulb swollen and the apical part regularly tapered; median lobe, in dorsal view, curved rightwards at the level of the basal narrowing. Apex of the median lobe, in lateral view, slightly lanceolate, relatively stocky and regularly tapered; apical blade, in dorsal view, subtriangular, rounded apically. Parameres typical of the genus: the left one semicircular, neatly truncate apically, the right one atrophied.

Variability. Darlington (1968), who did not see the type, even if he reported to have studied 4 *aptinomorphus* specimens, does not mention any variability in the coloration, while he affirms that the sizes of this species vary between 8.5 and 12.5 mm.

Distribution and ecology. Darlington (1968) mentions *aptinomorphus* from some localities of NE and W New Guinea: Aitape, Waris (S. of Hollandia) and Maffin Bay. Ecology unknown.

Pheropsophus pedes Darlington, 1968

Fig. 34

Types. HT: ♀ (BMH): New Guinea: Neth., Vogelkop Bomberi, 700-900 m, VI-7-'59 (white printed); T.C. Maa Collector Bishop (white printed); Borrowed fr Bishop Mus. (white printed); Drawn 1966 Mary Catron N° 356 (white printed); Holotypus *Pheropsophus pedes* Darl. (red handwritten); # 10923 (pink handwritten). Specimen without the last two ventrites and the antennomeres 4-11 of the right antenna.

Locus typicus: Bomberi, Vogelkop, West N. G., 700-900 m.

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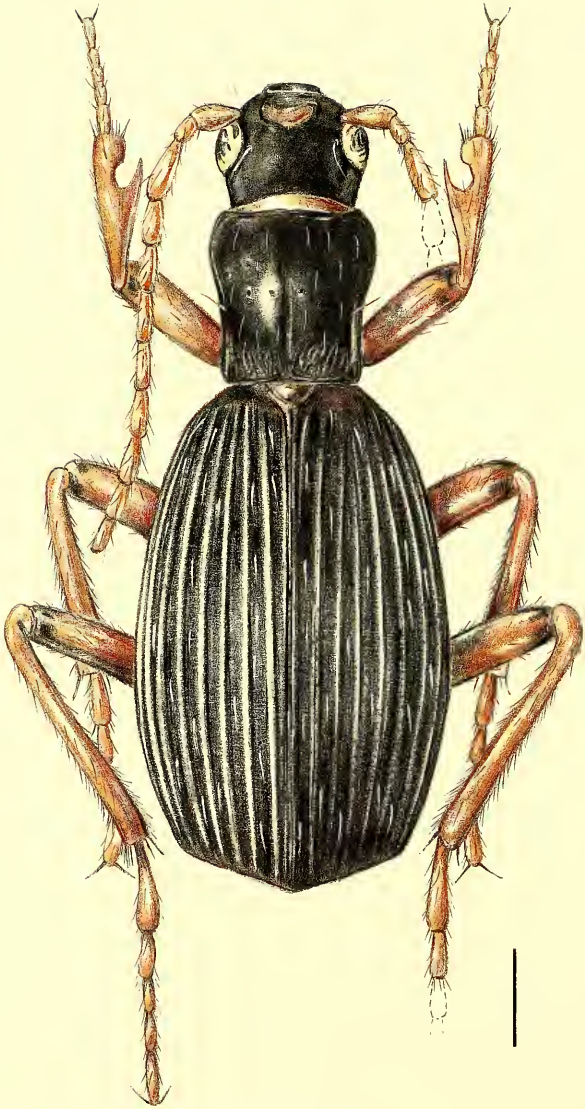

Fig. 34. *Pheropsophus pedes* Darlington, HT ♀, habitus. Scale: 2 mm.

Diagnosis. A medium-large sized, brachypterous *Pheropsophus* (16.0 mm), closely related to *aptinomorphus* Heller for the ovoidal shape of the elytra. It differs from *amnicola* darlington, *wolfi*, spec. nov., *delmastroi*, spec. nov., *riedeli*, spec. nov., and *balkei*, spec. nov. by the elytra strongly ovoidal, with humeri strongly rounded. It differs from all the other species of the group, known for New Guinea, by the head black posteriorly, with one yellow-orange frontal spot extended to the whole anterior part of the head and V-shaped in the frontal area. It differs from *riedeli* by the elytra and the pronotum of one colour, without any spot, while it differs from *amnicola* by the black pronotum.

Redescription of the ♀ holotypus

Maximum length 16.0 mm; head black with a frontal orange V-shaped spot, preocular areas of the head lighter, black-reddish; pronotum and elytra pitch black; palpi, antennae, and legs yellow-reddish; mandibles yellow-reddish, more or less browned, apex of femora dark. Last abdominal segments, missing in the only known specimen of this species.

Head slightly elongated, with the maximum

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Fig. 35. *Pheropsophus catulus* Darlington, HT ♂, habitus. Scale: 2 mm.

width just behind the eyes. Neck restriction missing. Frontal furrows short, very poorly impressed, weakly converging posteriorly and ending with two circular dimples. Eyes big, globose and prominent. Supraorbital area bearing one seta. Labrum transverse, with the anterior margin distinctly convex, and bearing 6 setae. Clypeus subrectangular, with the anterior margin decidedly concave, and bearing two small setae at about the half of the lateral margin. Occipital area not puncturated, but weakly rugose. Mandibles robust and relatively stocky, abruptly curved apically; lateral groove short, strongly concave and limited to the basal third, bearing one seta. Labial palpi elongated, with the penultimate article much longer than the first one and polychete, the last article not dilated and neatly truncate apically. Maxillary palpi with the last article longer than the penultimate one, not dilated and neatly truncate apically; penultimate palpomere bearing a crown of 5-6 setae apically.

Antennae long, exceeding the basal third of the elytron, when stretched backwards. Antennomeres pubescent starting from the apex of the 2nd article, with the 1st article big, stocky, and subcylindrical;

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the 2nd article much shorter than the 3rd one that is slightly longer than all the others; antennomeres 4-11 subcylindrical. Elongation index of the antennae (total body length/antennal length = 1.67).

Pronotum cordiform (max. width/max. length ratio = 0.96), with the maximum width at the distal third, decidedly narrower than the elytra. Base of the pronotum subrectilinear; anterior edge about as wide as the base. Sides distinctly sinuate before the basal angles that are right, but blunt and without setae; anterior angles not prominent, blunt. Lateral groove wide and shallow, bearing one seta a little before the half. Disc poorly convex, almost flat, weakly shiny, covered with some sparse and strongly impressed punctures bearing some long setae; basal area broadly and obviously rugose; neck furrow imperceptible, median furrow well impressed, basal impressions imperceptible.

Elytra distinctly ovoidal (max. length/max. width ratio = 1.66), with the maximum width at the distal third, obliquely truncate apically. Humeri null, elytral base not bordered. Elytral disc poorly convex, almost flat centrally, strongly and abruptly dehiscent along the lateral edge; provided with 8 costae, smooth and strongly prominent, separated by flat spaces, strongly rugose, of an opaque aspect, bearing some setae displayed in longitudinal series; elytral striae and scutellar stria missing. All costae reach the elytral base. Metathoracic wings reduced. In the basal area the 4th and 6th costae end distinctly before the others.

Legs robust. Mesotibiae and metatibiae simple, strongly spinose.

Male unknown.

Distribution and ecology. *P. pedes* is presently known only from the type locality: Bomberi, Vogelkop (West N. Guinea), where it was collected at a height of 700-900 m a.s.l. Ecology unknown.

catulus group

Diagnosis. It is a group of large sized, brachypterous, species (15.1-17.1 mm), with completely black pronotum and elytra without yellow-reddish spots; head reddish, or black with a yellow-reddish spot. Body altogether elongated, with elytra long and ovoidal. Aedeagus very large, stocky, with the median lobe very poorly and not regularly curved.

On the basis of the general body shape, also *canis*, the male of which is unknown, is doubtfully assigned to this group.

Members of this species group, as far as we presently know in New Guinea, are: *P. catulus* Darlington, 1968, and *P. canis* Darlington, 1968.

Pheropsophus catulus Darlington, 1968
Figs 35-37

Pheropsophus catulus Darlington, 1968: 238.

Types. HT: ♂, Dobodura Papua, N.G. Mar-July, 1944, Darlington (white printed); Dallington at B.M. 1947-48 Notes p. (white printed); Drawn 1966 Mary Catron No. 81 (white handwritten and printed); Mers ♂ (azure handwritten); M.C.Z. Holotype 31526 (red handwritten and printed); Holotype *Pheropsophus catulus* Darl. (red handwritten); Jan.-Jul. 2004 MCZ Image Database (white printed) (MCZ). – PTT (from Darlington, 1968): 2♀♀, Dobodura Papua, Mar.-July, 1944 (MCZ).

Locus typicus: Dobodura Papua.

Examined material: ♂ HT.

Diagnosis. A medium-large sized, brachypterous *Pheropsophus* (15.1-16.0 mm), closely related to *canis* Darlington for the shape of elytra and pronotum; but it is well separated from the latter by the head black with a frontal V-shaped yellow-orange spot and by the non rugose frons.

Redescription of the ♂ holotypus

Maximum length 15.1 mm; head black, with an obvious frontal yellow-orange V-shaped spot extending also to the preocular area; pronotum and elytra completely black; palpi and antennae yellow-orange, legs yellow-orange with femora browned at the distal end. Last abdominal segments, visible in dorsal view, pubescent, black.

Head slightly elongated, with the maximum width just behind the eyes. Neck restriction missing. Frontal furrows almost null, converging posteriorly. Eyes moderately big, globose, and prominent. Supraorbital area bearing one seta. Labrum transverse, with the anterior margin distinctly convex, protruding centrally, and bearing 6 setae. Clypeus trapezoidal, with the anterior margin decidedly concave, slightly pubescent and bearing one seta at about the half of the lateral margin. Occipital area obviously rugose and puncturated, post-ocular region glabrous (at most with one or two small setae). Mandibles of a yellow-orange colour in the basal half, with the distal part and the margins blackened, robust and relatively stocky, regularly curved from base to apex; lateral groove short, strongly concave and limited to the basal half, bearing one seta. Labial palpi elongated, with the penultimate article much longer than the first one and polychete, the last article dilated, almost securiform, and neatly truncate apically. Maxillary palpi with the last article longer than the penultimate one, poorly dilated and neatly truncate apically; penultimate palpomere bearing a crown of 5-6 robust setae apically.

Antennae long, reaching about the half of the

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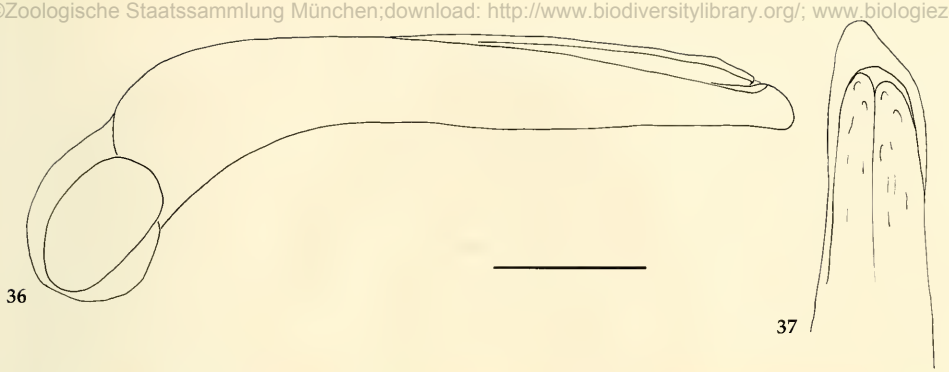

Figs 36-37. *Pheropsophus catulus* Darlington, HT. **36.** aedeagus, lateral view. **37.** aedeagus, apex in dorsal view. Scale: 1 mm.

elytron, when stretched backwards. Antennomeres pubescent starting from the apex of the 2nd article, with the 1st article big, stocky, and subcylindrical; the 2nd article much shorter than the 3rd one that is the longest; antennomeres 4-11 subcylindrical. Elongation index of the antennae (total body length/antennal length = 1.63).

Pronotum subquadrate (max. width/max. length ratio = 1.02), with the maximum width at the distal third, decidedly narrower than the elytra. Base of the pronotum subrectilinear; anterior edge slightly wider than the base. Sides distinctly sinuate before the basal angles that are subacute, but blunt, without setae and slightly protruding backwards; anterior angles not prominent, blunt. Lateral groove obvious, relatively wide, with the edge almost sharp, bearing one seta at about the half. Disc poorly convex, distinctly depressed in the centro-basal area, opaque, rugose (particularly in the basal area) and covered on the whole surface with some sparse and strongly impressed punctures bearing one seta; neck furrow deep and obvious, median furrow wide and well impressed, basal impressions imperceptible.

Elytra poorly elongated, ovoidal (max. length/max. width ratio = 1.61), with the maximum width at about the apical third, obliquely truncate apically. Humeri vanished, elytral base not bordered. Elytral disc convex, not flat centrally, strongly and abruptly dehiscent along the lateral edge; provided with 8 costae, smooth, separated by flat spaces, strongly rugose-puncturated, of an opaque aspect, bearing few long setae displayed in longitudinal series. Costae 1, 3, 5, 7, and 8 strongly prominent and continuous, all reaching the elytral base; costae 2, 4, and 6 not reaching the elytral base and more or less broadly interrupted also in the apical part; 2nd costa very fragmentary along its whole extension. Elytral striae and scutellar stria missing. Metathoracic wings strongly reduced.

Legs robust; male protarsi with three articles dilated. Mesotibiae and metatibiae simple, strongly spinose.

Aedeagus (Figs 36, 37) big (5.1 mm), subrectilinear in the apical ¾, poorly arcuate basally, median lobe with the basal bulb poorly swollen. Apex of the median lobe, in lateral view, subrectilinear, poorly tapered and broadly rounded; apical blade, in dorsal view, stocky, asymmetrical, rounded apically. Parameres typical of the genus: the left one ovoidal, the right one atrophied.

Variability. Darlington (1968) does not mention any particular variability in colour, while the sized should vary between 15 and 16 mm.

Distribution and ecology. *P. catulus* is currently known only from the type locality: Dobodura (Papua). Darlington (1968) mentions this species as being collected amid dead leaves on the ground in rain forest.

Pheropsophus canis Darlington, 1968
Fig. 38

Types. HT: ♀ (BMH): Koitaki, 1500 ft., New Guinea, Nov.-Dec. 1928 (white printed); A 48 (white handwritten); H.S.P.A. Collection (white printed); Outhye Todd 1961 (green printed); Drawn 1966 Mary Catron N° 357 (white printed); Holotype *Pheropsophus canis* Darl. (red handwritten); # 10924 (pink handwritten).

Locus typicus: Koitaki, New Guinea.

Diagnosis. It is a large sized, brachypterous *Pheropsophus* (17.1 mm), closely related to *catulus* Darlington for the shape of elytra and pronotum; it is well separated from the latter by the frons strongly rugose and the head without a frontal yellow-orange spot, but distinctly browned in the postocular part.

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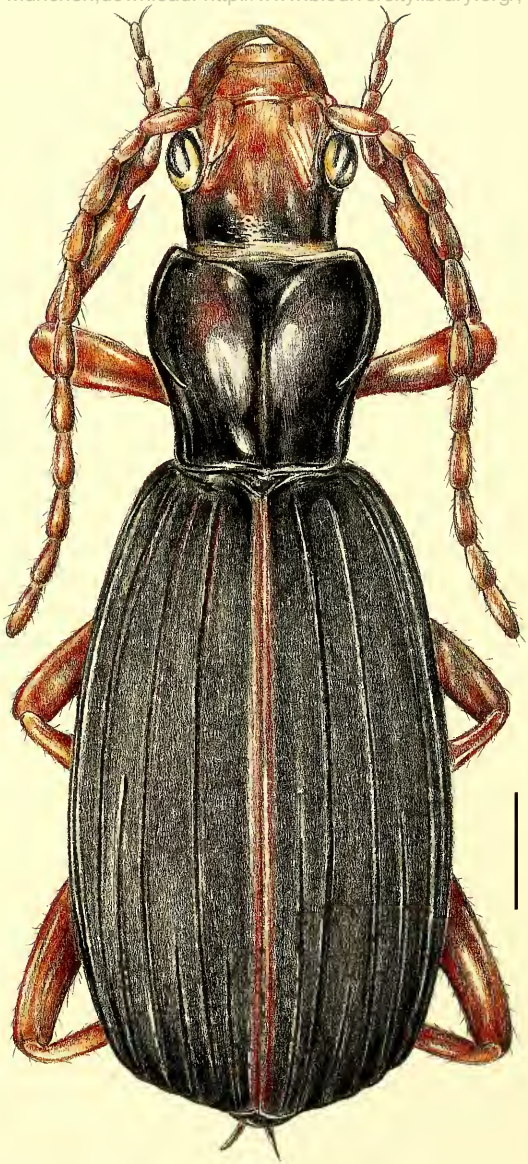

Fig. 38. *Pheropsophus canis* Darlington, HT ♀, habitus. Scale: 2 mm.

Redescription of the ♀ holotypus

Maximum length 17.1 mm; head broadly reddish only with a wide dark postocular fascia involving the whole region of the neck; pronotum black with a reddish spot, not clearly defined, in the middle of the disc; elytra black with vague reddish hues, elytral suture reddish; palpi, mandibles, antennae, and legs reddish; apex of femora not darkened. Last abdominal segments black.

Head elongated, with the maximum width just behind the eyes. Neck restriction missing. Frontal furrows short, very poorly impressed, weakly converging posteriorly, frons distinctly rugose between the eyes. Eyes big, globose, and prominent. Supraorbital area bearing one seta. Labrum transverse, with the anterior margin slightly convex, and bearing 6 setae. Clypeus subrectangular, with the anterior margin remarkably concave, bearing two small setae at about the half of the lateral margin. Occipital area not puncturated, but weakly rugose transversally.

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Fig. 39. Habitus in *Pheropsophus* spp. **a.** *P. claudiae*, spec. nov., HT ♀. **b.** *P. brussinoi*, spec. nov., HT ♂. **c.** *P. adrianae*, spec. nov., HT ♂. **d.** *P. delmastroi*, spec. nov., HT ♂. **e.** *P. riedeli*, spec. nov., HT ♀.

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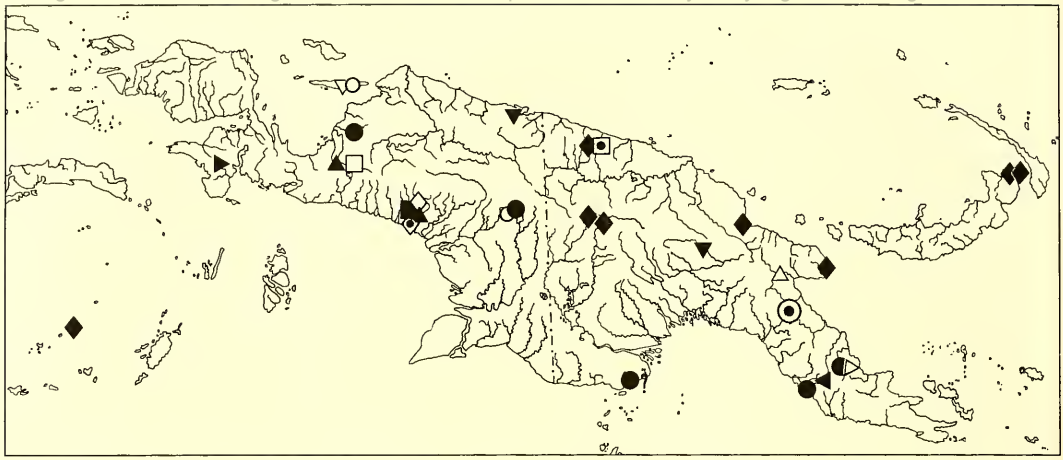

Fig. 40. Distribution maps of *Pheropsophus* spp. in the New Guinea area: *P. verticalis* (Dejean) (●); *P. papuensis* Macleay (●?); *P. baehri*, spec. nov. (■); *P. galloi*, spec. nov. (○); *P. claudiae*, spec. nov. (⊙); *P. baliothorax* Heller (◆); *P. brussinoi*, spec. nov. (◇); *P. adrianae*, spec. nov. (◈); *P. amnicola* Darlington (△); *P. wolfi*, spec. nov. (▲); *P. delmastroi*, spec. nov. (▽); *P. riedeli*, spec. nov. (▼); *P. balkei*, spec. nov. (□); *P. aptinomorphus* Heller (▣); *P. pedes* Darlington (▶); *P. catulus* Darlington (▷); *P. canis* Darlington (◀).

Mandibles robust and stocky, not abruptly curved apically; lateral groove wide and short, strongly concave and limited to the basal half, bearing one seta. Labial palpi elongated, with the penultimate article slightly longer than the first one and polychete, the last article slightly securiform, and neatly truncate apically. Maxillary palpi missing.

Antennae long, reaching the basal third of the elytron, when stretched backwards. Antennomeres pubescent starting from the apex of the 2nd article, with the 1st article big, stocky, and subcylindrical; the 2nd article much shorter than the 3rd one that is slightly longer than all the others; the 4th one shorter than the 3rd and 5th ones; antennomeres 4-11 subcylindrical. Elongation index of the antennae (total body length/antennal length = 1.86).

Pronotum cordiform (max. width/max. length ratio = 1.02), with the maximum width at the distal third, decidedly narrower than the elytra. Base of the pronotum slightly bisinuate; anterior edge wider than the base. Sides distinctly sinuate before the basal angles that are right, but blunt, and without setae; anterior angles prominent and blunt. Lateral groove wide and shallow, bearing one seta a little before the half. Disc poorly convex, flat centrally and, always at the centre, slightly depressed anteriorly, shiny and bearing some strong setae in the anterior fifth, glabrous and without impressed punctures in the remaining parts; basal area very slightly rugose; neck furrow poorly impressed, median furrow well impressed, basal impressions imperceptible.

Elytra distinctly ovoidal (max. length/max. width ratio = 1.72), with the maximum width at the apical third, obliquely truncate apically. Humeri null, elytral base not bordered. Elytral disc poorly convex, strongly and abruptly dehiscent along the lateral edge; provided with 8 costae separated by flat or slightly concave spaces, strongly rugose, of an opaque aspect, bearing some sparse and strong setae displayed randomly. Costae 2, 4, 6, 7, and 8 smooth and strongly prominent, the 2nd and 4th rounded and the 6th, 7th, and 8th sharp; elytral costae 1, 3, and 5 poorly prominent, limited at most to the apical third of the elytra; elytral suture prominent in the costa; elytral striae and scutellar stria missing. Metathoracic wings reduced.

Legs robust. Mesotibiae and metatibiae simple, strongly spinose.

Male unknown.

Distribution and ecology. *P. canis* is presently known only from the type locality: Koitaki (New Guinea), where it was collected at a height of about 500 m a.s.l. No other data concerning the ecology of this species are known.

Conclusive remarks

As already pointed out in the introduction, the *Pheropsophus* species currently known from New Guinea belong to three distinct species groups, two of which, the "*verticalis* group" and the "*macleayi*

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group", are widespread also in Australia both with vicarious species and, as in the case of *P. verticalis*, with a species in common (Giachino 2003). The third species group, that of *P. catulus*, composed of species morphologically very distinct if compared with those of the other groups, is exclusive of New Guinea.

Disagreeing with what Darlington maintained (1971), hypothesizing for this genus the colonization of Australia starting from New Guinea and in agreement with a previous paper (Giachino 2003), it is believed that the colonization of New Guinea by the taxa of the groups of *P. verticalis* and *P. macleayi* is to be ascribed to dispersal or colonization phenomena from Australia towards New Guinea, probably favoured by connections between Australia and New Guinea that, starting from the Miocene, took place in this area several times (Bridgewater 1987, White 1998). Traces of these repeated phases of diffusion can now be found in the composition of the *Pheropsophus* fauna of New Guinea, that has even two, of the three, species groups that are in common with Australia. In these species groups, besides vicarious taxa that are the final result of less recent differentiation phenomena, some species in common between both faunas appear, probably as present results of some more recent dispersion or colonization phenomena that can be dated back to the last Pleistocene sea regression phases (White 1998). This distribution pattern would seem strengthened also by the fact that, at present, none of the species spread in the Australian Region reaches the Oriental Region, passing beyond Weber's line that, placed hypothetically between the islands of Bali and Lombok, for several groups of living organisms marks the border between both regions (Jeannel 1942). Similarly, as far as we know, none of the *Pheropsophus* species belonging to the species groups of the Oriental Region goes beyond Weber's line, in the opposite direction, reaching the Australian Region.

The situation seems more complex for the "*catulus* group" that includes morphologically strongly differentiated species and that apparently is phyletically not directly joinable to the species of the groups of *P. verticalis* and *P. macleayi*. This group probably represents the current result of a more ancient diffusion that could have occurred through the Oriental Region, like what was hypothesized for other Carabids of Gondwanan origin, such as the endogean Anillina of the genus *Argiloborus* Jeannel, 1937 (Giachino 2001).

Acknowledgements

I am very grateful to: M. Baehr (ZSM), M. Darrell (MMS), M. Humphrey (MMS), B. Jaeger (ZMB), O. Jaeger (SMTD), P. D. Perkins (MCZ), G. A. Samuelson (BMH), and T. A. Weir (ANIC) for having sent me the material, also typical, in study and for their precious suggestions on some type series. I also wish to thank Achille Casale of the Dipartimento di Zoologia e Antropologia Biologica of the University of Sassari (Italy) for the critical revision of the manuscript.

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Zoologisch-Botanische Datenbank/Zoological-Botanical Database

Digitale Literatur/Digital Literature

Zeitschrift/Journal: Spixiana, Zeitschrift für Zoologie

Jahr/Year: 2005

Band/Volume: 028

Autor(en)/Author(s): Giachino Pier Mauro

Artikel/Article: The genus Pheropsophus Solier, 1833 in New Guinea (Insecta, Coleoptera, Carabidae, Brachininae) 223-257