

New data on the tiger beetle fauna of New Guinea

Results of the explorations of A. RIEDEL
in Irian Jaya 2000–2001
(Coleoptera: Cicindelidae)

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Summary: The tiger beetle material is recorded which was collected by A. RIEDEL during his 2000/2001 journey to the Indonesian province of Irian Jaya in New Guinea. Two new species, *Polyrhanis waigeoensis* **n. sp.**, a close relative of *P. delicata* (Bates, 1874), and *P. neopupilligera* **n. sp.**, closely allied to *P. pupilligera* (Chaudoir, 1865), are described, respectively from Waigeo I., Sorong district, and Wasior, Manokwari district.

Zusammenfassung: Die von A. RIEDEL während seiner letzten Expedition 2000/2001 in Irian Jaya, der indonesischen Provinz in Neuguinea, gesammelten Sandlaufkäfer werden bearbeitet. Zwei neue Arten werden von Waigeo I., Sorong Distrikt, und Wasior, Manokwari Distrikt, beschrieben: *Polyrhanis waigeoensis* **n. sp.**, eine nah verwandte Art von *P. delicata* (Bates, 1874), und *P. neopupilligera* **n. sp.**, der *P. pupilligera* (Chaudoir, 1865) nahestehend.

Introduction

The huge-sized, poorly visited island of New Guinea surely still holds undiscovered entomological treasures. As far as tiger beetles are concerned, present knowledge indicates an outstandingly rich, diverse, almost fully endemic fauna (CASSOLA 1987a, 1989, 1990; CASSOLA & WERNER 1996a, b; 1998; SCHÜLE 1998; WIESNER 1999, 2000). Together with the two further new species described below, the number of known New Guinean tiger beetles is now raised up to 111 species, 94 of which (85%)

are endemic to the island. Of these, 61 species occur in Irian Jaya, i.e. the Indonesian western half of New Guinea, and 25 of these species appear to be restricted to it.

Thanks to the commendable efforts of Mr. Alexander RIEDEL (now at the Zoological Museum, Stuttgart, Germany), who, beginning from early 1990s, regularly devoted to New Guinea a collecting trip annually (with special emphasis for Irian Jaya), a lot of new information has been acquired recently. RIEDEL's 2000/2001 trip practically dealt with the "Vogelkop" and surrounding islands (Waigeo I., Biak I., Japen I.), and brought back an interesting tiger beetle booty, including two further new species, described below. The specimens are presently deposited in the Zoological Museum Stuttgart (ZMS) and in first author's (FC) or second author's (KW) collections.

Material

Subfamily Collyrinae Csiki, 1906

Tribe Collyrini Fleutiaux, 1892 / Subtribe Tricondylina Naviaux, 1991

Tricondyla aptera (Olivier, 1790)

Sorong: Sorong, Intimpura logging rd, 100–150 m, 19.I.2001, 1 ♀ (FC); Waigeo I., Yembekaki, 0–180 m, 20–23.I.2001, 1 ♂ (KW); Makbon, near Warsamsombridge, 100 m, 30.I.2001, 1 ♀ (KW). *Teluk Cendrawasih*: Biak I., Korim, Nernu, 100–150 m, 1.–4.II.2001, 1 ♀ (KW), 1 ♀ (FC).

A well-known apterous species, widely distributed in New Guinea and surrounding island groups (Solomons, Maluku), as well as in the mid-peninsular rain forest of Cape York, North Queensland (CASSOLA 1987a, b).

Subfamily Cicindelinae Csiki, 1906

Tribe Cicindelini Sloane, 1906 / Subtribe Theratina W. Horn, 1908

Therates rotschildi W. Horn, 1896

Teluk Cendrawasih: Japen I., north coast, Tindaret, ca. 50–100 m, 21.XII.2000, 1 ♀ (KW).

A New Guinean endemic, known from both the Irian Jaya province (Teluk Cendrawasih and Jayapura districts) and Papua New Guinea (CASSOLA 1987a).

***Therates festivus* Boisduval, 1835**

Manokwari: Manokwari, Gunung Meja, 200 m, 30.XII.2000/1.I.2001, 1♀ (KW); Sararti, Wasior, DMP logging camp, km 38, 100–200 m, 7.–9.I.2001, 1♀ (KW); Wombu, Wasior, DMP logging camp, km 27, 200 m, 10.I.2001, 1♂ (KW); Wondiwai Mts., Wasior, Wandammen Bay, 250–700 m, 14./15.I.2001, 1♂, 1♀ (FC), 2♂♂ (KW). *Sorong*: Makbon, near Warsamsom-bridge, 100 m, 30.I.2001, 1♂ (KW).

Similar to a small *Th. basalis*, with head and pronotum metallic blue-green, and blue-violet elytra, widely rufescent in their basal third. Apparently a western Irian Jayan endemic (Sorong, Fakfak, Manokwari, and Paniai districts, and moreover the islands of Misool, Waigeo and Salwatty) (CASSOLA 1987a, CASSOLA & WERNER 1996a, b, SCHÜLE 1998).

***Therates pseudorotschildi* Mandl & Pearson, 1978**

Teluk Cendrawasih: Japen I., Serui, Kontiunai, road to Ambaidiru, 600–700 m, 23.–25.XII.2000, 2♂♂ (KWC); same locality, 600–700 m, 26.XII.2000, 1♂ (FC), 1♂ (KW).

In these specimens the rufescent basal part of elytra extends to the full front half of elytra, similarly as in most other specimens also collected by A. RIEDEL on Japen Island (CASSOLA & WERNER 1996a, b). Until better information, we consider them to be *Th. pseudorotschildi* (WIESNER 1988, figs. 103–104), a species described from the East Sepik province in Papua New Guinea, but also known from several Irian Jaya localities as well.

***Therates cheesmanae* Wiesner, 1988**

Teluk Cendrawasih: Japen I., E Serui, Wawati, 100–300 m, 17.XII.2000, 1♂ (KW); Japen I., Serui, Kontiunai, road to Ambaidiru, 600–700 m, 23.–25.XII.2000, 1♂, 1♀ (KW).

This taxon, described from a single female specimen as a subspecies of *Th. chaudierei* Schaum, 1860, had been already raised by us to a full specific status (CASSOLA & WERNER, 1996a). From the few existing data, it would appear to be a Japen I. endemic.

***Therates labiatus* (Fabricius, 1801)**

Sorong: Waigeo I., Yembekaki, 0–180 m, 20–23.I.2001, 1♂, 1♀ (KW); Makbon, Malawor, 200–280 m, 28.I.2001, 1♀ (FC); Sorong, Intimpura logging rd, 100–150 m, 19.I.2001, 1♀ (KW).

A widely distributed species, ranging from Maluku eastwards to the Solomon Is., and already known as occurring at Waigeo I. and the Sorong district (CASSOLA 1987a, b).

***Therates basalis* (Dejean, 1826)**

Teluk Cendrawasih: Biak I., Korim, Nernu, 100m, 12.–14.XII.2000, 1♂ (KW); 100–150 m, 1.–4.II.2001, 1♂ (FC), 2♂♂, 1♀ (KW) [ssp. *misoriensis* Raffray, 1878]. Japen I., north coast, Tindaret, 50–100m, 21.XII.2000, 1♂ (FC); Japen I., Kontiunai, road to Ambaidiru, 600–700 m, 23.–25.XII.2000, 1♂ (KW). *Sorong*: Makbon, Malawor, 200–280 m, 8.I.2001, 1♀ (KW).

A typical New Guinean species, widely distributed all over the island from Misool and Waigeo in the West to the Solomon Islands in the East (CASSOLA 1987a, b). The nominate subspecies has a metallic bluish-black metasternum, while the specimens from Biak I. have a fully rufescent metasternum (ssp. *misoriensis* Raffray, 1878).

Subtribe Cicindelina W. Horn, 1908

***Lophyridia durvillei* (Dejean, 1831)**

Teluk Cendrawasih: Japen I., north coast, Tindaret, ca. 50–100 m, 21.XII.2000, 1♂ (KW).

This species, for long time considered to be just a New Guinean subspecies of *L. decemguttata* (Fabricius, 1801), is formally given here full specific status, because of consistent differences in elytral markings and the apparent overlapping of ranges in Maluku (CASSOLA 1987a). It was already been treated as a species by its own by SCHÜLE (1998), who first recorded it from Japen Island.

***Cylindera (Ifasina) froggatti* (Macleay, 1887)**

Manokwari: Wandammen Bay, Wasior, DMP logging camp, Blok (03°07'53.4S, 134°22'30.5E), 200m, 8.I.2001, 1♂, 1♀ (FC), 3♂♂, 1♀ (KW).

Widely distributed in the whole of New Guinea, the Solomons and Queensland (CASSOLA 1987a, b), this species was first formally recorded from Manokwari by WIESNER (1999).

***Polyrhanis funerata* (Boisduval, 1835)**

Manokwari: Wandammen Bay, Wasior, DMP logging camp, Blok (03°07'53.4S, 134°22'30.5E), 200m, 8.I.2001, 1♂ (FC), 1♂ (KW); Wondiwoi Mts., Wasior, Wandammen Bay, 250–700 m, 14.–15.I.2001, 1♀ (KW). *Sorong*: Sorong, Intimpura logging rd, 100–150 m, 19.I.2001, 1♂, 1♀ (KW); Waigeo I., Yembekaki, 0–180 m, 20.–23.I.2001, 1♂ (KW); Makbon, Malawor, 200–280 m, 28.I.2001, 1♂ (FC); Makbon, near Warsamsom-bridge, 100 m, 30.I.2001, 1♀ (KW).

This species is apparently restricted to Irian Jaya only, including Misool, Waigeo, Fahor, Biak and Key Islands (CASSOLA 1987a), and it is here first recorded from Japen I. as well. Glabrous genae, shape of apex

of aedeagus, as well as minor differences in the elytral markings, help to distinguish it from the closely allied *P. barbata*.

***Polyrhanis barbata* (W. Horn, 1895)**

Teluk Cendrawasih: Biak I., Korim, Workar-Wari, 50–100 m, 14.XII.2000, 1♂ (KW); Japen I., W Serui, Panduamin, 50–100m, 18.XII.2000, 1♂ (KW); Japen I., north coast, Tindaret, ca. 50–100 m, 21.XII.2000, 1♀ (KW); Japen I., Kontiunai, road to Ambaidiru, 600–700 m, 23.–25.XII.2000, 1♀ (FC). *Manokwari*: Wandammen Bay, Wasior, DMP logging camp, Blok (03°07'53.4S, 134°22'30.5E), 200m, 8.I.2001, 1♀ (KW).

A common, widely distributed, quite variable species, ranging from the Bismarck Archipelago westwards to the "Vogelkop" (CASSOLA 1987a, CASSOLA & WERNER 1996a). It was first recorded from Japen I. by SCHÜLE (1998). Sparsely setose genae and shape of aedeagal apex help to tell it apart from the closely allied *P. funerata*, such a separation being sometimes a rather delicate affair (especially as far as female specimens are concerned) because hairs on genae can be poorly visible or abraded.

***Polyrhanis boisduvali* (W. Horn, 1896)**

Teluk Cendrawasih: Japen I., W Serui, Panduamin, 50–100m, 16.XII.2000, 1♀ (KW); Japen I., W Serui, Panduamin, 50–100m, 18.XII.2000, 1♂, 1♀ (KW); Japen I., north coast, Tindaret, ca. 50–100 m, 21.XII.2000, 1♀ (FC), 1♂ (KW); Japen I., Kontiunai, road to Ambaidiru, 600–700 m, 23.–25.XII.2000, 2♂♂, 1♀ (KW).

This species, described from the Humboldt Bay and apparently widespread in Irian Jaya from Fakfak to Jayapura and Jayawijaya districts, had already been collected at Japen I. by Evelyn CHEESMAN in 1938 (CASSOLA 1987a).

***Polyrhanis pupillata* (Schaum, 1863)**

Sorong: Makbon, near Warsamsom-bridge, 100 m, 30.I.2001, 1♀ (KW).

A poorly known and apparently rare species, certainly known from the Sorong district only (Ramoi, Dorei Hum), including the nearby Misool and Salwatty islands (CASSOLA 1987a).

***Polyrhanis klynstrai* (Brouerius van Nidek, 1954)**

Teluk Cendrawasih: Japen I., Serui, Mantembu, 100–500m, 16.XII.2000, 1♂ (KW); Japen I., W Serui, Panduamin, 50–100m, 18.XII.2000, 1♀ (FC); Japen I., north coast, Tindaret, ca. 50–100 m, 21.XII.2000, 2♂♂, 1♀ (KW).

First described from Japen I., this species is known to us also from the Jayawijaya district (Irian Jaya) and the West Sepik province (Papua New Guinea), thus proving to occur in the mainland island too (CASSOLA & WERNER 1996a).

***Polyrhanis delicata* (Bates, 1874)**

Sorong: Makbon, near Warsamsom-bridge, 100 m, 30.I.2001, 1♀ (KW).

This rare species was known so far by a few old specimens only, mostly just labelled "New Guinea". The only available localities would indicate it to occur in Sorong (Ramoi, Dorei) and Manokwari (Roon I.) districts only (CASSOLA 1987a). The largely blue coloured labrum and the slender elytral markings make it unmistakable.

***Polyrhanis waigeoensis* n. sp. (Figs. 1 a–d)**

Diagnosis: A small *Polyrhanis*, similar to *P. delicata* (Bates, 1874) as for the elytral markings and the aedeagal shape, however easily recognizable by the large fully testaceous labrum, the lesser amount of bluish body colouration, and the less rugose head and pronotum.

Description: Head purplish-bronze, with strong bluish reflections on clypeus, antennal plates, eyes, hind sides of head and on cheeks; 10–11 strong longitudinal striae on sides of vertex and on eyes, the striae becoming wavy and shallower behind, frons and vertex dull, nearly smooth; two long sensorial setae near both eyes. Genae shining bronze, with greenish to cupreous reflections and shallow longitudinal striae, more evident in front. Labrum testaceous, 6–8 haired, large, rounded in front in the male, slightly longer and acutely produced in a small middle anterior tooth in the female. Mandibles fully testaceous, slightly rufous on teeth. Labial and maxillary palpi testaceous, with the last segment metallic green (except for the extreme outer tip which is nearly white); penultimate joint of maxillary palpi also tinged with metallic dark. Antennae rather long, reaching almost the elytral apex in the male, slightly shorter in the female; scape testaceous, tinged with metallic light violet above, with a single long erect seta near the tip; joints 2–4 slender, light, tinged with metallic violet, almost glabrous; antennomeres 5–11 dull blackish-brown, finely and evenly pubescent.

Thorax: pronotum approximately as long as wide, rather convex on disc, rounded at sides, distinctly narrowed behind the middle; surface bare, smooth, with shallow irregular wrinkles, more marked and wavy on lateral sides. Colour purplish-bronze in the middle, with bluish-green re-

flections at sides. Episterna smooth, bare, shiny metallic violeceous; hind corners of sternum golden-purple. Female mesepisternal coupling sulci absent.

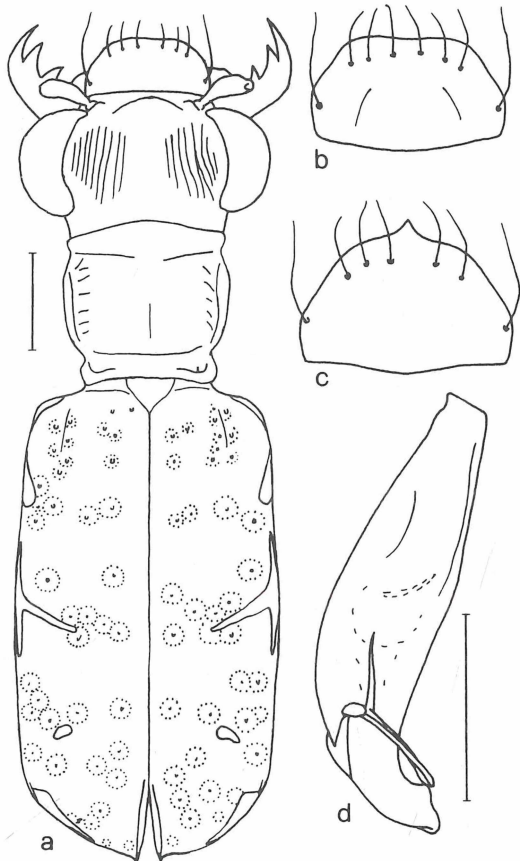


Fig. 1. *Polyrrhanis wai-geoensis* n. sp., male holotype from Gn. Susu, Waigeo I., Sorong, Irian Jaya: habitus (a), labrum (b); female paratype from same locality: labrum (c); male paratype from same locality: aedeagus (d); Scale-lines: 1 mm.

Elytra wider than head with eyes, subparallel-sided, slightly amplified in the middle, rather convex on disc, with a very small sutural tooth at apex (more obvious in the male), with the shoulders well-marked, subsquared; surface smooth, dull purple bronze in ground colour, with some small punctures in the basal

third, and a few larger, foveated, metallic green punctures (more evident in front half of elytra) surrounded by large bluish-green "gemmae", sparsely distributed on disc, sometimes tending to coalesce with each other. Female elytral mirror lacking in most specimens, small and almost effaced in just a single paratype specimen. Elytral yellowish markings comprising: a humeral uninterrupted lunule, not fully visible from above; a nearly straight, slightly oblique, narrow middle band, reaching approximately the middle of disc, connected on both directions near the

elytral side margins with a narrow marginal lineole; a small, subtriangular-shaped, subapical spot behind on disc, closer to the subapical lunule than to the middle band; and a narrow subapical lunule which does not reach the suture. Epipleura testaceous.

Abdominal sternites and coxae glabrous, dark bronze with some bluish-green reflections. Legs moderately long, slender; trochanters and base of femora testaceous, the femora slightly darkened and tinged with some metallic bronze above and distally; tibiae and tarsi metallic violet, with bluish reflections; tarsal claws rufous.

Length: 8–8.5 mm (without labrum).

Holotype, male, and 10 paratypes (7 males, 3 females) from Waigeo I., Urbinasopen, Gn. Susu, 100–450m, 25.I.2001, A. RIEDEL leg.; one additional female paratype specimen from same island, Yembekaki, 0–180m, 21.–22.I.2001, A. RIEDEL leg.. Holotype deposited in ZMS collection, three paratypes in FC collection, eight paratypes in KW collection.

Etymology: This interesting new species has been named from its finding locality, Waigeo Island in Sorong district, Irian Jaya.

Remarks: From Waigeo Island, three *Polyrhanis* species only were known so far, namely *P. funerata* (Boisduval, 1835), *P. innocens* (W. Horn, 1893) and *P. cheesmannae* (Brouerius van Nidek, 1954) (CASSOLA 1987a). *P. waigeoensis* **n. sp.** has a fully testaceous labrum similarly as to *P. innocens* (W. Horn, 1893), but its middle band is less elongate and less descending (that of *P. innocens* being more descending and protracted up to a short distance from the suture). A male specimen from 20 km W of Timika (Fakfak district), also having a fully testaceous labrum, which at first we tentatively attributed to *P. delicata* (CASSOLA & WERNER 1996b), was compared again to the new species described above, but it is considered to be a different species (possibly a further new one) because of slight but important morphological features, such as the smaller body size (7 mm), the shorter antennae, the smaller elytral gemmae, the longer subapical lunule (narrowly reaching the sutural angle), and the roundish subapical dot which is positioned slightly more in front (roughly half-way between the middle transversal band and the subapical lunule). Thus, the *delicata*-complex is probably not yet fully known, and further material is required.

Polyrhanis pupilligera (Chaudoir, 1865)

Sorong: Makbon, Malawor, 200–280 m, 28.I.2001, 1♂ (FC), 1♂ (KW); Makbon, near Warsamsom-bridge, 100 m, 30.I.2001, 1♂ (KW).

This species was described based on a single female specimen, probably collected by R. A. WALLACE at "Dorey" in the Manokwari district. It is known to occur in the Sorong district as well, while from Waigeo I. a distinct, but obviously closely allied species – *P. cheesmannae* – has been described (BROUERUS VAN NIDEK 1954, CASSOLA 1987a). A further, closely related species is described below, also from Manokwari.

***Polyrhanis neopupilligera* n. sp.** (Figs. 2 a–d)

Diagnosis: A small *Polyrhanis*, similar to *P. pupilligera* (Chaudoir, 1865), however differing by having the humeral lunule not prolonged to base and scutellum, and moreover because the apex of aedeagus is slightly more bent dorsally (straightly pointing down apically).

Description: Head dull bronze with some metallic hue and some green reflections on clypeus, antennal plates and cheeks; 7–8 strong longitudinal striae on sides of vertex; frons, vertex and neck almost smooth, two long sensorial setae or setigerous punctures near both eyes. Genae golden green, glabrous, longitudinally striated, the striae being stronger in front. Labrum testaceous, 6–8 haired, short, transverse, with a slight front concavity in the male, longer, approximately as long as wide, acutely produced into a protruding middle anterior tooth in the female. Mandibles fully testaceous, slightly rufescent on apical teeth; first inner tooth slightly raised in the male above the mandible plane, pointing upwards. Labial and maxillary palpi light testaceous, with the last segment metallic green (except for the extreme outer tip which is nearly white). Antennae very long, surpassing the subapical angle of elytra in the male, slightly shorter in the female; scape testaceous, tinged with metallic light violet above, with a single long erect seta near the tip; joints 2–4 slender, light, tinged with metallic bluish-violet, almost glabrous; antennomeres 5–11 dull black, finely and evenly pubescent.

Thorax: pronotum approximately as long as wide, rather convex on disc, rounded at sides, distinctly narrowed behind the middle; surface bare, smooth, with a few shallow short wrinkles transversely on disc, bronze with some bluish- to greenish velvety reflections at sides. Propisterna smooth, bare, shiny dark violaceous-green; mesepisterna shining black, bare, with some white hairs on the ventral side only; metepisterna greenish-black, bare, with some white decumbent hairs near the hind ventral corner. Sides of sternum with white decumbent pubescence. Female mesepisternal coupling sulci a sinuated shallow groove in the middle.

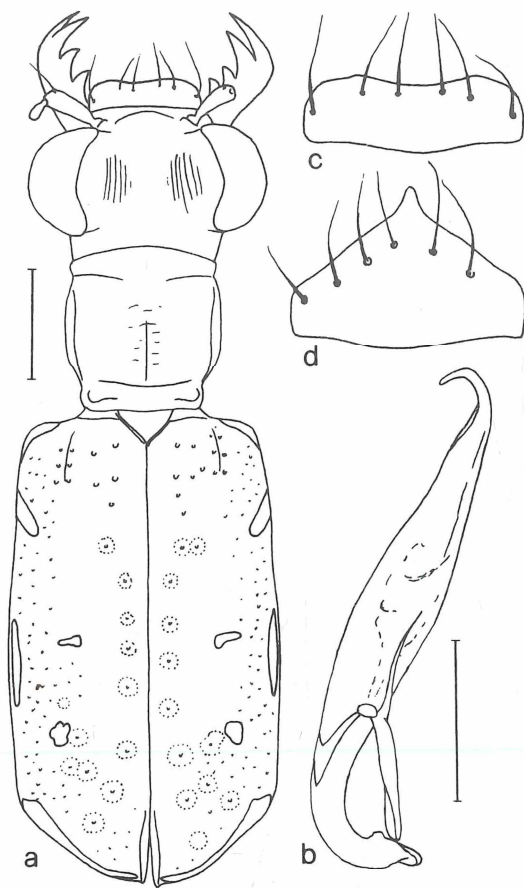


Fig. 2. *Polyrrhanis neopupilligera* n. sp., male holotype from Wasior, Wandammen Bay, Manokwari, Irian Jaya: habitus (a), aedeagus (b), labrum (c). Female paratype from same locality: labrum (d). Scale-lines: 1 mm.

Elytra wider than head with eyes, sub-parallel-sided, rounded at sides, rather convex on disc, with well-marked, subsquared shoulders and a tiny sutural tooth at apex; surface smooth, dull purple bronze in ground colour, with evenly spaced bluish-green punctures (more evident on shoulders, the lateral sides and near the apex) and a

few larger, foveated, metallic green punctures (especially evident in the front third of elytra and along the suture) sparsely distributed on disc, surrounded by large cupreous-green "gemmae". Female elytral mirror a small, oblique, oval-shaped, poorly apparent, shining areole in the front third of elytra, close, but some distance from, the suture. Elytral yellowish markings comprising: a humeral uninterrupted lunule, not fully visible from above; a middle marginal elongated spot; a small, roundish or slightly transverse discal dot in the middle; a small roundish spot behind, placed below and slightly more lateral than the previous one; and a nar-

row apical lunule from the subapical angle to the suture. Epipleura testaceous.

Abdominal sternites sparsely pubescent at sides, dark bronze with some greenish reflections. Legs moderately long, slender; coxae testaceous, sparsely pubescent at sides; trochanters and base of femora testaceous, the femora slightly darkened and rufescent, with some metallic hue, above and distally; tibiae testaceous, more or less metallic bluish-violet distally; tarsi metallic bluish-violet, sometimes slightly rufescent on base of first segments; tarsal claws rufous.

Length: 7–7.5 mm (without labrum).

Holotype, male, and four paratypes (2 males, 2 females) from Wandamen Bay, Wasior, DMP logging camp, Blok (03°07'53.4S, 134°22'30.5E), 200m, 8.I.2001, A. RIEDEL leg.. Holotype deposited in ZMS collection, one paratype in FC collection, three paratypes in KW collection.

Etymology: This interesting new species has been so named by us because of its obvious close relationship with *P. pupilligera* (Chaudoir, 1865).

Remarks: *P. neopupilligera* **n. sp.** clearly differs from the closely allied *Polyrhaxis pupilligera* (Chaudoir, 1865) by having the humeral lunule not prolonged to base and scutellum. Moreover, the hooked apex of its aedeagus is slightly more bent dorsally (straightly pointing down apically) than that of *pupilligera*, and still much more than that of *P. cheesmannae* (Brouerius van Nidek, 1954) (CASSOLA 1987a, figs. 10e, f). As to *Polyrhaxis pseudopupilligera* Cassola, 1987, from Papua New Guinea ("B. New Guinea"), such a species is smaller in size and the apical beak of its aedeagus is much less elongate and less dorsally bent than those of the preceding species (CASSOLA 1987a, fig. 22c). The four species mentioned above obviously form a distinct *pupilligera*-group, which can be told apart from other *Polyrhaxis* species having a similar elytral pattern (such as *deuvei* Cassola, 1987, *samuelsoni* Cassola, 1987, and *vannideki* Cassola, 1987) because of the characteristic, very different shape of male aedeagus.

Acknowledgement

Our very best thanks are given to Alexander RIEDEL, who again allowed us to study his newly collected tiger beetle material and to keep most specimens in our collections.

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Jahr/Year: 2001

Band/Volume: [26_3-4_2001](#)

Autor(en)/Author(s): Cassola Fabio, Werner Karl [Charly]

Artikel/Article: [New data on the tiger beetle fauna of New Guinea 91-102](#)