

Six new species of the genus *Trigonoptera* Perroud, 1855 from New Guinea (Coleoptera: Cerambycidae, Lamiinae, Tmesisternini)

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Abstract: Six new *Trigonoptera* species are described, all from New Guinea. Three were found in the Indonesian part: *Trigonoptera enarotali* **spec. nov.**, *T. mastrigti* **spec. nov.** and *T. toxopeusi* **spec. nov.**, and the other three were found in Papua New Guinea: *T. onarunka* **spec. nov.**, *T. archboldi* **spec. nov.** and *T. bisianumu* **spec. nov.** All adults and the male genitalia of *T. bisianumu* are depicted. The diagnostic characters are compared with allied species.

Rangkuman: Enam spesies baru *Trigonoptera* diperletakkan, semua dari New Guinea. Tiga spesies ditemukan di bagian Papua, Indonesia: *Trigonoptera enarotali* **spec. nov.**, *T. mastrigti* **spec. nov.** and *T. toxopeusi* **spec. nov.**, dan tiga spesies ditemukan di bagian Papua New Guinea: *T. onarunka* **spec. nov.**, *T. archboldi* **spec. nov.** and *T. bisianumu* **spec. nov.** Semua gambar spesies baru dan gambar genitalia dari *T. bisianumu* disajikan. Ciri-ciri khas spesies baru dibandingkan dengan ciri-ciri khas spesies yang bersekutu.

Keywords: New species, Cerambycidae, *Trigonoptera*, New Guinea, Papua, Indonesia, Papua New Guinea.

Introduction

The tribe Tmesisternini comprises two species rich genera: *Tmesisternus* Latreille, 1829 and *Trigonoptera* Perroud, 1855. Since the comprehensive publication of Gressitt (1984) on Tmesisternini this is the first time that new species in the genus *Trigonoptera* Perroud, 1855 are published. The new taxa concern rather old material and were found in the collections of Naturalis Biodiversity Center (Leiden, The Netherlands) and in the Bernice P. Bishop Museum (Honolulu, Hawaii, United States of America). Female genitalia were not used for the descriptions since only the male genitalia are diagnostic, for which reason only the male genitalia of *T. bisianumu* **spec. nov.** are depicted and described.

Abbreviations used

BPBM – Bernice P. Bishop Museum, Honolulu, Hawaii, United States of America

RMNH – Naturalis Biodiversity Center, Leiden, The Netherlands

PNG – Papua New Guinea

UNCEN – Universitas Cenderawasih, Waena, Papua, Indonesia

Descriptions and taxonomy

Trigonoptera archboldi spec. nov. (fig. 1)

urn:lsid:zoobank.org:act: 556C0028-6063-4173-997E-0E5703D932DD

Holotype: ♀ BPBM: [Papua New Guinea], Fergusson isl., Mnts. between Agamoia and Ailulua, 900m. Nr 4. 5-17.vi.1956. Fifth Archbold Expedition. Leg: L.J. Brass.

Diagnosis: Judged by the definition of Gressitt (1984, page 198) this species belongs to the *guttelata* group. Closest allied to *Trigonoptera muscifluvis* Gressitt, 1984, but in the pre-median yellow band on the elytra *archboldi* has two spots instead of three like in *muscifluvis*. The pronotum from *archboldi* is much wider than that of *muscifluvis* and has yellow spots. *Trigonoptera woodfordi* Gahan, 1888 in this group has much more pattern on the elytra and *T. muruana* Gressitt, 1984 has characteristic pronounced shoulders.

Description: Total length: 14 mm.; width: 5 mm. Male unknown.

Head: Chestnut. Black eyes. Covered with very fine punctures except for an Y-forked strong ridge on clypeus and vertex. Some contiguous long yellow pubescens present on labrum, around the eyes and in the Y-forked depression. In that depression in the middle a tiny fine groove.

Antenna: Chestnut. In the holotype not complete. Scape dark brown, other segments chestnut. Entirely covered with fine grey pubescens. Ventrally fringed with long hairs.

Pronotum: Chestnut, much wider than long and with strong lateral tubercles. Sprinkled with very fine contiguous grey pubescens, dorsally with two yellow pubescent dots and some yellow pubescens laterally along the sides. The central area with scattered fine punctures.

Scutellum: Chestnut, with fine contiguous grey pubescens.

Elytra: Chestnut, with strong pronounced shoulders. Entirely covered with very fine grey pubescens. Gradually tapering from base to the laterally and suturally spined apex. From base to the centre with strong punctures. With some white pubescent lines running one third from base: a small one along the suture to apex, ending at apex in a large white area. From that area the line returns over the middle of the elytra back to the base partly with a double line and ending at one third from base. On each elytron two yellow pubescent dots at each side of the scutellum. Two longitudinal spots, starting at one third from base, and two lines at one third from apex, the lateral ones bordered by some white pubescens.

Legs: Entirely chestnut with grey pubescens.

Abdomen: Ventrally chestnut with some scattered grey pubescens.

Distribution: Only known by the holotype, from Fergusson Island, Papua New Guinea.

Etymology: The species is named in honor of Richard Archbold, who was the financier of a series of expeditions to New Guinea and adjacent Islands. The Fifth Archbold Expedition (1956-1957) to the southeastern mainland of New Guinea and four adjacent islands (Fergusson, Normandy, Rossel and Woodlark) was led by Leonard J. Brass, an Australian botanist and associate curator of the Archbold Expeditions and resulted in the collecting of the holotype of this new species.

***Trigonoptera bisianumu* spec. nov.** (fig. 2, 9)

urn:lsid:zoobank.org:act: 878C7C69-6708-433E-A140-2CE0646F96EF

Holotype: ♂ BPBM: [Papua New Guinea], Bisianumu, east of Port Moresby, 500 m., 23.ix.1955, on light, leg. Gressitt.

Diagnosis: According to the definition of Gressitt (1984, page 199-9 and 201-28) this species belongs to the *guttelata* group.

Description: Total length: 10 mm.; width: 3 mm. Female unknown.

Head: Black with black eyes, entirely covered with buff contiguous pubescens with some white pubescent dots, except for the Y-forked ridge on clypeus and vertex. In the depression of the Y-forked ridge white pubescens with in the centre a fine groove.

Antenna: Eleven segments, scape black and swollen to the apex, other segments red-brown. Entirely covered with fine grey pubescens and ventrally fringed with long hairs.

Pronotum: Black, widest just below the centre with blunt tubercles on each side and tapering to the base and stronger to the apex. Entirely covered with very short grey contiguous pubescens, to the apex ferruginous. Laterally with a white pubescent line. Two white pubescent spots dorsally and four small ones along base. Entirely covered with fine punctures.

Scutellum: Black with grey pubescens.

Elytra: Black, entirely covered with very fine grey pubescens, scarcer along base. Tapering to the laterally spined and suturally weak spined apex. Four white pubescent spots on base, two next to the shoulders and two on both sides of the scutellum. Epipleura almost entirely covered with white pubescens, near apex with two very small spots next to the suture. Laterally with white pubescent lines. A white line at the apex running along the suture. Elytra entirely covered with fine punctures, along base with larger ones.

Legs: Black, femur claviate with very fine grey pubescens. Tibia pitchy at base fading into chestnut and with longer grey pubescens.

Abdomen: Ventrally, pitchy (coal-black), shiny and smooth. Laterally with white pubescens.

Genitalia: The male genitalia are depicted in fig. 9.

Distribution: Only known by the holotype, collected East from Port Moresby.

Etymology: The species is named after the village Bisianumu where it was collected by Gressitt.

***Trigonoptera enarotali* spec. nov.** (fig. 3)

urn:lsid:zoobank.org:act: 68C7C3B5-145F-441F-80A3-225563211514

Holotype: ♀ BPBM: [Indonesia, Papua], Enarotali, leg. Sedlacek.

Diagnosis: Judged by the definition of Gressitt (1984, page 204-58) this species belongs to the *marmorata* group.

Description: Total length: 9 mm.; width: 3 mm. Male unknown.

Head: Buff, shiny and smooth. Black eyes. Entirely covered with yellow contiguous pubescens, except ventrally, and the Y-forked ridge on clypeus and vertex which is widened to a wide oval area. Y-forked area with a short fine groove. Clypeus and labrum with some very long stiff black hairs.

Antenna: Eleven segments, chestnut coloured, not reaching the elytra apex. With fine grey pubescens and ventrally fringed.

Pronotum: Buff, shiny and entirely covered with long yellow pubescens, except for three dorsal longitudinal bare areas: one central area and at both sides an oblique area directed laterally. The three bare areas not reaching the base. At both sides a small ventro-lateral tubercle which is hardly visible by the covering pubescens.

Scutellum: Chestnut, entirely covered with yellow pubescens.

Elytra: Chestnut, gradually tapering to the laterally sharp and suturally weak spined apex. Numerous yellow pubescent areas of different size with scattered pitchy punctures, at the base a majority of small dots. Between the sutural and a lateral ridge, three longitudinal areas separated by obscure ridges: a large one distally from base to the apex, one along the suture and two which are divided in the middle. The right elytron of the holotype is deformed.

Legs: Yellow-brown, with grey pubescens.

Abdomen: Ventrally orange, with a shiny and smooth central area. Laterally with yellow pubescens.

Distribution: The only known specimen was found in Enarotali in the Paniai region of Papua, Indonesia.

Etymology: The name of the species refers to the village Enarotali where the holotype was collected by Joseph Sedlacek, probably in the early sixties of the 20th century.

Trigonoptera mastrigti spec. nov. (fig. 4)

urn:lsid:zoobank.org:act: C9F13E0E-A19F-43F5-8DFD-BDD8D6BB7BFE

Holotype: ♀ RMNH: [Indonesia, Papua], Zwartval. [Swart Valley], Westside, 1400-2000 m., 10.xi.1958, [leg. unknown].

Diagnosis: Judged by the definition of Gressitt (1984, page 204-58) this species belongs to the *marmorata* group.

Description: Total length: 10 mm.; width: 4 mm. Male unknown.

Head: Buff with black eyes. An obscure Y-forked ridge and in the depression of it a dark groove from labrum to base with laterally yellow pubescens, as well as on the labrum and around the eye lobes.

Antenna: With eleven segments, buff to orange, passing the elytra apex. Covered with very fine grey pubescens, ventrally fringed. Scape a little swollen to the apex.

Pronotum: Buff and shiny with punctures on basal half at both sides of the central area. More or less square, at base somewhat wider than at the apex. Laterally with wide yellow pubescent areas with a sharp tubercle. Ventrally a small yellow pubescent line running from base to apex.

Scutellum: Chestnut with weak grey pubescens.

Elytra: Buff, laterally at some areas fading to olive. From base gradually tapering to the laterally sharp tubercled apex. Entirely covered with grey pubescens. Dorsally with three weak ridges with deep punctures arranged in rows, weaker near the apex. Between those ridges with punctures and yellow pubescent longitudinal spots in rows, not reaching the apex. At base with some yellow spots.

Legs: Buff, entirely covered with grey pubescens. Femur clavate.

Abdomen: Ventrally buff, in the centre with a narrow smooth and shiny area. Laterally with scarce yellow pubescens.

Distribution: The only known specimen was collected in the Swart Valley in the Jayawijaya Mountains, West from the Baliem Valley, Papua, Indonesia.

Etymology: The species is named in honor of the Franciscan Missionary Br. Henk van Mastrigt who dedicated an important part of his life to the study of butterflies in New Guinea and stimulated local Biology students and scientists to study New Guinea insects. Until his death in 2015 he was always a great help to the author and other members of the Papua Insects Foundation.

Trigonoptera onarunka spec. nov. (fig. 5, 8)

urn:lsid:zoobank.org:act: B1E960B5-44A4-451B-9C7E-051DDA4339C0

Holotype: ♀ BPBM: Papua New Guinea, Prov. Environ Kainatu, Onarunka. 14.x.1979.

Paratypes (6 ♀♀): 1 ♀ BPBM: as holotype; 1 ♀ BPBM: Papua New Guinea, Purosa, 1700 m, 17-25.v.1966, leg. Gressitt & Tawi; 1 ♀ BPBM: Papua New Guinea, Nundug 1, 1200-2700 m, 28.v.1959, Leg. C.D. Michener; 1 ♀ BPBM: Papua New Guinea, Miramar, Asaro V, 1500 m, 27.vi.1955; 1 ♀ BPBM: Papua New Guinea, Around Rintobo; 1 ♀ RMNH: Papua New Guinea, Yaibos, 2150-2200 m, 10.vi.1963, Leg. Sedlacek.

Diagnosis: Judged by the definition of Gressitt (1984, pages 199-9 and 201-28) this species belongs to the *guttelata* group.

Description: Total length: 14mm.; width: 4 mm. Male unknown.

Head: Black, smooth and shiny with a wide Y-forked strong ridge on clypeus and vertex, with in the centre a fine groove and on clypeus two oblique ridges from centre of the Y-fork to the sides (fig. 8). Yellow pubescens on labrum, around the eyes and in the round depression of the Y-fork.

Antenna: Eleven segmented. Scape pitchy, other segments chestnut. Not reaching elytra apex. With very weak grey pubescens, ventrally fringed.

Pronotum: Black, wider than long and from base a little tapering to the apex. A few wide spread punctures, but not in the central area. Entirely covered with transparent, contiguous pubescens. Some long yellow contiguous pubescent dots along base and centrally off base, two longitudinal spots on both sides in the central area and some lateral dots. At both sides a small sharp tubercle.

Scutellum: Black, entirely covered with grey pubescens and at apex with some yellow, long pubescens.

Elytra: Black. From the wide, projecting shoulders gradually tapering to the laterally sharp and suturally weak tubercled apex. Entirely covered with very fine grey pubescens, except for a postscutellar area and four longitudinal shiny and smooth ridges. The elytra are sprinkled with yellow dots between the ridges. At the base are some scattered spots, a transverse band pre-medially with four spots and a band post-medially with on each elytron three spots and at least some spots at the apex. Most spots seem to be remnants of larger longitudinal elliptical spots. One paratype has white spots instead of yellow.

Legs: Entirely black, with widely spread grey pubescens. In some paratypes the legs are chestnut coloured instead of black.

Abdomen: Ventrally chestnut, shiny and smooth, laterally with very fine grey pubescens.

Distribution: Known from some village at high altitude in the interior of the mainland of Papua New Guinea.

Etymology: The species name refers to the type locality Onarunka.

Trigonoptera toxopeusi spec. nov. (fig. 6-7)

urn:lsid:zoobank.org:act: 4F1A0A24-C54C-48A0-BDC0-EE28457C3EF5

Holotype: ♀ RMNH: [Indonesia, Papua], Lake Habbema, [Third Archbold] Exp. 1938, 3250-3300 m., Amer. New Guinea Exp. leg. Toxopeus.

Diagnosis: Judged from the completely black and shiny habitus, this species forms a new group in the genus *Trigonoptera*.

Description: Total length: 12 mm., width: 4 mm. Male unknown. General habitus dorsally rather convex.

Head: Chestnut, shiny and smooth with an Y-forked blunt ridge on front and vertex. In the depression of this ridge a narrow fine groove with some punctures. On labrum and along the eyes some scattered white pubescens. The clypeus with some long stiff hairs. Ventrally pitchy.

Antenna: Chestnut, eleven segments, not reaching the elytra apex. The scape chestnut and distally swollen, the other segments dark-brown. Covered with fine grey pubescens. From fifth segment each segment with a white pubescent base and apex.

Pronotum: Chestnut, shiny, along base and apex pitchy bands. Much wider than long, lateral with long blunt tubercles. The border along apex with a very short white pubescent line. The edge of the smooth central area with punctures, anteriorly with creamy pubescent dots, base of the corners and ventro-laterally with a longitudinal line. Ventrally with some very long contiguous white hairs.

Scutellum: Ventrally pitchy with a shiny chestnut center.

Elytra: Pitchy and slowly tapering to the laterally long and short spined apex on the suture. A large elevated post-scutellar area, entirely with a knobby surface. Dorsally the first half of the elytra with strong punctures. Three very strong elevated blunt ridges: one along the suture starting behind the post-scutellar elevated area, a second one running parallel with the first one, a third one starting lateral behind the elevated shoulders. The second and third ridge are reuniting near apex and end laterally at the apical tubercle (fig. 7). Between the

ridges are deep areas with large punctures. Elytra sprinkled with scattered small white pubescent dots. Epipleura with deep punctures in white contiguous pubescens. The apex with a peculiar large translucent area.

Legs: Chestnut, femur and tibia with pitchy apex, shiny and smooth with widely scattered pubescens.

Abdomen: Ventrally chestnut, all segments anteriorly bordered with a pitchy band. Laterally with a narrow white pubescent area.

Distribution: Only known by the holotype, at high altitude at Lake Habbema, Lorentz National Park, Papua, Indonesia.

Etymology: This species is named in honor of Dr. L.J. Toxopeus, zoologist during the Dutch-East Indies-American Third Archbold Expedition in 1938 and collector of the holotype specimen.

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Figs 1-4. Adults of *Trigonoptera* species: **1.** *Trigonoptera archboldi* **spec. nov.** ♀ holotype [BPBM]; **2.** *T. bisianumu* **spec. nov.** ♂ holotype [BPBM]; **3.** *T. enarotali* **spec. nov.** ♀ holotype [BPBM]; **4.** *T. mastrikti* **spec. nov.** ♀ holotype [RMNH].



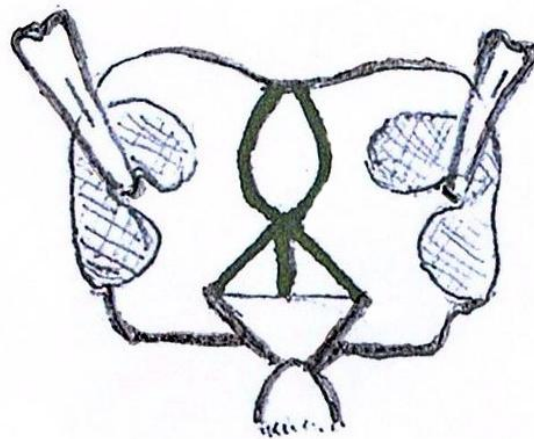
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Figs 5-6. Adults of *Trigonoptera* species: **5.** *Trigonoptera onarunka* **spec. nov.** ♀ holotype [BPBM]; **6.** *T. toxopeusi* **spec. nov.** ♀ holotype [RMNH].

Figs 7-8. Schematic figures of *Trigonoptera* structures: **7.** Right elytrum of *T. toxopeusi* **spec. nov.**, showing the strong forked ridges on the surface and the translucent apical area; **8.** Clypeus and vertex of the head of *T. onarunka* **spec. nov.**, showing the Y-forked ridges.

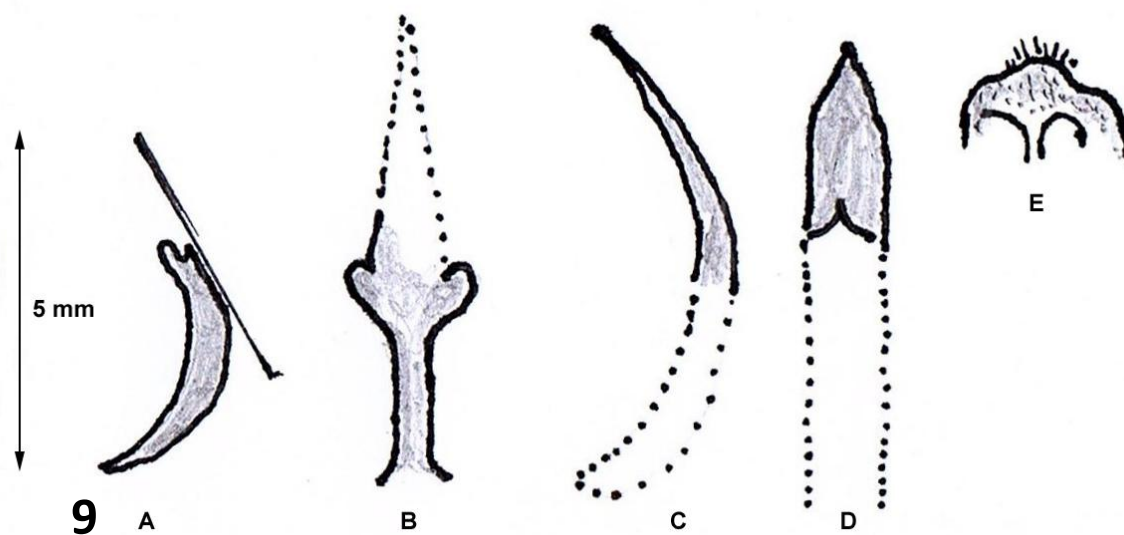


Fig. 9. Male genitalia of *Trigonoptera bisianumu spec. nov.*: **a.** paramere lateral; **b.** paramere ventral; **c.** aedeagus ventral; **d.** aedeagus lateral; **e.** 8th ventral tergite.