

## Tomoderinae (Coleoptera: Anthicidae) from the Indo-Australian transition zone

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### Abstract

Species of Tomoderinae from Sulawesi, the Moluccas and New Guinea are taxonomically revised. Descriptions of seven new species and one subspecies are given, namely *Pseudotomoderus antennatus* sp. nov. (Papua New Guinea), *Tomoderus dumogaensis orientalis* ssp. nov. (Papua New Guinea), *T. leaseensis* sp. nov. (Saparua), *T. mairasi* sp. nov. (Indonesian Papua), *T. megapenis* sp. nov. (Papua New Guinea), *T. seramensis* sp. nov. (Seram), *T. shkarupini* sp. nov. (Misool), and *T. sulcobasis* sp. nov. (Papua New Guinea). One new combination is proposed, one lectotype is designated. An identification keys to the *Pseudotomoderus* PIC and *Tomoderus* LAFERTÉ-SÉNECTÈRE species of the study area and an annotated species list are presented.

### Zusammenfassung

Arten der Tomoderinae aus Sulawesi, von den Molukken und aus Neu Guinea wurden taxonomisch revidiert. Sieben Arten und eine Unterart sind als neu für die Wissenschaft beschrieben, namentlich *Pseudotomoderus antennatus* sp. nov. (Papua Neuguinea), *Tomoderus dumogaensis orientalis* ssp. nov. (Papua Neuguinea), *T. leaseensis* sp. nov. (Saparua), *T. mairasi* sp. n. (Indonesische Papua), *T. megapenis* sp. nov. (Papua Neuguinea), *T. seramensis* sp. nov. (Seram), *T. shkarupini* sp. nov. (Misool) und *T. sulcobasis* sp. nov. (Papua Neuguinea). Eine Neukombination ist vorgeschlagen, ein Lectotypus ist bezeichnet. Original erstellte Bestimmungsschlüssel der *Pseudotomoderus*- und *Tomoderus*-Arten aus dem Studiengebiet, sowie eine kommentierte Artenliste sind präsentiert.

**Key words:** Coleoptera, Anthicidae, Tomoderinae, *Pseudotomoderus*, *Tomoderus*, Wallacea, Sulawesi, the Moluccas, Raja Ampat, New Guinea, taxonomy, biogeography, new species, identification key, checklist.

### Introduction

Our knowledge of the Tomoderinae Anthicidae of the Indo-Australian transition zone, including Sulawesi, Moluccas, and New Guinea is still very limited. The number of species hitherto described from this biodiversity hotspot is unfortunately low. Most of the species previously known from Wallacea are described on the basis of very old material collected mainly by A. R. Wallace, L. M. d'Albertis, O. Beccari, and others. Until the end of the twentieth century, there were no major additions to the Tomoderinae fauna of the region, except for occasional descriptions (for example, UHMANN 1995a, 1995b, 1999, 2000). UHMANN (2007) presented a key to Australian species of Tomoderinae. This key and given redescrptions of Australian species are almost useless and should only be evaluated as subjects of Uhmans' interpretation, because type specimens of analysed species were not studied and genital organs were not dissected. Several species listed by UHMANN (2007) as *Tomoderus* and *Pseudotomoderus* (Anthicidae: Tomoderinae) in reality are members of *Trichananca* (Anthicidae: Lemodinae). These species would be revised in a separate publication so these are not analysed in my current publication.

Since then several expeditions to this region have been made by the Natural History Museum of London (North Sulawesi) (TELNOV 2005), the Naturkundemuseum Erfurt (Sulawesi, North Moluccas, Raja Ampat Islands, New Guinea), the National Museum of Wales (Sulawesi & Aru Islands), and the Entomological Society of Latvia (the Moluccas, Raja Ampat, Indonesian Papua), producing valuable new material for a study of the Tomoderinae.

Among the Tomoderinae, *Pseudotomoderus* Pic and *Tomoderus* LaFerté-Sénectère are the only two genera known from the Indo-Australian transition region. No Tomoderinae have been hitherto recorded from the area eastwards to Papua New Guinea – not from the Solomon Islands, New Caledonia, or from the Pacific Islands. The fauna and ecology of the Tomoderinae of

the region of Indo-Australian transition remains poorly known and needs further attention by anthicidologists. It is interesting that the species from the region of Indo-Australian transition share similar morphological characters that are otherwise not so commonly found amongst the Tomoderinae of the Asian mainland, the Greater Sunda Islands, or the Philippines (TELNOV 2005, 2006).

In this paper, seven new species and one subspecies are described, namely *Pseudotomoderus antennatus* sp. nov. (Papua New Guinea), *Tomoderus dumogaensis orientalis* ssp. nov. (Papua New Guinea), *T. leaseensis* sp. nov. (Saparua Island), *T. mairasi* sp. nov. (Indonesian Papua), *T. megapenis* sp. nov. (Papua New Guinea), *T. seramensis* sp. nov. (Seram Island), *T. shkarupini* sp. nov. (Misool Island), and *T. sulcobasis* sp. nov. (Papua New Guinea). New records for the region of the Indo-Australian transition are given for eight species. One new combination and one lectotype designation are made, and an original identification keys to *Pseudotomoderus* Pic and *Tomoderus* LaFerté-Sénéctère are presented for the first time for this area.

## Legends

All species are listed alphabetically. All label text is reproduced exactly, with no corrections or additions; labels (if more than one for the same specimen) are separated by slashes (/). If not otherwise stated, all labels are printed. Author's comments are placed in square brackets [ ]. Holotypes of some newly described species are placed in the author's private collection in Rīga [DTC]; these will be presented to a public collection in the near future.

Acronyms for the collections:

BMNH	The Natural History Museum (British Museum, Natural History), London (UK);
DTC	Collection Dmitry Telnov, Rīga (Latvia);
HMNH	Hungarian National Museum of Natural History, Budapest (Hungary);
IRSN	Institut royal des Sciences naturelles de Belgique, Brussel (Belgium);
MCGD	Museo Civico di Storia Naturale "Giacomo Doria", Genova (Italy);
NHMW	Naturhistorisches Museum Wien (Austria);
NME	Naturkundemuseum Erfurt (Germany);
NMW	National Museum Wales, Cardiff (United Kingdom).

## Nomenclatural change

*Tomoderus glabricollis* (Uhmann) **comb. nov.**

Original placement: *Pseudotomoderus glabricollis* Uhmann, 2000: 148.

Based on study of the holotypus [HMNH]: NEW GUINEA /NE/ Lae 4–6.IX.1968. [printed] / /No.NG-L-B.78./ leg. Dr. J. Balogh [printed] / Typus [printed, label red, label border black] / *Pseudotomoderus* [printed] *glabricollis* sp. n. [handwritten] det. G. Uhmann 19 [printed] 98 [handwritten].

Although the elytra are elongate in this species, it should be transferred to *Tomoderus* LaFerté-Sénéctère on base of the structure of metasternum.

## Lectotype designation

*Tomoderus plicicollis* Pic, 1900b

**Lectotypus** ♀ [herewith designated], MCGD: N. GUINEA S.E. *Moroka*, 1300 m. Loria VII-XI. 93 [printed, label border black] / Typus [printed, text red, label border red] / *plicicollis* Pic [handwritten] / *Tomoderus plicicollis* Pic n sp. [handwritten] / Museo Civ. Genova [printed].

## Descriptions of new taxa

***Pseudotomoderus antennatus* sp. nov.** Figs 1–2.

**Holotypus** ♂, IRSN: Coll.I.R.Sc.N.B. PAPUA NEW GUINEA Baiteta (Madang prov.) Canopy Mission FOG AR 42 12.IV.1996 Leg. Olivier Missa. [label orange].

**Paratypes** 3 specimens, IRSN: 1 ♂, 1 ♀, 1 sex unknown [not dissected], same label as in the holotypus.

**Measurements of the holotype.** Total body length 1.97 mm, maximum combined width across middle of elytra 0.62 mm; head 0.40 mm long, through eyes 0.47 mm broad, pronotum 0.40 mm long, maximum width 0.45 mm, minimum width 0.25 mm, elytra 1.17 mm long, 0.62 mm together broad.

**Description.** Dorsum uniformly light yellowish brown, head somewhat slightly darker, legs, antennae and palps lighter yellow. Eyes black. Underside uniformly yellowish brown. Head circular, dorsally slightly convex, glossy and shiny. Eyes round, extremely large and strongly prominent, finely faceted, occupying the whole sides of the head (not leaving visible tempora). Head base very broadly rounded, almost straight. Frontoclypeal

suture replaced by fine, almost straight transverse impression. Punctures almost invisible, extremely minute and sparse. Underside almost glossy. Pubescence very fine, yellowish, suberect; several very long erect tactile setae on base and around eyes. Antennae stout and long, reaching over the postbasal transverse impression of elytra, covered by dense short and sparse long erect setae. Basal antennomere thickened, elongated, widened apically. Second antennomere short but broad, subquadrate. Third antennomere 1/4 longer than preceding. Antennomeres 3–6 widened distally, 7–10 strongly widened and shortened, building weak and elongate club. Penultimate antennomere slightly broader than long. Terminal antennomere elongate conical, longer than two preceding antennomeres together. Terminal maxillary palpomere short, broadly cultriform. Pronotum dorsally flattened, slightly shiny. Anterior margin broadly rounded, lateral constriction deep. Disc of pronotum dorsally only slightly impressed at lateral constriction (in lateral view). Anterior lobe with 4 very little denticles on each side. All these denticles are of more or less same size, except the anterior one being the smallest. Anterior lobe with deep and relatively broad dorsal longitudinal impression beginning on anterior margin and reaching the lateral constriction. Punctures on anterior lobe inconspicuous, minute, almost invisible. Dorsally roughly and confusedly punctured in lateral constriction, spaces here much smaller than large punctures. Pubescence yellowish, fine, suberect and sparse; very long and erect seta on each lateral denticle. Scutellum very short and broad, truncate apically. Elytra elongate, flattened in dorsal view, slightly shiny, with rounded but clearly visible humeri. Postbasal transverse impression broad but very shallow. Punctures deep, large and dense in basal half, arranged in irregular striae. Size of punctures in striae and on interstitial spaces is various – from very large to small. Intervening spaces much smaller than punctures. Punctures becoming much more flat toward apex, but intervening spaces remains same in size. Pubescence yellowish, long and quite dense, appressed, directed posteriorly. With numerous erect tactile setae on disc and sides. Sutural striae very fine, indicated in apical third of elytra. Hind wings fully developed. Apical part of last visible tergite not covered by elytra, broadly rounded apically in male. Visible sternite V short, broadly rounded apically in both sexes. Aedeagus long and slender, curved in basal third and pointed

apically (Fig. 2). Legs inconspicuous, sparsely setose. Penultimate tarsomeres small, indistinctly bilobate. Basal metatarsomere much longer than combined length of remaining tarsomeres.

**Sexual dimorphism.** Not indicated.

**Differential diagnosis.** Between other member of this genus, *Pseudotomoderus antennatus* is recognizable by very long antennae, reaching over the postbasal transverse impression of elytra, having indistinct club of 5 thickened terminal antennomeres and terminal antennomere being longer than combined length of two penultimate antennomeres 9 & 10. By *P. flavus* (Heberdey, 1936) (Borneo, Vietnam, Sulawesi) and *P. denticollis* (Champion, 1891) (N Australia; Holotypus ♂ studied [BMNH]: Adelaide River. [printed, red underlined] 92–20. [printed] / 1007 [printed] / *Tomoderus denticollis*, Ch. [handwritten]) posterior (lowermost) denticle is distinctly larger than other denticles, but not larger in *P. antennatus*. By *P. denticollis*, which also bear very long antennae, postbasal transverse impression on elytra is not indicated and elytra are confusedly punctate, without irregular rows of punctures. Australian *P. leai* (Pic, 1897) have shorter antennae. Widespread in the Palaearctic and Afrotropical regions *P. compressicollis compressicollis* (Motschulsky, 1839) and its both subspecies are larger, have shorter antennae and wave-shapely curved aedeagus.

**Etymology.** Named because of conspicuous long and heavy antennae from Latin “antenna”.

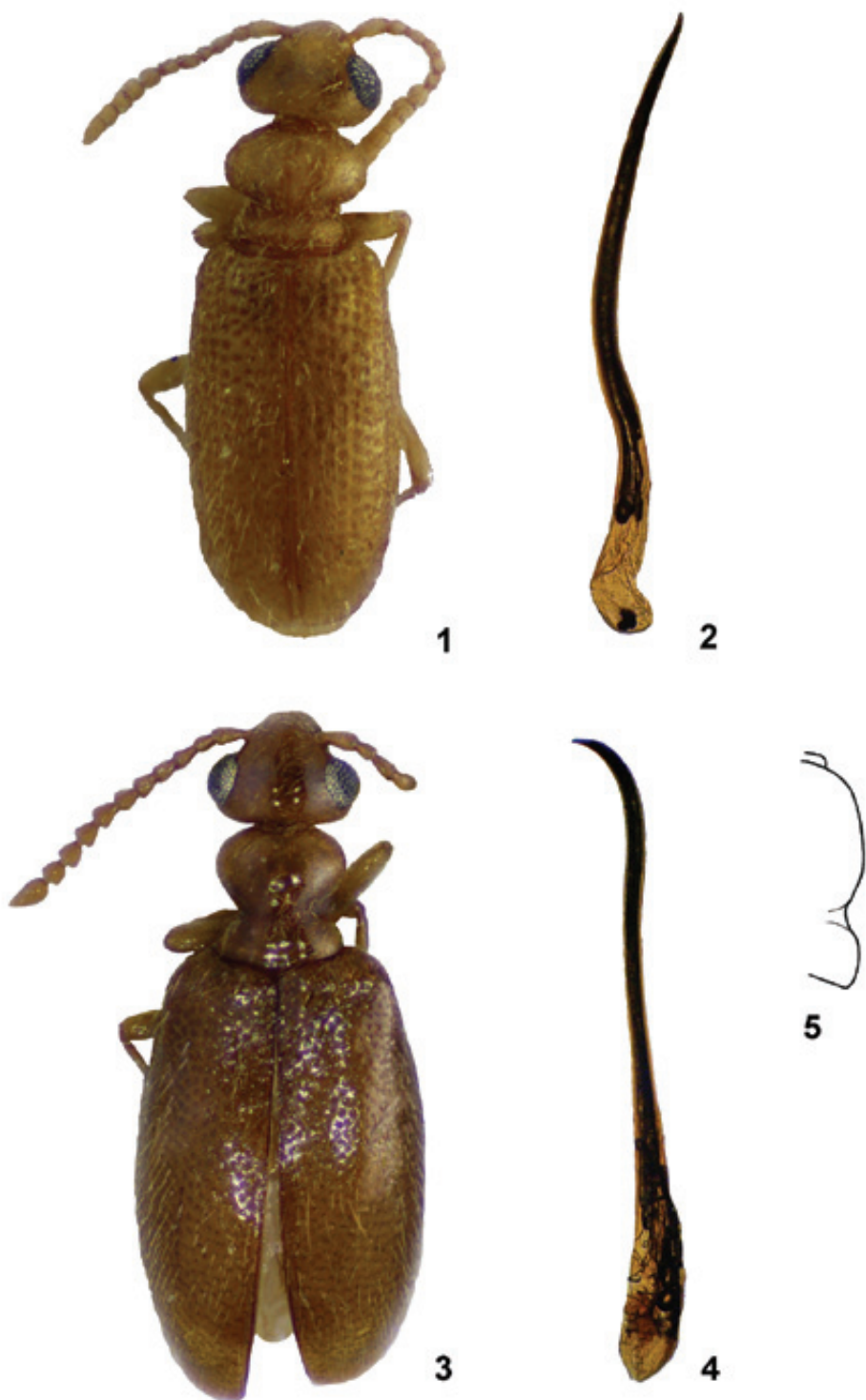
**Distribution.** So far, only known from the locus typicus, Baiteta surroundings in Madang province of Papua New Guinea.

***Tomoderus dumogaensis orientalis* ssp. nov.** Figs 3–5.

**Holotypus** ♂, IRSN: Coll.I.R.Sc.N.B. PAPUA NEW GUINEA Canopy Mission Madang Province Baiteta Fog AR 62 03–VII–1996 Leg Olivier Missa [label orange].

**Paratypes** 9 specimens: 1 ♀, IRSN: same label as in the holotypus; 5 ♀ ♀, IRSN: Coll.I.R.Sc.N.B. PAPUA NEW GUINEA Canopy Mission Madang Province Baiteta Fog AR 26 7–VII–1995 Leg Olivier Missa [label orange]; 3 ♀, IRSN: Coll.I.R.Sc.N.B. PAPUA NEW GUINEA Canopy Mission Madang Province Baiteta Fog AR 69 29–VII–1996 Leg Olivier Missa [label orange].

**Measurements of the holotype.** Total body length 2.57 mm, maximum combined width across middle of



Figures 1–2. *Pseudotomoderus antennatus* sp. nov. (paratype ♂): 1 – habitus, dorsal; 2 – aedeagus, lateral.

Figures 3–5. *Tomoderus dumogaensis orientalis* ssp. nov. (paratype ♀): 3 – habitus, dorsal; 4 – aedeagus, lateral; 5 – shape of pronotum, lateral.

elytra 0.94 mm; head 0.50 mm long, through eyes 0.57 mm broad, pronotum 0.49 mm long, maximum width 0.48 mm, minimum width 0.28 mm, elytra 1.58 mm long, 0.94 mm together broad.

**Description.** Dorsum uniformly yellowish brown to orange brown, legs, antennae and palps somewhat lighter. Each elytron with very vague indicated dark transverse spot behind the middle; in holotypus and many paratypes this spot is not indicated. Underside uniformly yellowish to orange brown. Head triangular, dorsally glossy and shiny. Eyes extremely large and strongly prominent, roughly faceted, occupying the whole sides of the head (not leaving visible tempora). Head base truncate, almost straight. Frontoclypeal suture not indicated. Punctures small and flat, but dense, intervening spaces as large to smaller as punctures size. Underside glossy. Pubescence fine, brownish, long and dense, suberect. Separate long erect setae on base and around eyes. Antennae stout, reaching elytral humeri, covered by dense short and sparse long erect setae. Basal antennomere thickened, elongated, widened apically. Second antennomere shortened, widened distally. Third antennomere longest, 1/3 longer than preceding. Antennomeres 4–6 widened distally, 7–10 triangular – shortened and strongly widened distally. Penultimate antennomere as long as broad. Terminal antennomere elongate conical, 2 x longer than preceding. Terminal maxillary palpomere broad, securiform. Pronotum dorsally glossy and shiny. Anterior margin broadly rounded, lateral constriction average deep. Disc of pronotum dorsally only slightly and broadly impressed at lateral constriction (in lateral view; Fig. 5). Punctures on anterior lobe dense but very flat, intervening spaces smaller than punctures. Dorsally roughly and confusedly punctured in lateral constriction, spaces microsculptured, smaller than large punctures. Pubescence brownish, sparse, quite long, suberect, with 4 long and erect setae on sides and few other on disc. Scutellum very small, triangular. Elytra subparallel, flattened in dorsal view, glossy and shiny, with rounded but visible humeri. Punctures mid-sized and very dense but flat. Intervening spaces smaller as punctures size. Toward apex punctures becoming smaller and less deep. Pubescence yellowish, fine and long, quite dense, adpressed, directed posteriorly. With numerous long and erect tactile setae on disc and sides. Sutural striae broad, absent in basal third of elytra. Hind wings fully developed.

Last visible tergite partly exposed, not fully covered by elytra, rounded apically in both sexes. Visible sternite V very short, broadly rounded apically in both sexes. Aedeagus long, apically pointed, hooked (Fig. 4). Legs inconspicuous, sparsely setose. Basal metatarsomere longer than longer than combined length of remaining tarsomeres. Penultimate metatarsomere distinctly bilobate.

**Sexual dimorphism.** Almost not indicated; terminal antennomere in female comparatively longer, than in male, eyes comparatively larger in male than in female.

**Variability.** Specimens from type serie varies in colour patter of dorsum from light yellow to orange-brown. Lighter coloured specimens bear very vague indicated dark transverse spot in postmedian area on each elytron. pronotum is very feebly impressed in the middle of anterior margin in some paratypes.

**Differential diagnosis.** Differs from the nominate form by apically more hooked aedeagus and absence of lateral denticles on pronotum, as also in smaller body size.

**Etymology.** Named because of more oriental origin compared to the nominate form, which is known from North Sulawesi.

**Distribution.** So far, only known from the locus typicus, Baiteta surroundings in Madang province of Papua New Guinea.

*Tomoderus leaseensis* sp. nov.

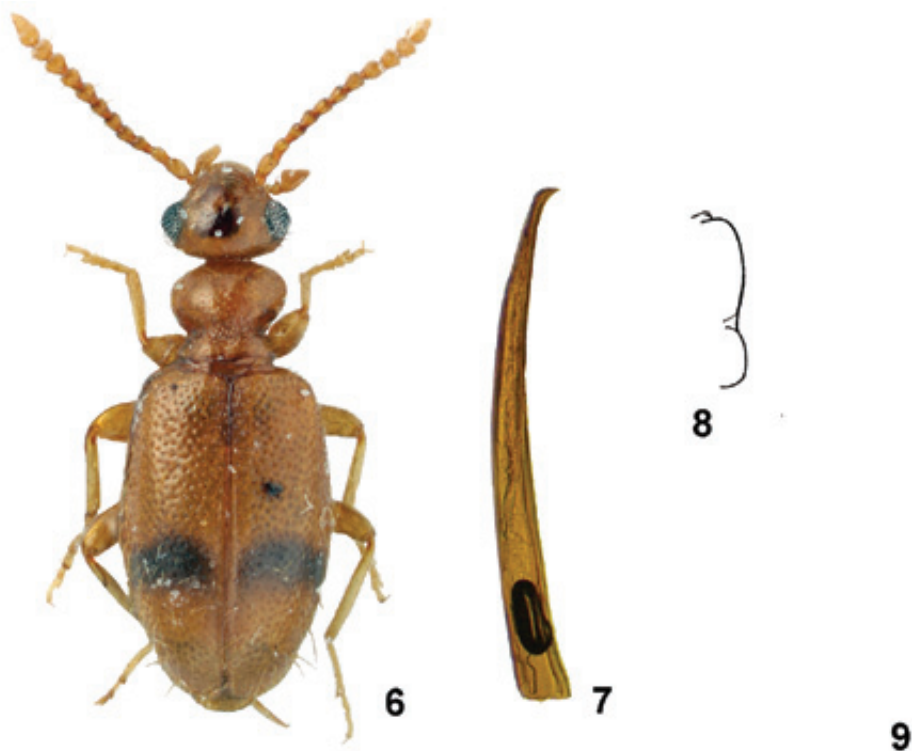
Figs 6–9.

**Holotypus** ♂, DTC: INDONESIA E, Prov. Maluku tengah, Lease Islands, Saparua, kota Saparua ~1,5 km NE, 03°33'31"S, 128°39'50"E, 11.IV.2009, secondary lowland forest & shrubs, beaten, leg. D.Telnov & M. Kalniņš.

**Measurements of the holotype.** Total body length 2.00 mm, maximum combined width in postmedian area of elytra 0.77 mm; head 0.39 mm long, through eyes 0.47 mm broad, pronotum 0.45 mm long, maximum width 0.43 mm, minimum width 0.27 mm, elytra 1.16 mm long, 0.77 mm together broad.

**Description.** Dorsum uniformly rufous, legs and two terminal antennomeres lighter yellow. Elytra with dark brown postmedian transverse band not reaching lateral margins and narrowly interrupted on suture; frontal margin of this band curved and slightly prolonged anteriorly on each elytron. Underside uniformly yellowish brown. Head triangular, dorsally glossy and shiny.





Figures 6-9. *Tomoderus leaseensis* sp. nov. (holotype ♂): 6 – habitus, dorsal; 7 – aedeagus, lateral; 8 – shape of pronotum, lateral; 9 – gardens and shrubs in locus typicus near kota Saparua, Saparua Island (photo: M.Kalniņš).

Eyes round, large, prominent, roughly faceted, about 3x longer than very short tempora. Head base truncate, almost straight. Frontoclypeal suture not indicated. Punctures large but flat and sparse, intervening spaces as large as to larger than punctures. Underside almost glossy. Pubescence fine, yellowish, suberect. Antennae stout, reaching elytral base, covered by sparse long erect setae. Basal antennomere cylindrical, second antennomere shortened. Third antennomere longest, 1/3 longer than preceding. Antennomeres 4–6 nearly of same length 7–9 widened distally. Ninth antennomere slightly broader than long, penultimate antennomere distinctly broader than long. Terminal antennomere sharply conical, 2.5x longer than preceding. Terminal maxillary palpomere short & broad, but not securiform. Pronotum dorsally glossy and shiny. Anterior margin very broadly rounded, lateral constriction deep. Disc of pronotum dorsally impressed at lateral constriction (in lateral view; Fig. 8). Punctures on anterior lobe large but very flat, intervening spaces smaller to larger than punctures. Dorsally roughly and confusedly punctured in lateral constriction, spaces here much smaller than large punctures. Pubescence as on head, but with several long and erect setae on sides. Scutellum very small, rounded apically. Elytra slightly globose in dorsal view, glossy and shiny, with rounded but clearly visible humeri. Punctures large and dense, but flat. Intervening spaces smaller than punctures. Punctures becoming smaller toward apex, but intervening spaces similar in size. Pubescence yellowish, long and quite dense, suberect, directed posteriorly. With numerous long and erect tactile setae on disc and sides. Sutural striae fine but broad, absent in basal third of elytra. Hind wings fully developed. Apical part of last visible tergite not covered by elytra, broadly rounded in male. Visible sternite V broadly rounded apically in male. Aedeagus short and slender, curved and pointed apically (Fig. 7). Legs inconspicuous, sparsely setose. Penultimate tarsomeres of pro- and mesotarsi small, but distinctly bilobate. Basal metatarsomere as long as combined length of remaining tarsomeres.

**Sexual dimorphism.** The female is currently unknown.

**Differential diagnosis.** There are several similarly coloured species in the Oriental region and on New Guinea. *Tomoderus leaseensis* is recognizable by the combination of the following characters: frontal margin of dark postmedian transverse band of elytra arcuate,

pronotum without lateral tubercles, lacking median longitudinal impressions, lateral constriction of pronotum dorsally roughly punctured, aedeagus short and narrow, slightly curved and pointed apically.

**Etymology.** Named after the region of origin, the Lease Islands South of Seram, Central Moluccas.

**Ecology.** Collected by beating from dry leaves in gardens and remains of secondary lowland rainforests, on shady place and altitude ~100 m a.s.l. (Fig. 9).

**Distribution.** So far, only known from the locus typicus, Saparua Island in the Lease Islands group of the Central Moluccas in eastern Indonesia.

*Tomoderus mairasi* sp. nov.

Figs 10–13.

**Holotypus** ♂, DTC: INDONESIA E, West Papua, S Bird's Neck, Kaimana 47 km E, Triton bay, Lobo vill. env., 3°44'55"S, 134°06'42"E, 0–50 m, 15.IX.2010, sago swamp, leg. D.Telnov.

**Measurements of the holotype.** Total body length 2.07 mm, maximum combined width in postmedian area of elytra 0.71 mm; head 0.41 mm long, through eyes 0.49 mm broad, pronotum 0.40 mm long, maximum width 0.40 mm, minimum width 0.26 mm, elytra 1.26 mm long, 0.71 mm together broad.

**Description.** Dorsum uniformly light rufous, legs, antennae and maxillary palps yellowish. Elytra with dark brown postmedian transverse band not reaching lateral margins and narrowly interrupted on suture; frontal margin of this band is not straight. Underside uniformly yellowish brown. Head triangular, dorsally glossy and shiny. Eyes round, very large and prominent, roughly faceted, leaving very narrow tempora only visible in lateral view. Head base very broadly rounded. Frontoclypeal suture not indicated. Both dorsal and ventral surface without visible punctures. Pubescence very fine and sparse, yellowish, appressed. Antennae heavy, reaching far over elytral base. Basal antennomere elongate. Second antennomere 1/6 shorter than third. Third antennomere longest, slightly thickened distally. Antennomeres 5–10 shortened and distinctly thickened. Antennomere 9 almost round. Penultimate antennomere broader than long. Terminal antennomere conical, twice as long as penultimate. Terminal maxillary palpomere short & broad, but not securiform. Pronotum dorsally glossy and shiny. Anterior margin very broadly rounded, lateral constriction broad and deep.



10



13



11



12

Figures 10–13. *Tomoderus mairasi* sp. nov. (holotype ♂): 10 – habitus, dorsal; 11 – aedeagus, lateral; 12 – shape of pronotum, lateral; 13 – sago swamp in locus typicus near Lobo in Triton Bay, Indonesian Papua.



Disc of pronotum dorsally shallowly impressed in place of lateral constriction (in lateral view; Fig. 12). Anterior lobe almost unpunctured, covered by very fine and sparse, quite long, appressed, yellowish hairs. On sides of anterior lobe with four very long erect tactile setae on each side. Lateral constriction dorsally coarsely and confusedly minutely punctured. Posterior lobe with large but shallow dorso-median impression. Scutellum very small, triangular. Elytra dorsally flattened in basal part, glossy and shiny. Humeri rounded but clearly visible. Postbasal transverse impression not indicated. Punctures dense and coarse, intervening spaces smaller than punctures except for those in apical area being as large as spaces. Pubescence yellowish, quite long and dense, suberect, directed posteriorly. Sutural striae not indicated. Hind wings fully developed. Last visible tergite completely covered by elytra in males. Last visible tergite short, half circular, broadly rounded apically and bear several very long setae in male. Visible sternite V short and broad, broadly rounded apically in male. Aedeagus long, slender and strongly curved, pointed apically (Fig. 11). Legs comparatively long and slender. Penultimate tarsomeres of protibiae small, but distinctly bilobate. Basal metatarsomere almost as long as combined length of remaining tarsomeres.

**Sexual dimorphism.** The female is currently unknown.

**Differential diagnosis.** There are several similarly coloured species with elongate elytra in the Oriental region and on New Guinea. *T. mairasi* is recognizable by the combination of the following characters: aedeagus slender, long and curved, eyes very large, elytra elongate, dorsally not globose, dark markings of elytra situated very posterior to the middle, antennomeres 5–10 widened, posterior lobe of pronotum broadly impressed medially.

**Etymology.** Named after Mairasi, the native local language of Triton Bay Papuans.

**Ecology.** Collected by beating from green leaves in sago swamp (Fig. 13).

**Distribution.** So far, only known from the locus typicus, Triton Bay in southern Bird's neck of New Guinea, E Indonesia.

*Tomoderus megapenis* sp. nov. Figs 14–16.

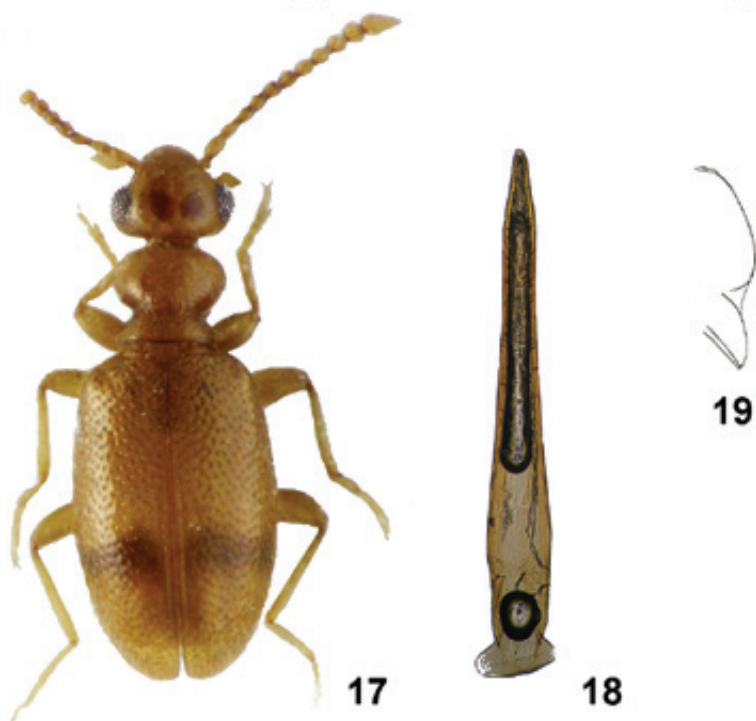
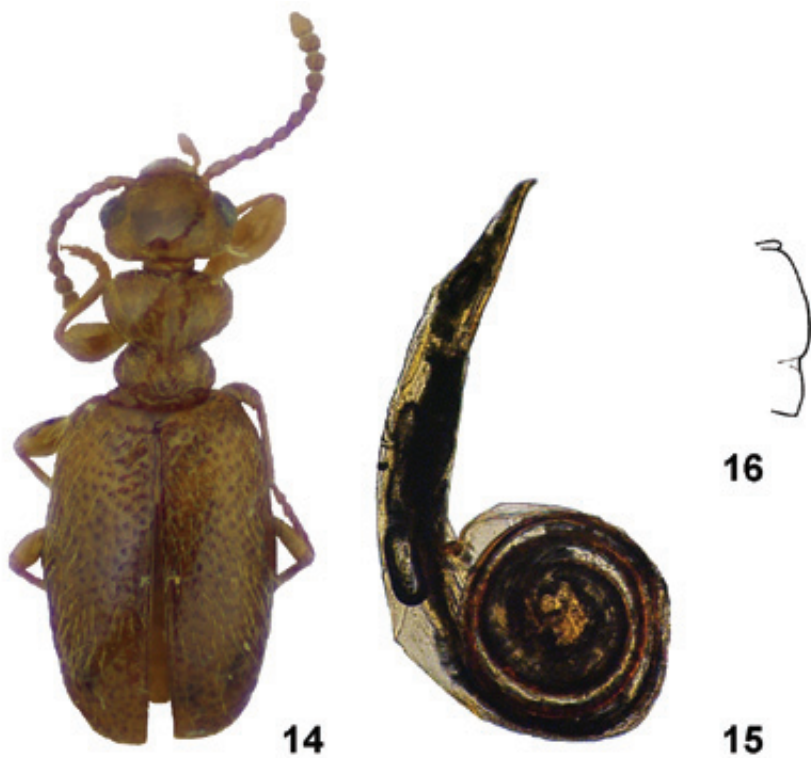
**Holotypus** ♂, IRSN: Coll.I.R.Sc.N.B. Papua New Guinea Madang Province Baiteta – FOG AR 1 Canopy Mission 27.IV.1995 Leg. Olivier. Missa [label orange].

**Paratypus** 1 ♀, IRSN: Coll.I.R.Sc.N.B. PAPUA NEW

GUINEA Canopy Mission Madang Province Baiteta Fog XF 10–VI–1993 Leg Olivier Missa [label orange].

**Measurements of the holotype.** Total body length 1.63 mm, maximum combined width across middle of elytra 0.58 mm; head 0.36 mm long, through eyes 0.39 mm broad, pronotum 0.35 mm long, maximum width 0.37 mm, minimum width 0.15 mm, elytra 0.92 mm long, 0.58 mm together broad.

**Description.** Dorsum uniformly yellowish brown, legs and two terminal antennomeres lighter yellow. Elytra slightly darkened in apical third. Underside uniformly yellowish brown. Head triangular, dorsally glossy and shiny. Eyes round, mid-sized, prominent, finely faceted, about 2 x longer than tempora. Head base very broadly rounded, nearly straight. Frontoclypeal suture replaced with fine, strongly arcuate transverse impression. Punctures minute but deep, with very large intervening spaces. Underside glossy. Pubescence very fine and sparse, yellowish, suberect. Antennae stout, not reaching base of pronotum, covered by sparse, very long, erect setae. Basal antennomere elongate cylindrical, about 3x longer than second antennomere. Second antennomere shortened. Third antennomere longest, 1/3 longer than preceding. Antennomeres 4–7 widened distally, 9–10 broader than long. Terminal antennomere broadly triangular, 2.2 x longer than preceding. Terminal maxillary palpomere shortly ovoid. Pronotum dorsally glossy and shiny. Anterior margin almost straight, lateral constriction deep. Anterior lobe of pronotum with 5 very little denticles on each side. Disc of pronotum dorsally only slightly impressed at lateral constriction (in lateral view; Fig. 16). Anterior lobe dorsally with deep and relatively broad longitudinal impression beginning on anterior margin and reaching the lateral constriction. Punctures on anterior lobe large but very flat, intervening spaces larger than punctures. Dorsally roughly and confusedly punctured in lateral constriction, spaces here much smaller than large punctures. Pubescence as on head, but longer and with several long and erect setae on lateral denticles. Scutellum very small, rounded apically. Elytra subparallel, flattened in dorsal view, glossy and shiny, with rounded but visible humeri. Punctures in basal half are large and dense, but flat. Intervening spaces as large to smaller as punctures size here. Toward apex punctures becoming smaller and sparser. Pubescence yellowish, long, quite dense, suberect, directed posteriorly. With



Figures 14–16. *Tomoderus megapenis* sp. nov. (holotype ♂): 14 – habitus, dorsal; 15 – aedeagus, lateral; 16 – shape of pronotum, lateral.  
 Figures 17–19. *Tomoderus seramensis* sp. nov. (holotype ♂): 17 – habitus, dorsal; 18 – aedeagus, lateral; 19 – shape of pronotum, lateral.

numerous long and erect tactile setae on disc and sides. Sutural striae fine and very narrow, developed in apical half of elytra. Hind wings fully developed. Last visible tergite not covered by elytra, broadly rounded apically in both sexes. Visible sternite V broadly rounded apically in both sexes. Aedeagus short, slightly curved, with very large circular basal piece (Fig. 15). Legs inconspicuous, sparsely setose. Penultimate tarsomeres of small, indistinctly bilobate.

**Sexual dimorphism.** Not indicated.

**Variability.** Head base is stronger rounded by female paratype.

**Differential diagnosis.** Easily recognized between all sulcate species of the genus by massive aedeagus. By *T. depressipennis* Pic, 1901 (Sumatra, Java), elytra are distinctly transverse impressed in postbasal area. *T. kuchingensis* Uhmman, 1993 (Borneo) is generally larger (total body length 2.30 mm), have elytra rounded on sides and bear a postscutellar impression on elytra. *T. strandi* Heberdey, 1936 (Java, Borneo) have longer tempora (almost as long as length of an eye), lateral constriction of pronotum is less deep in this species. Javanese *T. obscuripennis* Pic, 1913 is reddish brown coloured on forebody, but have darker brown elytra. By *Tomoderus sulcifer* Pic, 1893 (Sumatra, Java, Borneo) elytral punctures forming irregular rows near the suture.

**Etymology.** Named because of robust aedeagus of male, from Greek “megalo” (largest, great) and Latin “penis” (aedeagus, penis).

**Distribution.** So far, only known from the locus typicus, Baiteta surroundings in Madang province of Papua New Guinea.

***Tomoderus seramensis* sp. nov.** Figs 17–19, 26.

**Holotypus** ♂, DTC: INDONESIA E, Prov. Maluku tengah, Seram N, distr. Seram Utara, Trans-Seram road between Masohi and Sawai, Horale (former Saka) vill. ~7 km SW, river valley, 02°59'15"S, 129°02'37"E, 07.IV.2009, primeval lowland forest, on young trees along the river, leg. D. Telnov & K. Greke [the holotype is missing antennomeres 8–11 of the left antenna].

**Measurements of the holotype.** Total body length 1.98 mm, maximum combined width in median area of elytra 0.73 mm; head 0.38 mm long, through eyes 0.44 mm broad, pronotum 0.42 mm long, maximum width

0.41 mm, minimum width 0.30 mm, elytra 1.18 mm long, 0.73 mm together broad.

**Description and diagnosis.** Dorsum uniformly yellowish brown, legs and four terminal antennomeres lighter yellow. Elytra with narrow dark brown postmedian transverse band not reaching lateral margins and narrowly interrupted on suture; posteromedian margins of this band prolonged posteriorly and meets on suture, building indistinct V-shaped marking. Underside uniformly yellowish brown. Morphologically very similar and possible closely related to above described *T. leaseensis*, but aedeagus is not curved in apical area and not pointed, but with broader base and slightly constricted laterally before the apex (Fig. 18). Punctures fine and shallow on head. Third antennomere longest, but only slightly longer than preceding. Penultimate antennomere distinctly broader than long. Terminal antennomere sharply conical, 2.4x longer than preceding. Anterior margin of pronotum very broadly rounded, lateral constriction deep. Disc of pronotum dorsally impressed at lateral constriction (in lateral view; Fig. 19). Punctures on anterior lobe large but very flat, intervals smaller to larger than punctures. Elytra slender than in *T. leaseensis*. Last visible tergite completely covered by elytra in male, broadly rounded apically. Last visible sternite short and broadly rounded apically in male, bearing 5–6 very long apical setae.

**Sexual dimorphism.** The female is currently unknown.

**Etymology.** Named after the region of origin, Seram Island in the Central Moluccas.

**Ecology.** Collected by beating from dry leaves in primeval lower montane rainforests along the river, on shady place and altitude ~800 m a.s.l. (Fig. 26).

**Distribution.** So far, only known from the locus typicus, central mountains of Seram in the Central Moluccas, eastern Indonesia.

***Tomoderus shkarupini* sp. nov.** Figs 20–22, 27.

**Holotypus** ♂, DTC: INDONESIA E, Prov. Raja Ampat, distr. Misool Barat, Lilinta (Lelintah) vill. env., 02°02'54"S, 130°16'19"E, 01.IV.2009, secondary moist lowland forest, beaten, in copula, leg. D. Telnov & K. Greke.

**Paratypus** 1 ♀, DTC: same label as in the holotypus.

**Measurements of the holotype.** Total body length 2.63 mm, maximum combined width in postmedian area of



20



21



22



23



24



25

Figures 20–22. *Tomoderus shkarupini* sp. nov. (holotype ♂): 20 – habitus, dorsal; 21 – aedeagus, lateral; 22 – shape of pronotum, lateral.  
Figures 23–25. *Tomoderus sulcobasis* sp. nov.: 23 – habitus, dorsal (paratype ♀); 24 – aedeagus, lateral (holotype ♂); 25 – shape of pronotum, lateral (paratype ♀).



elytra 0.88 mm; head 0.49 mm long, through eyes 0.56 mm broad, pronotum 0.54 mm long, maximum width 0.44 mm, minimum width 0.27 mm, elytra 1.60 mm long, 0.88 mm together broad.

**Description.** Dorsum uniformly rufous, legs, antennae and maxillary palps lighter yellowish. Elytra with dark brown postmedian transverse band not reaching lateral margins and narrowly interrupted on suture; frontal margin of this band curved and in ^-shape prolonged anteriorly on each elytron. Underside uniformly tan. Head triangular, dorsally glossy and shiny. Eyes round, large, prominent, roughly faceted, about 4x longer than very short tempora. Head base truncate, nearly straight. Frontoclypeal suture replaced by feeble, straight transverse impression. Both dorsal and ventral surface almost unpunctured. Pubescence very fine and sparse, yellowish, appressed. Antennae heavy, reaching elytral base. Basal antennomere thickened in distal two-thirds. Second antennomere 1/3 shorter than third. Third antennomere longest, slightly thickened distally. Antennomeres 4–10 shortened and thickened. Penultimate antennomere as long as wide. Terminal antennomere conical, twice as long as penultimate. Terminal maxillary palpomere short & broad, but not securiform. Pronotum dorsally glossy and shiny. Anterior margin very broadly rounded, lateral constriction broad and deep. Disc of pronotum dorsally impressed in place of lateral constriction (in lateral view; Fig. 22). Anterior lobe almost unpunctured, covered by very fine and very sparse, quite long appressed yellowish hairs. Lateral constriction dorsally coarsely and confusedly punctured, with minute intervening spaces. Scutellum very small, triangular. Elytra dorsally flattened in basal part, slightly globose in apical part, glossy and shiny. Humeri rounded but clearly visible. With extremely shallow postbasal transverse impression. Punctures dense and coarse, intervening spaces smaller or as large as punctures. Punctures becoming flatter toward apices. Pubescence yellowish, quite long and dense, suberect, directed posteriorly. Sutural striae fine but broad, indicated in apical half of elytra. Hind wings fully developed. Last visible tergite completely covered by elytra. Last visible tergite broadly rounded apically in male. Visible sternite V broadly rounded apically in male. Aedeagus short and slender, strongly widened basally and pointed apically (Fig. 21). Legs comparatively long and slender. Protibiae widened distally. Penultimate tarsomeres of

protibiae small, but distinctly bilobate. Basal metatarsomere nearly as long as combined length of remaining tarsomeres.

**Sexual dimorphism.** Not indicated.

**Variability.** Female paratype specimen is in general dark orange-brown with the black band on the elytra separated into several spots that are poorly visible on the dark elytral surface.

**Differential diagnosis.** There are several similarly coloured species with elongate elytra in the Oriental region and on New Guinea. Among them *T. shkarupini* is recognizable by the combination of the following characters: frontal margin of dark postmedian transverse band prolonged anteriorly on each elytron, pronotum without lateral tubercles, lacking median longitudinal impressions, lateral constriction of pronotum dorsally distinctly impressed and roughly punctured, elytra elongate, aedeagus with basal part strongly widened.

**Etymology.** Patronymic. This species is devoted to my good friend and successful Latvian businessman Mr. Andrey Shkarupin (Rīga), whose kind investment into research of biological diversity made the expedition to remote Misool Island possible.

**Ecology.** Collected by beating from green leaves in primeval moist lowland rainforests, on shady place and altitude 50–100 m a.s.l. (Fig. 27).

**Distribution.** So far, only known from the locus typicus, Misool Island in Raja Ampat Islands of E Indonesia.

*Tomoderus sulcobasis* sp. nov. Figs 23–25.

**Holotypus** ♀, BMNH: Stn. No. 102. [printed] / NEW GUINEA: Morobe Dist., Finisterre Mts. Mt. Abilala, c. 9000 ft. 19–22.xi.1964 / M.E. Bacchus. B.M. 1965–120.

**Paratypes** 5 specimens: 1 ♂ & 1 ♀, BMNH: same labels as in the holotypus; 3 ♀♀, BMNH: Stn. No. 137. / NEW GUINEA: Morobe Dist., Herzog Mts., Vagau, C.4,000 ft. 4–17.i.1965 / M.E. Bacchus. B.M. 1965–120.

**Measurements.** Total body length, holotype: 2.47 mm, maximum combined width in postmedian area of elytra 1.02 mm; head 0.51 mm long, through eyes 0.49 mm broad, pronotum 0.59 mm long, maximum width 0.43 mm, minimum width 0.35 mm, elytra 1.37 mm long, 1.02 mm together broad. Total body length, ♀ paratype from Herzog Mountains: 2.67 mm, maximum combined width in postmedian area of elytra 1.05 mm; head



26



27

Figures 26–27. Habitats of *Tomoderus* species on the Moluccas and Raja Ampat: 26 – old growth lower montane forest in Central Seram – habitat of *T. seramensis* sp. nov.; 27 – secondary moist lowland forest near Lilinta village, Misool Island (photo: M. Kalniņš) – habitat of *T. shkarupini* sp. nov.

0.59 mm long, through eyes 0.54 mm broad, pronotum 0.65 mm long, maximum width 0.47 mm, minimum width 0.37 mm, elytra 1.43 mm long, 1.05 mm together broad.

**Description.** Dorsum brown to dark brown, posterior third of elytra with indistinctly defined dark, almost black, area. Maxillary palps and legs yellow, femora brown basally. Antennomeres 1–2 and 8(9)–11 paler than intermediate antennomeres. Underside pale yellowish brown to brown. Head semicircular, dorsally glossy and shiny. Eyes round, mid-sized and prominent, roughly faceted, longer to slightly longer (in males) than rounded tempora. Head base flattened but not truncate. Frontoclypeal suture replaced by feeble but broad, almost straight transverse impression. Both dorsal and ventral surface almost unpunctured. Pubescence very fine and sparse, yellowish, appressed. Antennae heavy, reaching elytral base. Basal antennomere cylindrical. Third antennomere 1.6x longer than second. Third antennomere longest, slightly thickened distally. Antennomeres 4–10 shortened, 5–10 strongly thickened, 8–10 distinctly transverse. Terminal antennomere triangular, 1/3 longer as penultimate. Terminal maxillary palpomere short & broad, but not securiform. Pronotum dorsally glossy and shiny. Anterior margin almost straight in the middle, lateral constriction broad and deep. Disc of pronotum dorsally broadly impressed in place of lateral constriction (in lateral view; Fig. 25). Both anterior and posterior lobes almost unpunctured, covered by very fine and sparse, quite long appressed yellowish hairs. Lateral constriction dorsally coarsely and confusedly punctured, with minute intervening spaces. With distinct and complete median longitudinal impression both on anterior and posterior lobes, interrupted only in the lateral constriction. Scutellum very small, triangular. Elytra dorsally slightly globose in apical part, glossy and shiny, widened laterally. Humeri rounded but clearly visible. Postbasal transverse impression not indicated. Punctures large, dense and coarse, intervening spaces smaller or as large as punctures. In basal half punctures are arranged into irregular rows, becoming completely confused and much more flat in apical half of elytra. Pubescence yellowish, fine and sparse but quite long, suberect, directed posteriorly. Sutural striae fine but broad, indicated in apical half of elytra. Hind wings fully developed. Last visible tergite completely covered by elytra. Last visible tergite in male broad and short, very broadly rounded

apically; in female broadly triangular, rounded apically. Last visible sternite in male very short and broad, broadly rounded apically; in female broad and very short, broadly rounded apically. Aedeagus robust, broad and curved, with a large basal piece (Fig. 24). Legs inconspicuous, finely and sparsely pubescent. Protibiae covered with a brush of dense whitish pubescence on interior margin. Basal metatarsomere shorter than combined length of remaining tarsomeres.

**Sexual dimorphism.** Elytra are stronger widened laterally in females.

**Variability.** One paratype completely dark brown, without visible darker marking on apical half of elytra. Maximum width of anterior lobe of pronotum vary significantly within the type specimens from 0.43 to 0.47 mm. Eyes are comparatively smaller by specimens from Finisterre Mountains. Some paratypes have forebody being distinctly darker than elytra, another paratypes are uniformly coloured.

**Differential diagnosis.** This generally inconspicuous uniformly brown to indistinctly black spotted species is distinguishing by both lobes of pronotum being distinctly medially sulcate, very short and broad last visible sternites in both sexes and by the shape of the aedeagus. Within the species known from the Indo-Australian transition zone, *T. sulcobasis* is quite similar to *T. biroi* Pic, but the second have less transverse penultimate antennomeres, completely confusedly punctured elytra (also in basal half), wider and distinctly constricted toward the middle anterior lobe of pronotum and generally paler body colouration.

**Etymology.** The name derives from Latin “sulcus” (furrow, sulcus) and Greek “basis” (base), what should indicate on distinctly longitudinally sulcate posterior lobe of the pronotum.

**Ecology.** Collected on altitudes ~1219–2743 m a.s.l.

**Distribution.** So far known from the Finisterre and Herzog Mountains in Morobe Province of Papua New Guinea.

#### **Additional faunal information on insufficiently known species of Tomoderinae from the Indo-Australian transition zone**

##### ***Pseudotomoderus flavus* (Heberdey, 1936)**

1 specimen, NMW: Malaise trap sample, forest edge, Sungai Tumpah / SULAWESI UTARA: Dumoga-Bone N.P., Toraut 0°34'N, 123°54'E, 214m. 21–23.VII.1985.

A.H.Kirk-Spriggs. / NMW Indonesia Expedition 1985 (Project Wallace) NMW.Z.1985.078; 1 specimen, IRSN: Coll.I.R.Sc.N.B. SULAWESI UTARA Dumoga-Bone Nat. Park along river Trumpah 7-X-1985 Station:004 / Coll.I.R.Sc.N.B. PROJECT WALLACE Rec.J.Van Stalle & R.Bosmans.

First record for Sulawesi.

***Tomoderus barclayi* Telnov, 2005**

1 specimen, BMNH: SULAWESI TENGAH: Nr.Morowali, Ranu River Area. 27.i.-20.iv.1980 / Vert.Series 1m. actinic 18.ii.80.

First record outside North Sulawesi, first record since the original description.

***Tomoderus diversitatis* Telnov, 2005**

1 specimen, IRSN: Coll.I.R.Sc.N.B. Sulawesi – Utara Dumoga-Bone Nat. Park, river Tumpah (Picnic S.) Station 012 X.1985 Leg. J. van Stalle; 1 specimen, IRSN: Coll.I.R.Sc.N.B. Sulawesi [sic!] Utara Dumoga-Bone Nat Park subcamp Hogg's Back (660m) X 1985 station 018 Leg Van Stalle & Bosmans / Project Wallace leg.:R.Bosmans & J. Van Stalle I.G.nº: 26.977; 1 specimen, IRSN: Coll.I.R.Sc.N.B. Sulawesi: Utara – Dumoga Bone Nat. Park – Poniki Trail (1600 m) Station 029 X.1985 Leg. J. van Stalle; 2 specimens, IRSN: Coll.I.R.Sc.N.B. Sulawesi Utara, Dumoga-Bone Nat Park Subcamp Hogg's Back X-1985 (660m) Station: 018 / Coll.I.R.Sc.N.B. PROJECT WALLACE Rec. J. Van Stalle & R.Bosmans.

First records since the original description.

***Tomoderus glabricollis* (Uhmann, 2000)**

1 specimen, IRSN: Coll.I.R.Sc.N.B. PAPUA NEW GUINEA Canopy Mission Madang Province Baiteta Fog AR 62 03-VII-1996 Leg Olivier Missa.

First records since the original description.

***Tomoderus macrophthalmus* Uhmann, 2000**

1 specimen, BMNH: PAPUA:Kokoda 1.200ft. viii.1933. L.E.Cheesman. B.M.1933-577.

***Tomoderus pseudotrimaculatus* Telnov, 2006**

1 specimen, IRSN: Coll.I.R.Sc.N.B. PAPUA NEW GUINEA Canopy Mission Madang Province Baiteta Light T 2 5-V-1993 Leg Olivier Missa; 2 specimens, IRSN: Coll.I.R.Sc.N.B. Canopy Mission P.N.G. Ma-

dang Province Baiteta, FOG M6 18.V.1993 Leg. Olivier Missa; 1 specimen, IRSN: Coll.I.R.Sc.N.B. Papua New Guinea Madang Province Baiteta – FOG AR 20 Canopy Mission 28.IV.1995 Leg. Olivier. Missa; 2 specimens, IRSN: Coll.I.R.Sc.N.B. PAPUA NEW GUINEA Canopy Mission Madang Province Baiteta FOG AR 65 13.VII.1996 Leg. Olivier Missa.

***Tomoderus volucris* Telnov, 2005**

2 specimens, NMW: Malaise trap sample, forest edge, Sungai Tumpah / SULAWESI UTARA: Dumoga-Bone N.P., Toraut 0°34'N, 123°54'E, 214m. 10-13. VII.1985. A.H.Kirk-Spriggs. / NMW Indonesia Expedition 1985 (Project Wallace) NMW.Z.1985.078; 1 specimen, NMW: Malaise trap sample, forest edge, Sungai Tumpah / SULAWESI UTARA: Dumoga-Bone N.P., Toraut 0°34'N, 123°54'E, 214m. 23.VII-3. VIII.1985. A.H.Kirk-Spriggs. / NMW Indonesia Expedition 1985 (Project Wallace) NMW.Z.1985.078; 4 specimens, IRSN: Coll.I.R.Sc.N.B. Sulawesi – Utara Dumoga Bone Nat. Park Subcamp Hogg's Back (660 m) Pieve Malaise – 15.X.1985 Leg. J. Van Stalle.

First records since the original description.

***Tomoderus* sp.**

1 female specimen, DTC: INDONESIA E, West Papua, S Bird's Neck, Kaimana 40 km E, Triton bay, Lobo vill. env., 3°44'08"S, 134°05'40"E, 200-300 m, 15-17. IX.2010, primeval rainforest on limestone & clearings, leg. D.Telnov; 1 female specimen, NME: INDONESIA W-Papua 50 km SE Kaimana, triton bay, vic. Kama-ka vill. S53°49'50"/ E134°11'27" 10-50m, 02.-05. II.2011 A. Skale (006).

This species is different from *T. mairasii* described above from vicinities of Lobo in Triton bay. Morphologically it is more similar to *T. dumogaensis orientalis*, but not conspecific with him. It is hitherto impossible to arrange this species to any of described *Tomoderus* nor describe them as new to science, because it is only represented by two female specimens and specific characters are not completely clear.



### Identification key to species of *Pseudotomoderus* from the Indo-Australian transition zone

- 1 Posterior (lowermost) lateral pronotal denticle is distinctly larger than other ..... 2
  - All lateral pronotal denticles are more or less equal in size ..... 3
- 2 Larger, total body length 2.2–2.5 mm. Basal third of elytra very dense punctured, intervening spaces, intervening spaces smaller than punctures ..... *P. flavus*
  - Generally smaller, total body length 1.5–1.8 mm. Basal third of elytra less dense punctured, intervening spaces smaller to slightly larger as punctures ..... *P. denticollis*
- 3 Elytra without postbasal transverse impression. Longitudinal impression on anterior lobe of pronotum shallow, indistinct. Elytra shorter and broader ..... *P. sulawesianus*
  - Elytra with shallow broad postbasal transverse impression. Longitudinal impression on anterior lobe of pronotum distinct. Elytra slender ..... *P. antennatus*

### Identification key to species of *Tomoderus* from the Indo-Australian transition zone

- 1 Elytra dark with transverse pale spot in postbasal third on each elytron. Elytral base narrowly pale ..... *T. riedeli*
  - Pattern of elytra different ..... 2
- 2 Elytra with single, more or less distinct dark transverse band or spot on paler background. Sometimes elytral base or omoplates narrowly darkened ..... 3
  - Elytra uniformly dark or pale, without darker transverse marking ..... 20
  - Elytra distinctly bicolourate: partly pale, partly dark coloured ..... 40
- 3 Elytra on each omoplate and in median area very indistinctly and not sharply defined darkened. Eyes very large and prominent ..... 4
  - Median darkening on elytra more or less clearly defined. Omoplates not darkened. Eyes less large ..... 5
- 4 Both lobes of pronotum with shallow median longitudinal impression. Pronotum dorsally smooth, almost unpunctured ..... *T. promiscuus*
  - Pronotum without median longitudinal impression. Pronotum dorsally with large but sparse punctures ..... *T. macrophthalmus*
- 5 Elytral dark transverse band distinctly curved – angulate prolonged anteriorly or posteriorly or both ..... 6
  - Elytral dark transverse band or spots more or less regular, straight, nearly straight or ovoid, but never angulate ..... 7
- 6 Elytral dark transverse band prolonged angulate anteriorly on each elytron and posteriorly along the suture ..... *T. ziczac*
  - Elytral dark transverse band prolonged angulate posteriorly and anteriorly on each elytron. Transverse band is not prolonged angulate posteriorly on suture ..... *T. curvifasciatus*
- 7 Terminal antennomeres 8–11 distinctly paler than other antennomeres, white or almost white ..... *T. albiclavus*
  - Terminal antennomeres not or indistinctly paler than other antennomeres; if distinctly paler, than only applicable to antennomeres 10–11 and not 8–11 ..... 8
- 8 Both anterior and posterior lobe of pronotum with more or less distinct median longitudinal impression ..... *T. trimaculatus*
  - Both or at least one lobe of pronotum lacking median longitudinal impression ..... 9
- 9 Anterior lobe of pronotum with short median longitudinal impression in anterior part. Lateral constriction of pronotum with short median longitudinal carina ..... *T. circiter*
  - Anterior lobe of pronotum without median longitudinal impression. Lateral constriction of pronotum without median longitudinal carina ..... 10
- 10 At least elytral humeri or whole base of elytra narrowly dark coloured ..... 11
  - Base of elytra and elytral humeri of same colour as main of elytra ..... 12

- 11 Pronotum slightly longer than broad. Antennomeres 3–9 reddish brown, darker than other antennomeres. Male aedeagus robust, curved, flattened and widened apically ..... *T. mediofasciatus*
- Pronotum slightly broader than long. Antennae light yellow, 3–4 terminal antennomeres somewhat whitish. Male aedeagus narrow, straight, pointed apically ..... *T. pseudotrimaculatus*
- 12 Posterior lobe of pronotum with indistinct but visible dorso-median impression ..... 13
- Posterior lobe of pronotum without dorso-median impression ..... 15
- 13 Dorsum of pronotum medially strong and dense punctured. Lateral constriction of pronotum broad and shallow. Anterior margin of pronotum without median impression ..... *T. fascicularis*
- Dorsum of pronotum without clear punctures, only in lateral constriction with several coarse punctures. Lateral constriction of pronotum short and deep ..... 14
- 14 Eyes small, tempora distinct. Pronotum dorsally slightly impressed in the middle of anterior margin ..... *T. horvathi*
- Eyes very large, tempora very narrow and only visible in lateral view. Pronotum not impressed on anterior margin ..... *T. mairasi*
- 15 Elytra with not sharply defined elongate-oval brown spot on each elytron behind the middle and interrupted on suture, or without any marking. Eyes very large and strongly prominent ..... 16
- Elytra with brown or black transverse band, complete or narrowly interrupted on suture. Eyes large to very large, but less prominent ..... 17
- 16 Aedeagus almost completely hooked apically ..... *T. dumogaensis orientalis*
- Aedeagus only slightly bended apically ..... *T. dumogaensis dumogaensis*
- 17 Dark transverse band of elytra somewhat curved: prolonged posteriorly along suture and ^-shapely angulate anteriorly on each elytron ..... *T. shkarupini*
- Dark transverse band of elytra not prolonged posteriorly along suture and without angulate anterior prolongation ..... 18
- 18 Larger, total body length 2.37 mm. Anterior lobe of pronotum with 4 little denticles on each side. Pronotum elongated, in shape of sand-glass. Frontal margin of dark transverse band of elytra almost straight ..... *T. lenis*
- Generally smaller, total body length 2.00 mm or less. Anterior lobe of pronotum not denticulate laterally. Pronotum less elongated, broad ..... 19
- 19 Aedeagus long, slender, curved in preapical area and pointed apically (Fig. 7). Frontal margin of dark transverse band of elytra arcuate ..... *T. leaseensis*
- Aedeagus shorter, base widened, not curved in preapical area and not pointed apically (Fig. 18). Frontal margin of dark transverse band of elytra uneven but not arcuate ..... *T. seramensis*
- 20 Lateral constriction of pronotum broad, with a dent on each side in the middle (similar like in *Macrotomoderus* Pic or *Rimaderus* Bonadona). Pronotum elongate, in shape of sand-glass, 1.4 x longer than broad ..... *T. derarimusoides*
- Lateral constriction of pronotum without dents. Pronotum less elongate ..... 21
- 21 Dorsal body black, with metallic blue shine on elytra ..... *T. metallicus*
- Dorsal body without metallic shine on elytra ..... 22
- 22 Head and pronotum of same or nearly same colour like elytra ..... 23
- Head, pronotum, or both differently coloured in contrast to elytra ..... 37
- 23 Pronotum dense and roughly punctured ..... 24
- Pronotum almost unpunctured; if distinctly punctured, than not roughly ..... 26
- 24 Elytra widened on sides and narrowed apically, ovoid ..... *T. rugulosus*
- Elytra more or less elongate ..... 25
- 25 Dorsal colouration of the body brown. Lateral constriction of pronotum dorsally feebly impressed (in lateral view) ..... *T. hirtipennis*

- Dorsal colouration of the body black. Lateral constriction of pronotum dorsally deeply impressed (in lateral view) ..... *T. nigerrimus*
- 26 Anterior lobe of pronotum with dorso-median longitudinal impression ..... 27
- Anterior lobe of pronotum without dorso-median longitudinal impression ..... 31
- 27 Pronotum elongate, in shape of sand-glass. Lateral constriction of pronotum dorsally deeply impressed (in lateral view). Larger, total body length ~3,0 mm ..... *T. sulawesiensis*
- Pronotum less elongate, not sand-glass-shaped. Smaller, total body length less than 2,5 mm ..... 28
- 28 Posterior lobe of pronotum with dorso-median longitudinal impression ..... 29
- Posterior lobe of pronotum without dorso-median longitudinal impression ..... 30
- 29 Elytra confusedly punctuate. Pronotum in shape of footed beaker, with anterior lobe much broader than posterior and lateral constriction being broad. Dorsal body rufous, antennae yellowish ..... *T. biroi*
- Elytral punctures arranged in irregular rows in basal part. Pronotum with lateral constriction much narrower. Anterior lobe not strongly broader than posterior lobe. Dorsal body brown to dark brown, sometimes paler on elytra ..... *T. sulcobasis*
- 30 Basal piece of aedeagus very large, circular. Anterior lobe of pronotum with 5 very little denticles on each side ..... *T. megapenis*
- Basal piece of aedeagus smaller, not semicircular. Anterior lobe of pronotum without denticles ..... *T. wallacei*
- 31 Pronotum elongated, in shape of sand-glass ..... 32
- Pronotum less elongated, not sand-glass-shaped ..... 33
- 32 Lateral constriction of pronotum dorsally densely and roughly punctured. Larger, total body length ~3.4–3.5 mm ..... *T. clepsammium*
- Lateral constriction of pronotum dorsally with four short and flat carinae. Smaller, total body length ~2.0–2.1 mm ..... *T. plicicollis*
- 33 Eyes very large and strongly prominent, covering almost whole head sides; without distinct tempora. Head base truncate. Aedeagus elongate, hooked apically. Total body length ~2.5–2.6 mm ..... *T. dumogaensis orientalis*
- Eyes comparatively smaller and less prominent, leaving at least short fragments of tempora visible. Head base broadly rounded or truncate. Aedeagus broader, maximum curved and never hooked apically. 2.0–2.7 mm ..... 34
- 34 Body yellowish to light yellowish brown. Posterior lobe of pronotum dorsally slightly impressed ..... 35
- Body rufous to dark brown. Posterior lobe of pronotum without dorsal impression ..... 36
- 35 Smaller, total body length ~2.0 mm. Body light yellowish brown. Head behind eyes rounded. Basal antennomere more thickened ..... *T. weijersi*
- Generally larger, total body length 2.70 mm. Body light yellow. Head behind eyes truncate to very shallowly excavated. Basal antennomere more elongated ..... *T. glabricollis*
- 36 Lateral constriction of pronotum dorsally smooth, almost unpunctured, in lateral view dorsally feebly impressed ..... *T. modiglianii*
- Lateral constriction of pronotum dorsally rugulose, in lateral view dorsally deeply impressed .... *T. glabricephalus*
- 37 Both anterior and posterior lobes of pronotum with median longitudinal impression ..... *T. sulcobasis*
- Both lobes of pronotum never longitudinally impressed together in same species ..... 38
- 38 Elytra elongated, not egg-shaped. Eyes very large ..... *T. novaeguineae*  
[this species is unknown to me]
- Elytra egg-shaped: broadest in anterior half, narrowed posteriorly. Eyes small or medium-sized ..... 39
- 39 Pronotum and elytra very densely, coarsely and large punctured. Anterior lobe of pronotum about 3 x longer than posterior lobe, dorsally strongly globose, without median longitudinal impression. Lateral constriction of pronotum dorsally feebly impressed (in lateral view) ..... *T. setifer*

- Pronotum very fine and sparse punctured. Anterior lobe of pronotum about 2–2.5 x longer than posterior lobe, dorsally strongly globose, with short median longitudinal impression.  
Lateral constriction of pronotum dorsally deeply impressed (in lateral view) ..... *T. globosus*
- 40 Elytra with dark transverse ^-shaped midband ..... 41
- Elytra without dark transverse ^-shaped midband, with simple transverse postmedian band or whole posterior half of elytra dark ..... 42
- 41 Black transverse midband of elytra is strongly prolonged posteriorly along the suture. Three terminal antennomeres distinctly lighter yellow, than previous ones. Aedeagus robust, broad, strongly curved, pointed apically. Profemora by males with dorsal impression before the terminal third ..... *T. monstificus*
- Black transverse midband of elytra is shortly prolonged posteriorly along the suture. One terminal antennomere (11) distinctly lighter yellow, than previous ones. Aedeagus long, wave-shaped curved, truncate apically. Profemora by males simple, not impressed dorsally before the terminal third ..... *T. flagellipenis*
- 42 Anterior lobe of pronotum without median longitudinal impression. Lateral constriction dorsally with median carina (can be absent) ..... *T. volucris*
- Anterior lobe of pronotum with median longitudinal impression (can be strongly reduced with only visible indistinct track). Lateral constriction dorsally without median carina ..... 43
- 43 Both anterior and posterior lobes of pronotum distinctly medially longitudinally impressed (sulcate) ..... *T. sulcobasis*
- Posterior lobe of pronotum without median longitudinal impression ..... 44
- 44 Anterior lobe of pronotum with 4 small lateral tubercles on each side. Anterior margin of pronotum is distinctly excavated medio-dorsally. Elytra slender and less convex on sides ..... *T. barclayi*
- Anterior lobe of pronotum laterally not tuberculate. Anterior margin of pronotum only shallowly excavated medio-dorsally. Elytra more rounded on sides ..... *T. diversitatis*

### Biogeography and species list of Tomoderinae from the Indo-Australian transition zone

Three species of *Pseudotomoderus* (2 from Sulawesi, one from Papua New Guinea) and 43 species and subspecies of *Tomoderus* are hitherto registered from the region of Wallacea and New Guinea. Among *Tomoderus*, 19 species are known from Sulawesi (of them about 75 % from North Sulawesi), 21 species – from New Guinea (13 from Papua New Guinea, 6 from Indonesian Papua, one species widely distributed in whole New Guinea, and one other species known from N Sulawesi (nominate form) and Papua New Guinea (subspecies)), 1 species – from Misool (Raja Ampat Islands), one – from Saparua (Lease Islands, Central Moluccas), and another one – from Seram (Central Moluccas). The two of new species described in the current paper are accordingly the first records of the genus *Tomoderus* and subfamily Tomoderinae from the Moluccan archipelago and Raja

Ampat Islands. Records of *Tomoderus* from Triton Bay are the first ones for Tomoderinae from Bird's Neck region of New Guinea. One species (*T. plicicollis*) is shared with Australian continent and is also known from Queensland. The records of *Tomoderus biroi* and *T. rugulosus* from study area are doubtful and needs further confirmation.

Species in the list are arranged alphabetically, since no phylogenetic associations have been made and polyphyletic origin of the species cannot be excluded. References are only given for original descriptions and faunal records from the study area, and are not including older checklists and records from the identification key of HEBERDEY (1936; except for the species described in it).

Legend used in the list: PNG – Papua New Guinea (country). Altitudes are listed from all known records of the species, inside and outside the study area and are based on published and unpublished information.



**Tomoderinae Bonadonna, 1961**

***Pseudotomoderus* Pic, 1892: 240**

Type species: *Anthicus compressicollis* Motschulsky, 1839

***Pseudotomoderus antennatus* sp. nov.**

Distribution: New Guinea (PNG: Madang province, Baiteta surroundings).

Altitude: no data available.

***Pseudotomoderus flavus* (Heberdey, 1936)**

HEBERDEY (1936: 283), as *Tomoderus* (*Pseudotomoderus*) *flavus*.

Distribution: SE Borneo (without precise information), N Borneo (Brunei), Vietnam, Sulawesi (North Sulawesi: Dumoga Bone National park).

Type material: **Holotypus** NHMW: S.O. Borneo Grabowsky. [printed] / TYPE [printed, label red] / *javanus* Pic det. [handwritten] / *Tomoderus flavus* n.sp. [handwritten] / *flavus* Hbdy. [handwritten].

Altitude: 130 m, 214 m, 600 m.

***Pseudotomoderus sulawesianus* Telnov, 2005**

TELNOV (2005: 91).

Distribution: Sulawesi (Sulawesi Utara province: Bogani Nani Wartabone National park (former Dumoga Bone)).

Altitude: 200 m, 220 m.

***Tomoderus* LaFerté-Sénéctère, 1849a: 1**

= *Tomoderus* LaFerté-Sénéctère, 1849b: 94 [Homonym]

Type species: *Tomoderus cruciatus* LaFerté-Sénéctère, 1849a

= *Curtotomoderus* Pic, 1900a: 89

Type species: *Tomoderus brevipennis* Pic, 1900a

= *Sirambeus* Pic, 1901: 802

Type species: *Tomoderus depressipennis* Pic, 1901

***Tomoderus albiclavus* Telnov, 2005**

TELNOV (2005: 94).

Distribution: Sulawesi (North Sulawesi: Bogani Nani Wartabone National park (former Dumoga Bone)).

Altitude: 1760 m.

***Tomoderus barclayi* Telnov, 2005**

TELNOV (2005: 96).

Distribution: Sulawesi (North Sulawesi: Bogani Nani Wartabone National park (former Dumoga Bone)).

Altitude: 200 m, 300 m.

***Tomoderus biroi* Pic, 1902**

PIC (1902: 406), as *Tomoderus Birói*; UHMANN (1990: 142); UHMANN (1995a: 525).

Distribution: Peninsular Malaysia, Vietnam, New Guinea (PNG: Madang & Morobe provinces).

Type material: **Holotypus** ♀ HMNH: Malacca Biró 1893 [printed] / Kwala – Lumpur [printed] / Monotypus [printed, text red] 1902 *Tomoderus Biroi* Pic [handwritten, label border red] / *Tomoderus Biroi* Pic n sp [handwritten] / *Tomoderus Biroi* Pic [handwritten] det.M. Pic [printed] Typus ! [handwritten, text red].

Note: Originally described from Malacca and not hitherto recorded from insular systems of SE Asia. I haven't an opportunity to study specimens of this species collected in PNG (UHMANN 1990 & 1995a). Records of this species from eastern New Guinea are very questionable and should be re-confirmed.

Altitude: 600 m.

***Tomoderus circiter* Telnov, 2005**

TELNOV (2005: 99).

Distribution: Sulawesi (North Sulawesi: Bogani Nani Wartabone National park (former Dumoga Bone)).

Altitude: 200 m, 300 m, 664 m.

***Tomoderus clepsammium* Telnov, 2005**

TELNOV (2005: 101).

Distribution: Sulawesi (North Sulawesi: Bogani Nani Wartabone National park (former Dumoga Bone)).

Altitude: 200 m, 1008 m.

***Tomoderus curvifasciatus* Uhmman, 1995b**

UHMANN (1995b: 492).

Distribution: New Guinea (Indonesian Papua: Jayawijaya ridge).

Altitude: 2100–2300 m.

***Tomoderus derarimusoides* Telnov, 2005**

TELNOV (2005: 103).

Distribution: Sulawesi (North Sulawesi: Bogani Nani Wartabone National park (former Dumoga Bone)).

Altitude: 1150 m.

***Tomoderus diversitatis* Telnov, 2005**

TELNOV (2005: 106).

Distribution: Sulawesi (North Sulawesi: Bogani Nani Wartabone National park (former Dumoga Bone)).

Note: Two female specimens with very feeble, almost invisible longitudinal impression on anterior lobe of pronotum; presence of impression is a variable character in this species.  
Altitude: 300 m, 660 m.

***Tomoderus dumogaensis dumogaensis* Telnov, 2005**

TELNOV (2005: 109).

Distribution: Sulawesi (North Sulawesi: Bogani Nani Wartabone National park (former Dumoga Bone).

Altitude: 230 m, 1100 m, 1200m.

***Tomoderus dumogaensis orientalis* ssp. nov.**

Distribution: New Guinea (PNG: Madang province, Baiteta surroundings).

Altitude: no data available.

***Tomoderus fascicularis* Uhmman, 1997**

UHMANN (1997: 523).

Distribution: New Guinea (Indonesian Papua: N Bird's Head peninsula, Mokwam surroundings).

Altitude: 1300–1650 m.

***Tomoderus flagellipenis* Telnov, 2005**

TELNOV (2005: 111).

Distribution: Sulawesi (North Sulawesi: Bogani Nani Wartabone National park (former Dumoga Bone).

Altitude: no data available.

***Tomoderus glabricephalus* Uhmman, 1999**

UHMANN (1999: 149).

Distribution: New Guinea (PNG: Morobe province).

Altitude: 2000 m.

***Tomoderus glabricollis* (Uhmman, 2000)**

UHMANN (2000: 148), as *Pseudotomoderus glabricollis*.

Distribution: New Guinea (PNG: Morobe & National Capital provinces).

Type material: **Holotypus** NHMW: NEW GUINEA / NE/ Lae 4-6.IX.1968. [printed] / /No.NG-L-B.78./ leg. Dr.J.Balogh [printed] / Typus [printed, label red, label border black] / *Pseudotomoderus* [printed] *glabricollis* sp. n. [handwritten] det.G.Uhmman19 [printed] 98 [handwritten].

Altitude: no data available.

***Tomoderus globosus* Uhmman, 1999**

UHMANN (1999: 150).

Distribution: New Guinea (Indonesian Papua: Jayawijaya, Baliem valley).

Altitude: 1900–2000 m.

***Tomoderus hirtipennis* Uhmman, 1999**

UHMANN (1999: 151).

Distribution: New Guinea (Indonesian Papua: Jayawijaya, Eipomek surroundings).

Altitude: 1800–2100 (A.Riedel, personal communication).

Note: Type locality 'Zipomek' given by UHMANN (1999) in original description of this species is wrong and should be corrected to Eipomek (A.Riedel, personal communication).

***Tomoderus horvathi* Pic, 1902**

PIC (1902: 406), as *Tomoderus Horváthi*.

Distribution: New Guinea (PNG: Morobe province, Sattelberg surroundings).

Type material: **Holotypus** ♀, HMNH: N. Guinea Biró 1899. [printed] / Sattelberg Huon-Golf. [printed] / Holotypus [printed, text red] 1902 *Tomoderus Horvathi* Pic [handwritten, label border red] / *Tomoderus Horvathi* Pic n sp [handwritten] / *Tomoderus Horvathi* Pic [handwritten] det.M. Pic [printed] Typus ! [handwritten, text red]; **Paratypus** ♀, HMNH: N. Guinea Biró 1899. [printed] / Sattelberg Huon-Golf. [printed] / Paratypus [printed, text red] 1902 *Tomoderus Horvathi* Pic [handwritten, label border red] / *Tomoderus Horvathi* Pic [handwritten] det.M. Pic [printed] Typus ! [handwritten, text red].

Altitude: no data available.

***Tomoderus leaseensis* sp. nov.**

Distribution: Central Moluccas (Lease Islands: Saparua Island).

Altitude: 100 m.

***Tomoderus lenis* Telnov, 2005**

TELNOV (2005: 113).

Distribution: Sulawesi (North Sulawesi: Bogani Nani Wartabone National park (former Dumoga Bone).

Altitude: 1100 m.

***Tomoderus macrophthalmus* Uhmman, 2000**

UHMANN (2000: 146).

Distribution: New Guinea (PNG: Central province).

Type material: **Holotypus** NHMW: NEW GUINEA:

Brown riv., 40 km N of Port Moresby 6–8. IV. 1965. [printed] / Coll. Dr. J. BALOGH et Dr. J. J. SZENT-IVANY [printed] / Typus [printed, label red, label border black] / *Tomoderus* [printed] *macrophthalmus* sp.n. [handwritten] det. G.Uhmann 19[printed] 98 [handwritten].

Note: Presence of indistinct dark markings on the elytra is not mentioned in the original description of this species.

Altitude: 366 m.

***Tomoderus mairasi* sp. nov.**

Distribution: New Guinea (Indonesian Papua: southern Bird's Neck, Triton Bay).

Altitude: 0–50 m.

***Tomoderus mediofasciatus* Telnov, 2005**

TELNOV (2005: 116).

Distribution: Sulawesi (North Sulawesi: Bogani Nani Wartabone National park (former Dumoga Bone).

Altitude: 1100 m, 1300 m.

***Tomoderus megapenis* sp. nov.**

Distribution: New Guinea (PNG: Madang province, Baiteta surroundings).

Altitude: no data available.

***Tomoderus metallicus* Uhmman, 1999**

UHMANN (1999: 153).

Distribution: New Guinea (PNG: Morobe province, Kuper ridge & Aseki).

Altitude: 1500–1650 m, 2000 m, 3900 m.

***Tomoderus modiglianii* Pic, 1901**

PIC (1901: 802), as *Tomoderus Modiglianii*; UHMANN (1993: 90).

Distribution: Sumatra, Sulawesi (Central Sulawesi: Lake Poso surroundings), peninsular Malaysia.

Altitude: no data available.

***Tomoderus monstificus* Telnov, 2005**

TELNOV (2005: 118).

Distribution: Sulawesi (North Sulawesi: Bogani Nani Wartabone National park (former Dumoga Bone).

Altitude: 1750 m.

***Tomoderus nigerrimus* Uhmman, 1999**

UHMANN (1999: 154).

Distribution: New Guinea (PNG: Morobe province, Wau surroundings).

Note: Collected on coffee plantation.

Altitude: 1550 m, 1800 m.

***Tomoderus novaeguineae* Heberdey, 1936**

HEBERDEY (1936: 261), as *Tomoderus Novae-Guineae*; UHMANN (1995a: 525).

Distribution: New Guinea (Indonesian Papua: Arfak mountains; PNG: Eastern Highlands province, Okapa surroundings).

Altitude: no data available.

Note: I only know this species by the original description.

***Tomoderus plicicollis* Pic, 1900b**

PIC (1900b: 603).

Distribution: New Guinea (PNG: Central province, Moroka surroundings), Australia (Queensland).

Type material: **Lecotypus** ♀, MCGD: N.GUINEA S.E. *Moroka*, 1300 m. Loria VII–XI. 93 [printed, label border black] / Typus [printed, text red, label border red] / *plicicollis* Pic [handwritten] / *Tomoderus plicicollis* Pic n sp. [handwritten] / Museo Civ. Genova [printed].

Altitude: 1300 m.

***Tomoderus promiscuus* Kreckich-Strassoldo, 1929**

KREKICH-STRASSOLDO (1929: 475); UHMANN (1993: 91); UHMANN (1996: 744).

Distribution: Philippines (Mindanao), Borneo, Sulawesi (South Sulawesi: Pulu Pulu surroundings; North Sulawesi: Manasa surroundings).

Altitude: no data available.

***Tomoderus pseudotrimaculatus* Telnov, 2006**

TELNOV (2006: 69).

Distribution: New Guinea (PNG: Madang province, Erima & Baiteta surroundings).

Note: Three female specimens fogged from rainforest canopy near Baiteta village (see locality data above) with non-darkened base of elytra and transverse median band with frontal margin strongly and broadly triangularly projecting anteriorly on each elytron.

Altitude: no data available.

***Tomoderus riedeli* Uhmman, 1993**

UHMANN (1993: 92).

Distribution: New Guinea (Indonesian Papua: Baliem valley).

Altitude: 2100–2300 m.

***Tomoderus rugulosus* Pic, 1909**

PIC (1909: 251); UHMANN (1993: 91).

Distribution: Singapore, Sri Lanka, Sumatra, Sulawesi (South Sulawesi: Pulu Pulu surroundings).

Note: I haven't an opportunity to study specimens of this species collected in Sulawesi as recorded by UHMANN (1993). Occurrence of this species on Sulawesi and in Wallacea is questionable and should be re-confirmed.

Altitude: 1450 m.

***Tomoderus seramensis* sp. nov.**

Distribution: Central Moluccas (Seram Island).

Altitude: 800 m.

***Tomoderus setifer* Uhmman, 2000**

UHMANN (2000: 147).

Distribution: New Guinea (PNG: National Capital province).

Type material: **Holotypus** NHMW: NEW GUINEA /SE/ Port Moresby Brown River 17–18.VIII.1968 [printed] / /No.NG-P.R.I./ leg.Dr.I.Loksa [printed] / Typus [printed, label red, label border black] / *Tomoderus* [printed] *macrophthalmus* sp.n. [handwritten] det. G. Uhmman 19[printed] 98 [handwritten].

Altitude: no data available.

***Tomoderus shkarupini* sp. nov.**

Distribution: Raja Ampat Islands (Misool Island).

Altitude: 50–100 m.

***T. sulawesiensis* Uhmman, 1993**

UHMANN (1993: 91).

Distribution: Sulawesi (South Sulawesi: Pulu Pulu surroundings).

Altitude: 1700 m.

***Tomoderus sulcobasis* sp. nov.**

Distribution: New Guinea (PNG: Morobe province, Finisterre and Herzog Mountains).

Altitude: 1219–2743 m.

***Tomoderus trimaculatus* Pic, 1902**

= *T. csikii* Pic, 1902

PIC (1902: 407), partly as *Tomoderus Csikii* (peut être variété de *trimaculatus* ?); UHMANN (1995a: 525); TELNOV (2006: 69).

Distribution: New Guinea (PNG: Morobe province, Sattelberg surroundings; Eastern Highlands province: Okapa & Frigano surroundings).

Type material *T. trimaculatus*: **Holotypus** ♀, HMNH: N. Guinea Biró 1899. [printed] / Sattelberg Huon-Golf. [printed] / Holotypus [printed, text red] 1902. *Tomoderus trimaculatus* Pic [handwritten, label border red] / *Tomoderus trimaculatus* Pic n sp N var . [handwritten] / *Tomoderus trimaculatus* Pic [handwritten] det.M. Pic [printed] Typus ! [handwritten, text red]; **Paratypus** ♀, HMNH: N. Guinea Biró 1899. [printed] / Sattelberg Huon-Golf. [printed] / Paratypus [printed, text red] 1902 *Tomoderus trimaculatus* Pic [handwritten, label border red]; Paratypus ♀ (HMNH), N. Guinea Biró 1899. [printed] / Sattelberg Huon-Golf. [printed] / Paratypus [printed, text red] 1902 *Tomoderus trimaculatus* Pic [handwritten, label border red] / *Tomoderus trimaculatus* Pic [handwritten] det.M. Pic [printed] Typus ! [handwritten, text red]. Type material *T. csikii*: **Holotypus** ♀, HMNH: N. Guinea Biró 1899. [printed] / Sattelberg Huon-Golf. [printed] / Monotypus [printed, text red] 1902 *Tomoderus Csikii* Pic [handwritten, label border red] / *Tomoderus Csiki* [sic!] Pic (v. de *trimaculatus* ?) [handwritten] / *Tomoderus Csikii* Pic [handwritten] det.M. Pic [printed] Typus ! [handwritten, text red].

Altitude: no data available.

***T. volucris* Telnov, 2005**

TELNOV (2005: 120).

Distribution: Sulawesi (North Sulawesi: Bogani Nani Wartabone National park (former Dumoga Bone).

Altitude: 200 m, 214 m, 220 m, 300 m, 492 m, 660 m, 664 m.

***T. wallacei* Telnov, 2005**

TELNOV (2005: 124).

Distribution: Sulawesi (North Sulawesi: Bogani Nani Wartabone National park (former Dumoga Bone).

Altitude: 200 m.

***T. weijersi* Pic, 1911**

PIC (1911: 70), as *Tomoderus Weijersi*; UHMANN (1993: 92).

Distribution: Sumatra, Sulawesi (South Sulawesi: Pulu Pulu surroundings; Central Sulawesi: Palu surroundings).

Altitude: 1600–1800 m, 1700 m.

***T. ziczac* Telnov, 2005**

TELNOV (2005: 126).

Distribution: Sulawesi (North Sulawesi: Bogani Nani Wartabone National park (former Dumoga Bone).

Altitude: 200 m, 400 m.



### Species richness and endemism at different altitudes

In tropical regions with high mountains such as on Sulawesi or New Guinea, changes in the vegetation along an altitudinal gradient are clearly marked (HUMBOLDT, in HAUFF 1874). Also fauna changes significantly with altitude. For the first time for Tomoderinae, information on species diversity on different altitudes and in diverse altitudinal vegetation zones has been analysed (see also TELNOV 2011). For a final analysis, the amount of available data is not yet sufficient. However, some general con-

siderations are possible. Members of genera *Pseudotomoderus* and *Tomoderus* demonstrate some preferences for specific types of vegetation = vertical component (Tab. 1). The greatest number of Tomoderinae species is found in the lower montane zone (20 species of a total of 46), which is greater than the species diversity in the lowland (16 species) and mid montane (11 species) zones. Only two species (*T. metallicus*, *T. sulcobasis*) were recorded from upper montane zone, but both these species have been also collected from various lower altitudes and not properly fits to any of the zones.

Table 1. Number of Indo-Australian transition's Tomoderinae species recorded for altitudinal zones.

Lowland zone (0–700 m / 200 m zone overlap allowed)	16 species
Lower montane zone (701–1800 m / 200 m zone overlap allowed)	20 species
Species shared in-between lowland & lower montane zones	6 species
Mid montane zone (1801–2900 m / 200 m zone overlap allowed)	11 species
Species shared in-between lower montane & mid montane zones	7 species
Upper montane zone (2901–3900 m / 200 m zone overlap allowed)	0 species
Species not fitting in any of the zones (altitudinal interval > than 900 m)	2 species
Elevation data deficient	12 species

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