

# ***Tasmanitachoides* Erwin *glabellus* n. sp. from North Queensland, Australia, with a note on *Tasmanitachoides lutus* (Darlington) (Insecta, Coleoptera, Carabidae, Bembidiinae)**

M. Baehr

Baehr, M., 2001. *Tasmanitachoides* Erwin *glabellus* n. sp. from North Queensland, Australia, with a note on *Tasmanitachoides lutus* (Darlington) (Insecta, Coleoptera, Carabidae, Bembidiinae). *Animal Biodiversity and Conservation*, 24.1: 1–7.

## **Abstract**

*Tasmanitachoides* Erwin *glabellus* n. sp. from North Queensland, Australia, with a note on *Tasmanitachoides lutus* (Darlington) (Insecta, Coleoptera, Carabidae, Bembidiinae).— A new species of the genus *Tasmanitachoides* Erwin from North Queensland is described: *T. glabellus* n. sp. The species belongs to the *T. murrumbidgensis*-group of species that is characterized by its distinctly impressed clypeus, but it is distinguished from all related species by its glabrous body surface. It is the first *Tasmanitachoides* from northern Australia to be found in rainforest on high mountains and has thus probably preserved the original habits of the genus that are still characteristic for those species living in southern temperate regions of Australia. *Tasmanitachoides lutus* (Darlington) so far known from the type locality in southern New South Wales and from the holotype only, is now recorded from eastern Victoria.

Key words: *Tasmanitachoides*, *T. glabellus* n. sp., Australia.

## **Resumen**

*Tasmanitachoides* Erwin *glabellus* sp. n. del norte de Queensland, Australia, con una mención sobre *Tasmanitachoides lutus* (Darlington) (Insecta, Coleoptera, Carabidae, Bembidiinae).— Se describe una nueva especie del género *Tasmanitachoides* Erwin del norte de Queensland: *T. glabellus* sp. n. Esta especie pertenece al grupo de especies *T. murrumbidgensis* que se caracteriza por la impresión diferenciada del clipeo, pero que se distingue de todas las especies relacionadas por presentar una superficie corporal glabra. Es el primer *Tasmanitachoides* del norte de Australia encontrado en la selva pluvial de alta montaña y probablemente mantiene los hábitos originales de su género, que siguen siendo característicos de las especies que viven en las zonas templadas del sur de Australia. *Tasmanitachoides lutus* (Darlington) conocido hasta el momento a partir de la localidad tipo, en el sur de Nueva Gales del Sur, y únicamente por el holotipo, ha sido registrado ahora en el este del estado de Victoria.

Palabras clave: *Tasmanitachoides*, *T. glabellus* sp. n., Australia.

(Received: 18 IX 01; Final acceptance: 4 X 01)

Martin Baehr, Zoologische Staatssammlung, Münchhausenstr. 21, D-81247 München, Germany.

e-mail: Martin.Baehr@zsm.mwn.de

## Introduction

While examining the immense bulk of rainforest carabid beetles collected during the last decades by staff at Queensland Museum, Brisbane, the author recently detected two specimens of the genus *Tasmanitachoides* that he was unable to identify at once. The specimens were quite unusual, because —according to the labels— they were collected near a small creek at the highest top of a rainforest-coated mountain in far northern Queensland, presumably even at or near the source of this creek. Careful examination and comparison with all related species revealed that the specimens belong to an undescribed species that is of special interest due to its habits.

## Methods

Description and measurements follow the style used in the author's revision of the genus *Tasmanitachoides* (BAEHR, 1990).

The types are shared with Queensland Museum, Brisbane (QM) and the author's working collection in Zoologische Staatssammlung, Munich (CBM).

## Studied material

### Genus *Tasmanitachoides* Erwin

Erwin, 1972: 2 (ERWIN, 1972); Moore et al., 1987: 144; (MOORE et al., 1987); Baehr, 1990: 868 (BAEHR, 1990)

### Type species

*Bembidion hobarti* Blackburn, 1901; by subsequent designation.

This genus of small, elongate, *Perileptus*-like, sand- or gravel-inhabiting ground beetles was founded by ERWIN (1972) who included those species that were combined by DARLINGTON (1962) to the "*hobarti*-group" within the genus *Tachys* s. l. BAEHR (1990) later included additional species not mentioned by Darlington or Erwin, and described further species. At present, this genus includes 16 species which are distributed through the east (including Tasmania) and tropical north of Australia including the Kimberleys in northwestern Australia. A single species (*T. arnhemensis* Erwin), however, apparently ranges far inland into the west of Western Australia and also into central Australia (see BAEHR, 1990: fig. 45).

The genus combines some archaic bembidiine character states as enumerated in ERWIN (1972) with characters comparable with similar states in the trechine complex. Erwin regarded these similarities as remnants of an archaic pre-bembidiine stock, but analyses using molecular techniques seem to indicate that *Tasmanitachoides* indeed belongs rather to the trechine than to the bembidiine stock (Maddison, pers. comm.).

Within the genus, according to BAEHR (1990), the dark coloured species of the *T. hobarti*-subgroup in its restricted sense (*T. hobarti*, *T. leai*, *T. wattense*) that occur in southeastern Australia and Tasmania are most basic phylogenetically, whereas the light-coloured, more delicate species of the *T. fitzroyi*-group are most advanced. If this is true, then the genus originated somewhere in temperate (montane) southeastern Australia and derivative stocks later spread to open, sometimes even rather dry lowlands of the north, west and centre.

### *Tasmanitachoides glabellus* sp. n. (figs. 1, 2)

### Types

Holotype: ♀, head of Francis Ck 12km WSW Mossman, NQ 30 Dec 1989, 1200m ANZSES Expedition (QMT, 93349).

Paratype: 1 ♀, same data (CBM).

### Diagnosis

Distinguished by almost glabrous surface of elytra from all other species of the *T. murrumbidgensis*-group that is characterized by anteriorly impressed clypeus. Further distinguished from most similar *T. murrumbidgensis* (Sloane) of southern New South Wales by larger size; from *T. fitzroyi* (Darlington) of tropical Australia by dark colour of surface and dark 2<sup>nd</sup>-4<sup>th</sup> antennomeres; and from *T. maior* Baehr of southeastern Victoria by smaller size and slightly more divergent frontal furrows.

### Description

Measurements. Length: 2.45–2.50 mm; width: 0.95 mm; ratio width/length of pronotum: 1.32–1.33.

Colour. Dark piceous, anteriorly almost black, only disk of elytra with faint brownish lustre. Antenna and palpi piceous, only 1<sup>st</sup> antennomere reddish. Legs piceous, tibiae in middle slightly lighter.

Head. Slightly narrower than pronotum. Surface nitid, with scattered fine punctures and highly superficial isodiametric microreticulation. Labrum anteriorly deeply impressed. Frontal furrows deep, slightly divergent and posteriorly curved outwards. Eyes large, protruding, orbits short. Mandibles long. Antenna medium-sized, median antennomeres slightly longer than wide.

Pronotum. Wide, though considerably narrower than elytra. Heart-shaped, fairly convex, distinctly narrowed to base. Widest at anterior third, sides evenly convex, shortly sinuate in front of the rectangular basal angles. Base in middle produced, anterior angles slightly projecting. Median line inconspicuous, no lateral channel developed. Transverse basal sulcus deeply impressed, laterally coarsely punctate, in middle with a longitudinal furrow. Disk nitid, sparsely punctate, with highly superficial, isodiametric microreticulation.

Elytra. Rather elongate, widest at about middle,

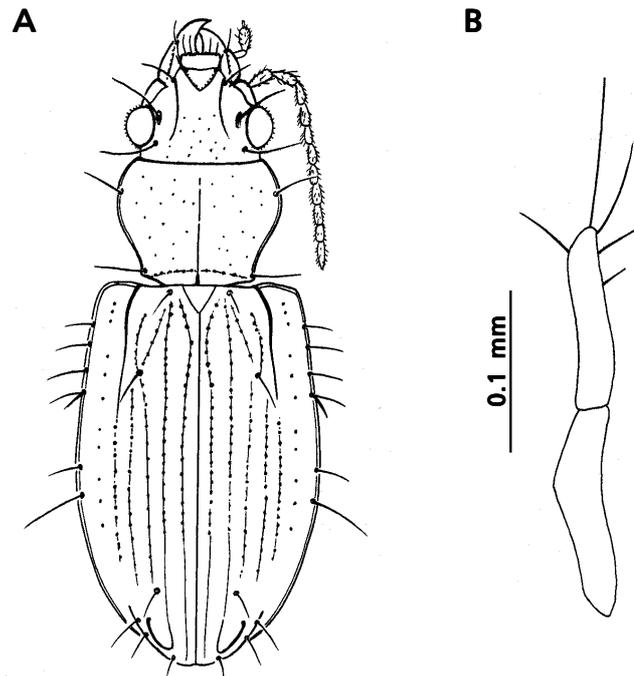


Fig. 1. *Tasmanitachoides glabellus* n. sp.: A. Habitus, length 2.5 mm; B. ♀ left stylomeres 1 & 2, ventral view.

Fig. 1. *Tasmanitachoides glabellus* sp. n.: Habitus, longitud 2,5 mm; B. ♀ estilómeros 1 y 2 izquierdos, visión ventral.

surface depressed. Inner five striae at least in basal half deeply impressed, 5<sup>th</sup> stria near base even sulcate. Sixth and 7<sup>th</sup> striae barely impressed, becoming very weak towards apex. Third stria at position of anterior discal pore characteristically outturned and shortly interrupted to meet 4<sup>th</sup> stria. Discal pores almost foveiform. Recurrent stria short. Striae anteriorly rather coarsely punctate. Inner five intervals very gently convex, sparsely and very faintly punctate, with superficial traces of microreticulation only, surface remarkably nitid. Marginal pores reduced to four behind humerus, two in middle, and two near apex within the deeply impressed submarginal sulcus that forms the apical part of 7<sup>th</sup> stria.

Legs. Anterior tibia barely excised at outer edge. Aedeagus. Unknown.

Female stylomeres (fig. 1). Both stylomeres very slender and elongate. Stylomere 1 dorsoventrally curved, without any setae at apical margin. Stylomere 2 almost straight, with a very elongate and a shorter nematiform seta right on apex, and one, respectively one or two shorter nematiform setae at internal and external margins close to apex.

Variation. Little variation noted.

#### Distribution

Far northeastern Queensland. Known only from type locality.

#### Biology

Very little known. According to the label, both specimens were collected at the top of a mountain at the height of 1,200 m, most probably in montane rainforest, at the edge of a creek and perhaps even at or very close to the source of this creek. Probably the habits of this species are similar to those living in montane regions of temperate southern Australia (southern New South Wales, eastern Victoria, Tasmania) where species of *Tasmanitachoides* likewise occur in sand or gravel of small banks at mountain creeks and small rivers.

#### Etymology

The name refers to the rather glabrous elytral surface as compared with that of similar species.

#### Recognition

The determination key in the author's revision of *Tasmanitachoides* (BAEHR, 1990, p. 869–870) has been fully revised.

Revised key to the genus *Tasmanitachoides*.

*Clave revisada del género Tasmanitachoides*

1	Elytral striae, except sutural, reduced. Southern New South Wales, eastern Victoria	<i>T. lutus</i> (Darlington)
	Elytra with at least 5 <sup>th</sup> stria marked, others sometimes superficial	2
2	Clypeus distinctly impressed at middle (doubtful species under both couplets)	3
	Clypeus not impressed at middle	11
3	Larger and wider species, c. 2.5 mm long or more (doubtful species under both couplets)	4
	Smaller and narrower species, < 2.3 mm long	6
4	Either reasonably smaller species (< 2.5 mm long) with elytra almost lacking microreticulation; or anterior body rufous–testaceous, elytra at apex testaceous; antennae and palpi yellow; anterior angles of pronotum produced. Northern Queensland, northwestern Australia	5
	Larger species, 2.9 mm long; colour uniformly piceous; antennae and palpi dark; anterior angles of pronotum not produced. Eastern Victoria	<i>T. maior</i> Baehr
5	Dark species with dark antennae and palpi; elytra almost lacking microreticulation; frontal furrows little divergent. Northeastern Queensland, near rain forest bordered creek on high mountain	<i>T. glabellus</i> n. sp.
	Light species with rufous–testaceous fore body, elytra at apex testaceous, antennae and palpi yellow; frontal furrows distinctly divergent. Northern Queensland, northwestern Australia, near rivers and creeks in open to sparsely forested lowland	<i>T. fitzroyi</i> (Darlington)
6	Fore body reddish to reddish–testaceous, elytra testaceous. Northern Territory and northwestern Australia	7
	Either completely piceous or dark reddish, or fore body dark piceous and elytra dark reddish with piceous borders, suture, base, and apex. Eastern Australia from north Queensland to southern New South Wales	8
7	Larger and wider species, 1.9–2.15 mm long; frontal furrows posteriorly slightly divergent; border of pronotum convex throughout to the small, projecting basal angle; 2 <sup>nd</sup> –4 <sup>th</sup> elytral striae less impressed. Central and far Northern Territory, northwestern Australia	<i>T. arnhemensis</i> Erwin
	Smaller and narrower species, 1.65–1.95 mm long; frontal furrows parallel; border of pronotum distinctly sinuate to the right, but non–projecting basal angle; 2 <sup>nd</sup> –4 <sup>th</sup> elytral striae more impressed. Northwestern Australia north of Great Sandy Desert	<i>T. minor</i> Baehr
8	Clypeus anteriorly deeply impressed; only 1 <sup>st</sup> antennomere reddish, others piceous; colour dark piceous with elytra at most feebly lighter on disk	9
	Clypeus anteriorly lightly impressed, impression sometimes difficult to see; 1 <sup>st</sup> –4 <sup>th</sup> antennomeres reddish, others piceous; colour either completely dark reddish, or fore body dark piceous with contrastingly lighter elytra	10

9	Smaller species, < 2.2 mm long; elytra markedly microreticulate. Southern New South Wales	<i>T. murrumbidgensis</i> (Sloane)
	Larger species, > 2.4 mm long; elytra barely microreticulate. Far northeastern Queensland	<i>T. glabellus</i> sp. n.
10	Smaller species, 1.75–2.1 mm long; eyes large, protruding, orbits almost wanting; fore body piceous, elytra lighter on disk, colour of body and antennae rather contrasting; pronotum less narrowed to base, dorsally more convex. Northeastern Queensland	<i>T. bicolor</i> Baehr
	Larger species, 2.0–2.3 mm long; eyes smaller, less protruding, orbits perceptible, oblique; completely dark reddish to light piceous, elytra, at most, slightly lighter, colour of body and antennae not much contrasting; pronotum rather narrowed to base, dorsally more depressed. Eastern New South Wales, Australian Capital Territory	<i>T. rufescens</i> Baehr
11	Elytra parallel, depressed; eyes small, depressed, with well developed orbits; posterior supraorbital seta situated far behind eye; mandibles very elongate, decussate; pronotum trapezoid, widest slightly behind anterior angles; colour testaceous. Northeastern New South Wales, eastern Queensland	<i>T. obliquiceps</i> (Sloane)
	Elytra less parallel and depressed; eyes larger, more protruding, orbits small; posterior supraorbital seta situated immediately at posterior border of eye; mandibles shorter, not decussate; pronotum laterally more convex, widest far behind anterior angles; colour reddish–testaceous to black	12
12	Only 1 <sup>st</sup> and 5 <sup>th</sup> elytral striae well impressed, others barely recognizable; elytra nitid	13
	All elytral striae present, though 2 <sup>nd</sup> –4 <sup>th</sup> sometimes superficial; elytra distinctly microreticulate	15
13	Short, convex species; elytra considerably less than 1.5x as long as wide; frontal furrows short; pronotum wide, base (at basal angles) as wide as apex, basal angles over 90°, not projecting. Southern Queensland	<i>T. wilsoni</i> (Sloane)
	More elongate, less convex species; elytra more than 1.5x as long as wide; frontal furrows elongate, conspicuous; pronotum narrower, base (at basal angles) considerably narrower than apex, basal angles acute, laterally projecting	14
14	Smaller species, less than 1.7 mm long; eyes less protruding, orbits perceptible; basal angles of pronotum c. 90°, less acute and projecting. Tasmania	<i>T. kingi</i> (Darlington)
	Larger species, 1.8–2.0 mm long; eyes more protruding, orbits almost reduced, basal angles of pronotum acute, less than 90°, laterally distinctly projecting. Eastern Victoria and New South Wales	<i>T. angulicollis</i> Baehr
15	Elongate, depressed, very small species, 1.5–1.7 mm long; colour testaceous to light reddish. Far Northern Territory, northwestern Australia, northeastern Queensland, northeastern New South Wales	<i>T. katherinei</i> Erwin
	More convex, larger species, 1.7–2.6 mm long; colour dark reddish to black	16

16 On the average smaller species, 1.7–2.3 mm long, rather depressed; clypeus faintly impressed; colour either rather uniformly dark reddish, or piceous with disk of each elytron contrastingly lighter	17
On the average larger species, 2.1–2.6 mm long, more convex; clypeus not at all impressed; colour uniformly dark piceous to black, or piceous with elytra slightly (not contrastingly) lighter	18
17 Smaller species, 1.75–2.1 mm long; eyes large, protruding, orbits almost wanting; fore body piceous; elytra lighter on disk, colour of body and antennae rather contrasting; pronotum less narrowed to base, dorsally more convex. Northeastern Queensland	<i>T. bicolor</i> Baehr
Larger species, 2.0–2.3 mm long; eyes smaller, less protruding, orbits perceptible, oblique; completely dark reddish to light piceous, elytra, at most, slightly lighter, colour of body and antennae not much contrasting; pronotum rather narrowed to base, dorsally more depressed. Eastern New South Wales, Australian Capital Territory	<i>T. rufescens</i> Baehr
18 Elytral striae, including 5 <sup>th</sup> , strongly impressed	19
Elytral striae, especially 5 <sup>th</sup> , rather superficial. Eastern Victoria, southern New South Wales	<i>T. wattsense</i> (Blackburn)
19 Colour uniformly dark piceous to almost black; antennae completely dark. Tasmania	<i>T. hobarti</i> (Blackburn)
Colour piceous, disk of elytra slightly lighter; basal antennomeres reddish. Northeastern New South Wales	<i>T. leai</i> (Sloane)

#### Remarks

With respect to the distinctly impressed clypeus, *T. glabellus* clearly belongs to the *T. murrumbidgeensis*-group within the genus *Tasmanitachoides*. The combination of its dark colour and almost glabrous surface, however, at once distinguishes this species from all known species. Moreover, the dark colour is also unique within all *Tasmanitachoides* known so far to occur in northern tropical Australia. All those species are either completely reddish or testaceous (*arnhemensis*, *fitzroyi*, *katherinei*, *minor*, *obliquiceps*), or are at least bicolourous with dark fore-body though lighter elytra (*bicolor*). In contrast, almost all of the southern species are completely dark.

According to ERWIN'S (1972), DARLINGTON'S (1962: "gravel by brooks"), and the authors observations, in temperate Australia *Tasmanitachoides* are commonly found at small rivers and mountain brooks, even in shaded places, and commonly also at high altitudes. The species living in tropical Australia, however, are generally found in gravels and sands of lakes, rivers and creeks of open lowlands, commonly even in comparatively arid

regions. Here, while exposed to the bright sun, their reddish or testaceous colour corresponds well with the colour of the substratum they live on and in —namely light coloured, at most light reddish—gravels and sands.

It has been postulated that the habits near streams in temperate montane regions is regarded the original mode of life for the genus *Tasmanitachoides*, whereas their occurrence in the tropical regions of northern Australia is secondary (BAEHR, 1990). If this assumption is true, then the occurrence of a dark coloured species living at shaded rainforest creeks in montane northern Queensland would be quite surprising, because this would mean a relict occurrence with an ancient mode of life far north of the roots of this ancient genus that most probably originated somewhere in temperate southeastern Australia.

This assumption seems rather unlikely at first glance, though within recent years a number of examples of definitely southern groups were detected that have members far north in the tropics and subtropics well outside of their recognized range. Carabid examples for this

distribution pattern are two merizodine species of the genus *Sloaneana* Csiki which occur on Lamington Plateau of south-eastern Queensland (BAEHR, in press), or the occurrence and remarkable taxonomic radiation of the psydrine genera *Raphetis* Moore, *Sitaphe* Moore, and of amblyteline Psydrinae in the wet tropics of North Queensland (unpublished records), or even the discovery of a peculiar (yet undescribed) new genus of the definitely "antarctic" subfamily Migadopinae, likewise in tropical North Queensland.

It follows from these examples, which could be complemented by certain non-carabid examples, that remnants of the southern temperate "Antarctic" faunal element of Australia are still present even in tropical northern Queensland, and furthermore that this distribution pattern is probably more common than was believed to date. If related to the geographic history of Australia, these examples demonstrate that various elements of the southern fauna were somehow trapped on mountains and tablelands of eastern and north-eastern Queensland during Australia's drift to the north during the Tertiary period. As a result, they can now be found high up in environments which —although allowing them to survive there— prevent their contact with their southern counterparts and also prevent any further spreading.

When seen in the light of the biogeographical history of north-eastern Australia, the unexpected discovery of the new *Tasmanitachoides* adds valuable information towards understanding the complexity of the montane fauna of the wet tropics of northern Queensland.

*Tasmanitachoides lutus* (Darlington)

*Tachys lutus* Darlington, 1962: 120 (DARLINGTON, 1962)  
*Tasmanitachoides lutus*, Erwin 1972: 5 (ERWIN, 1972);  
 Moore et al. 1987: 145 (MOORE et al., 1987); Baehr  
 1990: 877 (BAEHR, 1990)

This remarkably and easily recognized species that lacks all but the sutural, elytral striae was

only known to date from the holotype collected at Termeil, near the coast of southeastern New South Wales. During ecological studies on riparian gravel bank arthropods carried out by V. Framenau on rivers in eastern Victoria (FRAMENAU, et al., in press) this species has been now recorded from Cann River and Castleburn Creek, both in southeastern Victoria. At both localities, a single specimen each was found on gravel banks within closed forest.

New records

VIC: Cann River at Chandlers Ck Bridge, 37.20 S, 149.12 E, 8 XII 1998; Castleburn Ck, Junction with Mitchell River, 37.31 S, 147.12 E, 26 XI 1998.

References

- BAEHR, M., 1990. Revision of the Australian ground-beetle Genus *Tasmanitachoides* Erwin (Insecta: Coleoptera: Carabidae: Bembidiinae), with special regard to the tropical species. *Invertebr. Taxon.*, 4: 867–894.
- (in press). Two new species of *Sloaneana* Csiki from southern Queensland (Coleoptera, Carabidae, Merizodinae). *Mem. Queensland Mus.*
- DARLINGTON, P. J. JR, 1962, Australian Carabid beetles XI. Some *Tachys*. *Psyche, Cambridge* 69: 117–128.
- ERWIN, T. L., 1972. Two new genera of Bembidiine Carabid beetles from Australia and South America with notes on their phylogenetic and zoogeographical significance (Coleoptera). *Breviora*, 383: 1–19.
- FRAMENAU, V., MANDEBACH, R., & BAEHR, M. (in press). Riparian gravel banks of upland and lowland rivers in Victoria (South East Australia): Arthropod community structure and life history patterns in a longitudinal gradient. *Aust. J. Zoology*.
- MOORE, B. P., WEIR, T. A. & PYKE, J. E., 1987. Rhysodidae and Carabidae. In: *Zoological Catalogue of Australia*, 4: 17–320. Australian Government Publishing Service, Canberra.