Mitt. Münch. Ent. Ges.	**98**	121-126	München, 15.10.2008	ISSN 0340-4943

A new species of the tachyine genus *Tasmanitachoides* ERWIN from northern New South Wales, Australia

(Coleoptera, Carabidae, Bembidiinae, Tachyini)

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Abstract

A new species of the tachyine genus *Tasmanitachoides* ERWIN is described from Bellingen River at the eastern fringe of New England Tableland, northern New South Wales, Australia: *T. hendrichi* **sp. n.** The new species is closely related to *T. angulicollis* BAEHR, 1990, of eastern New South Wales, but is easily distinguished by longer and narrower elytra and narrower and more cordiform prothorax. It is inserted in the most recent key to the genus *Tasmanitachoides* (BAEHR 2008a).

Introduction

Dr. Lars HENDRICH (München) during his extensive survey and sampling efforts of Australian water beetles (Dytiscidae) found a single specimen of a *Tasmanitachoides* species at Bellingen River neighbouring New England Tableland in northern New South Wales, Australia. By comparsion with all other Australian species of that genus, the specimen proved to represent a new species closely related to *T. angulicollis* BAEHR, 1990, a species which likewise occurs in eastern New South Wales, but does not range as far north as New England Tableland. The single specimen of the new species was found among pebble at the bank of a small river as depicted in fig. 3.

Description and measurements follow the style used in my revision of the genus *Tasmanitachoides* (BAEHR 1990) and additional papers on this genus (BAEHR 2001, 2008a).

Genus *Tasmanitachoides* ERWIN, 1972

ERWIN, 1972: 2. – MOORE et al. 1987: 144; BAEHR 1990: 868: 2001: 2; 2008a: 16.

Type species: *Bembidion hobarti* BLACKBURN, 1901; by original designation.

This genus of small to very small, more or less elongate, *Perileptus*-like, mostly sand or gravel inhabiting ground beetles was founded by ERWIN (1972) who included those species that were already combined by DARLINGTON (1962) in his "*hobarti*-group" within the genus *Tachys* DEJEAN sensu lato. BAEHR (1990) included in the genus also certain species not mentioned by DARLINGTON nor ERWIN, and described additional species. Three additional species from north-eastern Queensland were described more recently (BAEHR 2001, 2008a). At present, this genus contains 19 species which are distributed in the East (including Tasmania) and the tropical North of Australia including the southern half of Cape York Peninsula and the Kimberley Division in north-western Australia. A single species (*T. arnhemensis* ERWIN, 1972), however, ranges far inland into the centre of Western Australia and also into Central Australia (see BAEHR 1990: fig. 45).

Species of this genus combine some archaic bembidiine character states as enumerated by ERWIN (1972) with characters that remind similar states in the trechine complex. ERWIN regarded these similarities as remnants of an archaic trechine-bembidiine stock, and analyses using molecular techniques (MADDISON, pers. comm.) and examination of the recently recorded larva of one species (GREBENNIKOV, pers. comm.) seem to indicate that *Tasmanitachoides* indeed belongs to the trechine rather than the bembidiine stock.

The genus can be roughly divided into two groups which do not only differ in colouration, but also in their preference for different habitat types. One group which probably also includes the three species recently described from rain forests of North Queensland (BAEHR 2001, 2008a), prefer damp, usually montane, habitats in eastern Australia (BAEHR 1990, FRAMENAU et al. 2002), and usually are dark coloured, whereas the other group consists of pale yellow or reddish species which live in semiarid or even arid northern Australia and occur in sand or gravel of rivers, even of intermittent ones, provided that still some pools in the river bed persist.

The new species belongs to the first group, and within this, to a rather specialized subgroup which is characterized by glabrous and little striate elytra and remarkably projected basal angles of the pronotum.

Tasmanitachoides hendrichi sp. n.

(Figs 1, 2)

Holotype: ♂, Australia: N NSW, 17 km W Bellingen, Bellingen River at Summervilles Road, 30m, 17.X.2006, 30.25.010S 152.46.546E, L. & E. Hendrich leg. (NSW 79) (Australian National Insect Collection, Canberra).

Etymology. The name is a patronym in honour of the collector, Dr. Lars HENDRICH.

Diagnosis. Small species lacking any impression at the anterior margin of the clypeus and lacking all striae on elytra except 1st and 5th. Distinguished from most similar *T. angulicollis* BAEHR by narrower pronotum, longer and narrower elytra, and absence even of strial traces between 1 and 5.

Description

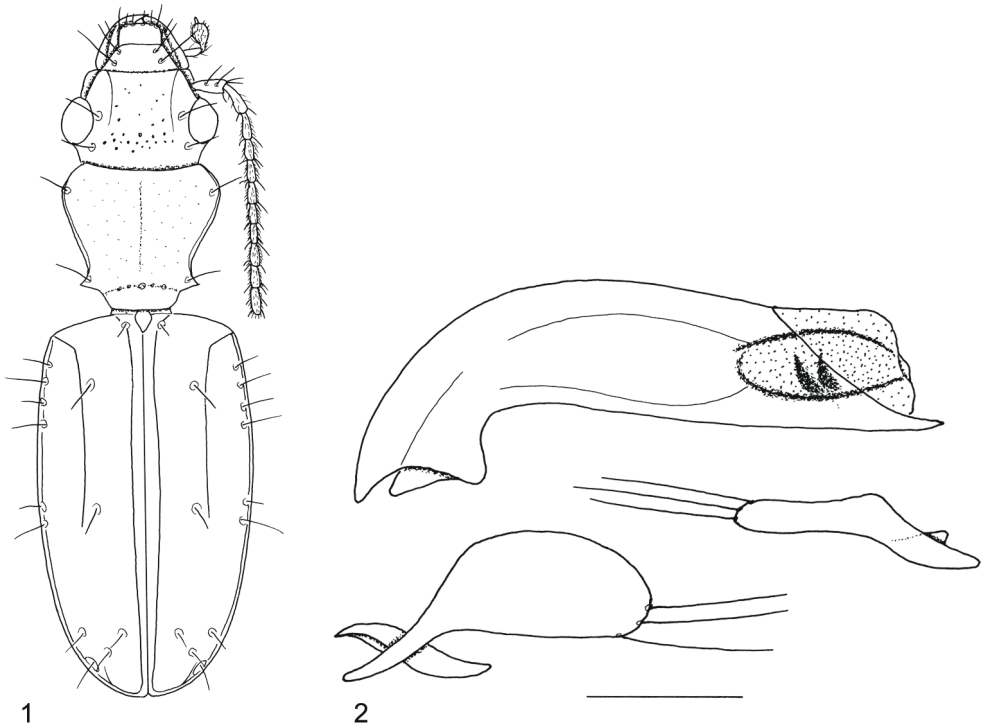
Measurements. Length: 1.95 mm; width: 0.68 mm; ratio width/length of pronotum: 1.10; ratio width of apex/width of base of pronotum: 1.15; ratio width of pronotum/width of head: 1.05; ratio length/width of elytra: 1.70.

Colour. Dark reddish-piceous, labrum and mandibles reddish, basal antennomere reddish, following antennomeres increasingly infuscate, palpi piceous. Ventral surface dirty yellow, legs pale yellow, but femora slightly darker.

Head (Fig. 1). Very slightly narrower than pronotum. Anterior margin of clypeus not impressed. Mandibles short. Eyes large, protruded, apparently impilose, orbits very short. Clypeus bisetose on either side, labrum six-setose. Penultimate palpomere of maxillary palpus globose, terminal palpomere very small. Antenna short, surpassing base of pronotum by about one antennomere, antennomeres decreasing in length towards apex, but even 9th and 10th antennomeres slightly longer than wide. Scapus sparsely setose, the following antennomeres more densely setose. Frontal furrows deep, gently curved throughout, posteriorly distinctly divergent, surpassing middle of eye. Surface very glossy, with scattered, rather coarse punctures between frontal furrows and at their posterior end, microreticulation absent. Extremely short hairs only visible inside of the eyes at very high magnification (>100x).

Pronotum (Fig. 1). Comparatively narrow, not much wider than long, considerably narrower than elytra; cordiform, widest at anterior fourth. Lateral margins anteriorly convex, then almost straight, shortly sinuate in front of the acute and markedly protruded basal angles. Pronotum considerably narrowed to base. Dorsal surface rather convex. Apex straight, anterior angles barely produced, base in middle much produced, laterally deeply excised. Apex and base not margined, lateral margin extremely narrow, no lateral channel developed. Median line barely indicated. No anterior transverse sulcus visible, transverse basal sulcus deeply impressed, laterally coarsely punctate, in middle with a large and deep puncture. Disk very glossy, with extremely fine, superficial, barely recognizable punctation, without microreticulation. Anterior marginal seta situated at apical fourth, posterior seta at basal angle.

Elytra (Fig. 1). Comparatively narrow and elongate, laterally very little convex, widest about at middle, surface rather depressed. Only 1st and 5th striae deeply impressed, even sulcate, no traces of any other striae recognizable. Stria 5 anteriorly conspicuously bent outwards to meet the humerus which therefore is slightly dentate, stria abruptly ended slightly behind 2nd discal puncture. Both striae virtually impunctate. Recurrent stria very short. Discal pores almost foveiform, in particular the two pores near apex. Umbilical punctures



Figs 1-2: Fig. 1. *Tasmanitachoides hendrichi* **sp. n.** Habitus. Length: 1.95 mm. **Fig. 2.** *Tasmanitachoides hendrichi* **sp. n.** Male aedeagus in lateral view and parameres. Scale: 0.1 mm.

reduced to four behind humerus, two in middle, and one each outside and inside the deeply impressed submarginal sulcus that forms the apical part of stria 7, punctures rather foveiform. Margin of elytra apparently impilose behind humerus. Surface very glossy, virtually impunctate and without any traces of microreticulation.

Ventral surface. Metepisternum elongate, c. 2.5 x as long as wide at anterior margin. Prosternum and abdomen with sparse, barely recognizable pilosity. Male abdominal sternum VII bisetose.

Legs. Anterior tibia barely excised at outer edge. Two basal tarsomeres of male protarsus asymmetrically widened and biseriately squamose.

Aedeagus (Fig. 2.) Genital ring narrow, narrowed to apex, slightly asymmetric. Aedeagus moderately elongate, lower surface very slightly convex, apex short (in genus), fairly acute. Internal sac in apical half with two sclerotized rods and a twisted sclerotized piece within. Both parameres with three elongate apical setae.

Female gonocoxites. Unknown.

Variation. Unknown.

Distribution. Bellingen River at the eastern fringe of New England Tableland. Known only from type locality.

Biology. The single specimen was collected among pebbles and gravel on the bank of a small river close to the waters edge (see fig. 3).

Fig. 3. Bellingen River, type locality of *Tasmanitachoides hendrichi* **sp. n.** (photo by courtesy of Lars HENDRICH).

Recognition

For identification of the new species in the most recent key to the genus (BAEHR 2008a: 16) follow on to caption 16 which must be changed as follows:

16. Body size smaller, less than 1.7 mm; eyes less protruded, orbits perceptible; basal angle of pronotum c. 90°, less acute and projected. Tasmania . . . . . *kingi* (DARLINGTON)
– Body size larger, 1.8-2.0 mm; eyes more protruded, orbits almost reduced; basal angle of pronotum acute, less than 90°, laterally distinctly projected. e. Victoria, e. New South Wales . . . . . 16a.

16a. Prothorax wider, ratio w/l >1.25; elytra shorter and wider, ratio l/w 1.55; finest traces of intercalar striae between 1st and 5th striae still visible. e. Victoria, e. NSW . . . . . *angulicollis* BAEHR
– Prothorax narrower, ratio w/l 1.10; elytra longer and narrower, ratio l/w 1.70; virtually no traces of intercalar striae between 1st and 5th striae visible. ne. NSW . . . . . *hendrichi* **sp. n.**

17. Body elongate, depressed, size very small, 1.5-1.7 mm; colour testaceous to light reddish. n. Northern Territory, n. Western Australia, ne. Queensland, ne. NSW . . . . . *katherinei* ERWIN
– Body more convex, size larger, 1.7-2.6 mm; colour dark reddish to black . . . . . 18.

Remarks

The new species belongs to the subgroup within the genus *Tasmanitachoides* that lacks the characteristic impression of the anterior margin of the clypeus, present in a couple of species. Within this group *T. hendrichi* **sp. n.** is closely related to *T. kingi* (DARLINGTON, 1962) and *T. angulicollis* BAEHR, 1990 which form a definite subgroup that is characterized by the subpression of all elytral striae except 1st and 5th and the acute and projected basal angles of the pronotum. The new species lives in a habitat very characteristic for most species of *Tasmanitachoides*, namely gravel or even pebbles at the banks of mountain streams or small rivers (BAEHR 1990, FRAMENAU et al. 2002). Even when the type locality is situated in lowland, Bellingen River at this locality still has the nature of a mountain river (Fig. 3) and, indeed, it is not far away from the eastern margin of New England Tableland.

It seems that the new species is the northern vicariant of *T. angulicollis* which was so far recorded from eastern Victoria ("Victorian Alps") to mid-eastern New South Wales at Mt. Royal Range, better known as Barrington Tops. This latter tableland is well known for a number of carabid species that have their nearest relatives on New England Tableland (including Dorrigo National Park) about 200 km further north. New England Tableland attains about the same altitude as Barrington Tops and is quite similar with respect to climate and vegetation, but is divided from Barrington Tops by several deep river valleys and some less high tablelands in between. So, even when the conditions on both tablelands are quite similar, the occurring species usually are slightly different. Because many of these pairs of species are very closely related, their species differentiation may have been a fairly recent process, that probably occurred during one of the (more recent) Glaciation Periods, and as a result of the combination of the continuous geological lifting of the tablelands and the repeated changes of climate during Glaciation Period. This probably caused repeated expansions and fragmentations of vegetation zones, thus giving the fauna the opportunity to expand their ranges during wetter periods, while the ranges then were interrupted during the drier periods.

Such repeated changes probably account for the high level on endemism noted in many carabid genera, but also other invertebrate groups, along the Great Dividing Range which extends along the east coast of Australia, and in particular on both mentioned tablelands. In a number of invertebrate groups "chains" of related species occur on the many mountains and tablelands along this range, as recorded for example by BAEHR (2003, 2005, 2008b), BOUCHARD (2002), HARVEY (2002), MONTEITH (1997), and YEATES et al. (2002). *Tasmanitachoides angulicollis* and *T. hendrichi* **sp. n.** seem to represent another example.

Acknowledgement

I am grateful to Lars HENDRICH of Zoologische Staatssammlung, München, for the kind gift of the specimen and for the photo of the type locality.

Zusammenfassung

Eine neue Art der Tachyinen-Gattung *Tasmanitachoides* ERWIN wird vom Bellingen River am Ostrand des New England Tableland im nördlichen New South Wales, Australien, beschrieben: *T. hendrichi* **sp. n.** Die neue Art ist nah mit *T. angulicollis* BAEHR , 1990, aus dem östlichen New South Wales verwandt, von dieser Art aber leicht an den längeren und schmaleren Elytren und dem schmaleren, stärker herzförmigen Prothorax unterscheidbar. Sie wird in den neuesten Bestimmungsschlüssel für die Gattung *Tasmanitachoides* (BAEHR 2008a) eingefügt.

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.

BAEHR, M. 2001: *Tasmanitachoides* ERWIN *glabellus* n. sp. from North Queensland, Australia with a note on *Tasmanitachoides lutus* (DARLINGTON) (Insecta, Coleoptera, Carabidae, Bembidiinae). – Animal Biodiv. Cons. **24**, 1-7.

BAEHR, M. 2003: The psydrine ground beetles of the rainforests of eastern Queensland (Insecta: Coleoptera: Carabidae: Psydrinae excluding Amblytelini). – Mem. Queensland Mus. **49**, 65-109.

BAEHR, M. 2005: The Amblytelini. A tribe of corticolous ground beetles from Australia. Taxonomy, phylogeny, biogeography (Insecta, Coleoptera, Carabidae, Psydrinae). – Coleoptera **8**, 1-286.

BAEHR, M. 2008a: Two new species of the genus *Tasmanitachoides* Erwin from North Queensland, Australia (Insecta, Coleoptera, Carabidae, Bembidiinae). – Ann. Carnegie Mus. **77**, 13-19.

BAEHR, M. 2008b: Revision of the genus *Habutarus* Ball & Hilchie from the Australian region (Insecta, Coleoptera, Carabidae, Lebiinae). – Mem. Queensland Mus. **56**, 1-36.

BOUCHARD, P. 2002: Phylogenetic revision of the flightless Australian genus *Apterotheca* GEBIEN (Coleoptera: Tenebrionidae: Coelometopinae). – Invertebr. Syst. **16**, 449-554.

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 zoogeographica significance (Coleoptera). – Breviora Mus. Comp. Zool. **383**,1-19.

FRAMENAU, V. W., R. MANDERBACH & M. BAEHR 2002: Riparian gravel banks of upland and lowland rivers in Victoria (South East Australia): Arthropod community structure and life history patterns in a longitudinal gradient. – Austral. J. Zool. **50**,103-123.

HARVEY, M. S. 2002: Short-range endemism among the Australian fauna: some examples from non-marine envirinments. – Invertebr. Syst. **16**, 555-570.

MONTEITH, G. B. 1997: Revision of the Australian flat bugs of the subfamily Mezirinae (Insecta: Hemiptera: Aradidae). – Mem. Queensland Mus. **41**, 1-169.

YEATES, D. K., P. BOUCHARD & G. B. MONTEITH 2002: Patterns and levels of endemism in the Australian Wet Tropics rainforest: evidence from flightless insects. – Invertebr. Syst. **16**, 605-619.

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