

## A new species of *Trichocarenum* BLACKBURN, 1892 (Coleoptera: Carabidae: Scaritinae)

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### Abstract

*Trichocarenum maxfuchsi* sp.n. from the Kimberley Region in the north of Western Australia is described. A key is provided for the identification of the four currently known species of *Trichocarenum*.

Key words. *Trichocarenum*, Kimberley Region, Australia, Scaritinae, Scaritini, Carenina.

### Zusammenfassung

*Trichocarenum maxfuchsi* sp.n. aus der Kimberley Region im Norden Westaustraliens wird beschrieben. Ein Bestimmungsschlüssel zur Unterscheidung der bisher bekannten vier *Trichocarenum*-Arten wird vorgestellt.

### Introduction

*Trichocarenum* BLACKBURN, 1892 belongs to the Carenina MACLEAY, 1888, a subtribe of the tribe Scaritini BONELLI, 1810. Species of *Trichocarenum* are easily recognisable by their slender, cylindrical body shape, the triangular last labial palpomere, the dentate outer edge of the protibia (Fig. 4), the multisetose prosternum, and a paragenal with a row of coarse setiferous pores (Fig. 2). Prior to this publication, three species of the genus were known (MOORE et al. 1987, LORENZ 2005, ANICHTCHENKO et al. 2007–2024), all of which are distributed in northern Australia.

While looking through unidentified material, I noticed a specimen – which I describe below – that obviously did not match any of the previously described species. Neither BLACKBURN (1892) nor SLOANE (1892, 1894, 1897, 1905) or subsequent authors, respectively, provided a species key; therefore a short determination key to identify the species is provided herein.

### Material and methods

Preserved specimens from the author's collection were examined, which are mounted on commercially available, triangular paper cards. Label data for examined material are given in full length, translated, and the date transcribed to the format “dd.mm.yyyy”. The species descriptions are based on the most distinguishing external characters as defined by BAEHR (2008: 9). Dorsal pores are counted including the preapical puncture.

All investigations were performed with a Leica MZ16 binocular microscope with a Planapo 1.0× objective. Measurements were taken with a calibrated Leica ocular scale at magnifications of 25× for pronotal length and width, and 10× for all other measurements.

Body length is measured from tip of mandibles to apex of elytra, length of elytra from tip of scutellum to apex of elytra, length of pronotum along midline from anterior to basal margin, width of pronotum is maximum lateral dimension, elytral width the maximum lateral dimension of both elytra together.

## Taxonomy

### *Trichocarenum maxfuchsi* sp.n. (Figs 1–6)

**Material examined.** Holotype (male): Australia, W.A., Kimberley reg., Cape Laveque (sands), 20–22.01.2012, in coll. A. Dostal (Vienna, Austria).

**Diagnosis.** The cylindrical body, the triangularly enlarged last palpomere with dentate outer edge of protibia, the multisetose paragena, and the multisetose prosternum characterize the new species as *Trichocarenum*. The new species is well differentiated from previously known species by a pronotum without setae along the base between posterior angles, an unbordered base of pronotum above peduncle, and by the elytron with two rows of setiferous pores.

**Description.** Measurements. Body length 18.6 mm; maximum body width at pronotum 4.33 mm; head width 4.18 mm; pronotum length 4.70 mm; elytron length 9.48 mm; elytra width (both elytra) 4.23 mm.

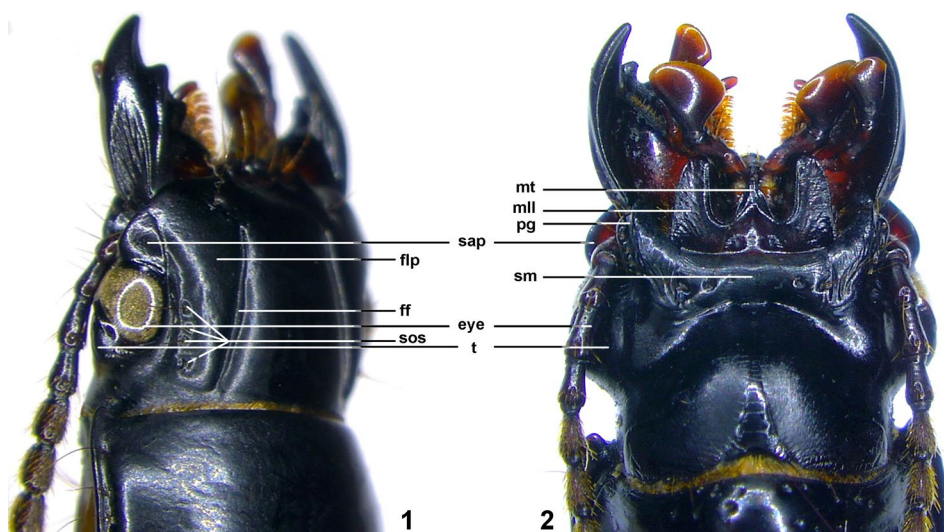
**Colour.** Unicolorous black, distal edges of last palpomeres brownish.

**Microsculpture.** Upper and lower surface of body with very fine, isodiametric microreticulation, surface with a silk-like shine. Head and pronotum with very fine micropunctuation. Abdominal sterna 2–6 glossy, without punctuation, microreticulation laterally and medially in same fine dimension.

**Head** (Figs 1, 3) almost as wide as pronotum. Maximum width over temples. Dorsal surface of head slightly convex. Antenna short, just surpassing base of pronotum; antennomeres 5–10 about 1.4× longer than wide, pubescent, with wide glossy area in middle, sides dull with microreticulation, flattened, upper edge rounded, lower edge with a fine glossy keel, which is also present on upper edge of antennomeres 10 and 11; antennomeres 1–4 more or less cylindrical; scapus asetose, antennomeres 2 and 3 with sensory setae at apex, antennomere 4 with sensory setae and few additional setae.

**Mandibles** shorter than head, outline slightly convex, incisor teeth sharpened towards apex and bent mesally. Left mandible with group of three, right mandible with group of four short triangular basal teeth; left mandible with two dorsal ridges in basal half, one in middle, other one mesally of latter originating from terebral tooth, right mandible mesal of middle dorsal ridge with three longitudinal ridges originating from upper basal tooth. Lateral channel of both mandibles basally somewhat flattened, vertical, with some longitudinal ridges, without setae, at base separated from lower part by a round edge; lower part basally with six setae on each side.

**Labium** 6-setose, slightly rounded, in middle anteriorly protruded and convex. Clypeus rectangularly emarginated in middle, at sides of emargination with distinct tooth, in middle of emargination with two small teeth, with a long seta on each side, in middle fused with frons, at sides separated by a fine suture from lateral part of frons. Supraantennal plates triangular, slightly convex, outline roundly produced at side, separated from lateral part of frons by a deep groove in front of eye, which continues near eye margin (Fig. 1).

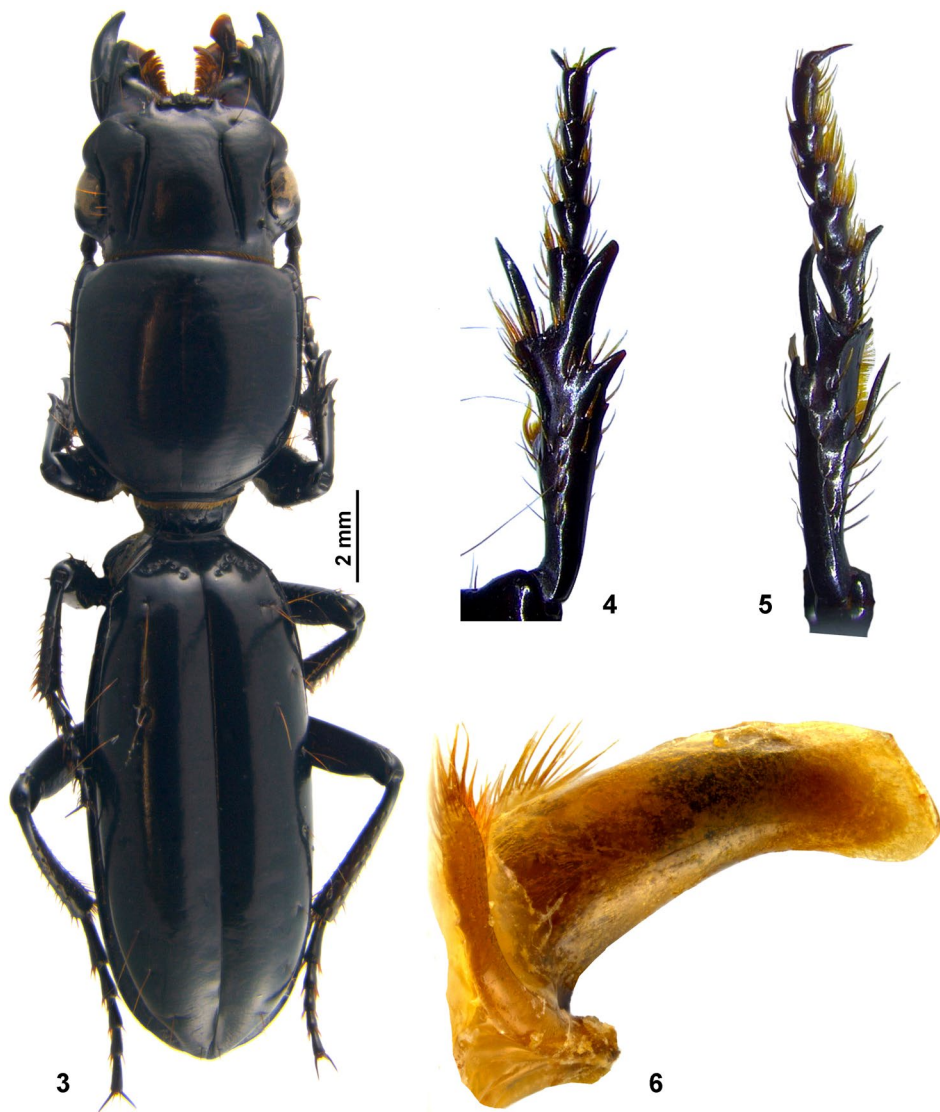


Figs 1–2. Important morphological characters of head, *Trichocarenum maxfuchsi* sp.n., holotype (male), (1) dorsolateral view, (2) ventral view. Abbreviations: ff – frontal furrow; flp – frons, lateral part; mll – mentum, lateral lobe; mt – mentum tooth; pg – paragena; sap – supraantennal plate; sm – submentum; sos – supra orbital setae; t – temple. © A. Dostal.

Frons slightly convex; frontal carinae straight, anteriorly joining clypeo-frontal suture, diverging behind, reaching neck. Middle part of frons distinctly convex, higher than lateral parts. Above eye with a ridge carrying four setiferous pores (Fig. 1). Temples higher than eye (Figs 1, 3); neck slightly constricted, posterior edge of temples and neck forming an obtuse angle.

Pronotum (Fig. 3) distinctly convex, about as wide as long (1.08×), widest before anterior angles, wider than elytra; sides more or less straight and parallel, slightly constricted towards base, posterior angles broadly rounded, with postangular seta, not breaking outline of pronotum. Anterior angles produced as small triangular lobes, rounded at top. Sides unbordered behind anterior angles, posteriorly distinctly bordered at sides and at lateral parts of base, base in middle unbordered. Lateral channel with four (left) and five (right) setae in anterior half. No transversal sulci present. Midline fine, glossy, not impressed, ending before anterior margin and at base.

Elytra (Fig. 3) long and slender, cylindrical, about 2.25× as long as wide; sides slightly rounded, widely rounded at base, strongly rounded towards apex, widest in middle. Elytra convex from one side to other; basal declivity to peduncle oblique, vertically flattened, with five umbilical pores on each side (inner one may be analogue to scutellar pore). Base finely bordered from humerus to peduncle; humerus indicated with small blunt tooth, not breaking through outline. Lateral channel with close set row of umbilical pores on entire length, somewhat looser set in middle of elytra. Scutellar striole absent. Elytron without distinct striae, with very fine and shallow, scribbled-looking, irregular lines, barely visible within microreticulation, which may be rudiments of elytral striae. Elytra with two rows of dorsal pores, carrying long setae, three (left) and two (right) in basal third of virtual interval three, seven (left) and eight (right) in virtual interval five, including



Figs 3–6. *Trichocarenum maxfuchsi* sp.n., holotype (male). (3) Habitus, dorsal view. (4) Right protibia, dorsolateral view. (5) Right protibia, ventrolateral view. (6) Aedeagus, lateral view. © 3, 6: H. Bruckner, 4, 5: A. Dostal.

preapical pore. In posterior three quarters the strongly convex epipleura visible from above and forming outline of elytra.

Legs: All tibiae straight, not bent, distally enlarged. Protibia (Figs 4, 5) with a strong and slender terminal tooth, slightly bent ventrad at apex; second tooth similar to terminal tooth, but shorter, followed by two distinct and one indistinct broad-based denticles; terminal spur strong, s-shaped curved, almost as long as first two tarsomeres. Upper surface

(Fig. 4) of protibia without longitudinal sulcus; surface of posterior side with central row of five setiferous denticles (Fig. 5). Mesotibia without denticulation at outer edge, except a small denticle at distal end. Tarsomeres almost cylindrical, tarsomeres 1 and 5 longer than others, claws smooth. Profemur with four setae along lower edge of flexor side, five along extensor side, and eight along posterior edge of lower surface. Mesofemur with four setae along edge of flexor side, ten along posterior edge of lower surface, with one additionally basally and two distally. Metafemur with three setae along edge of flexor side. Metacoxa with 1–2 setae in middle of anterior margin. Metatrochanter unisetose at base, distally pointed.

Ventral surface of head (Fig. 2). Gula steeply sloping to submentum, at bottom below submentum small, deep, paramedian fossae. Submentum strongly convex, with two setae on each side, one irregular small seta on right side. Submentum delimited from paragena by fine suture, maxillary fissure not prolonged posteriorly behind mentum. Paragena with five setae along outer edge on each side. Mentum with two deep paramedian, round fossae, median tooth single-pointed, acute, triangular, about  $0.75\times$  as long as lateral lobe; latter narrow, rounded at apex, side more or less straight, sharp edged; inner side of lateral lobe and median tooth distinctly bordered, border upturned in middle of median tooth. Last maxillary palpomere distinctly triangular, last labial palpomere strongly triangularly enlarged, penultimate labial palpomere multisetose. Apex of lacinia rounded.

Prosternum smooth, with 17 pores on each side; each pore carrying a long seta; prosternal process between coxae roundly truncated posteriorly, with one seta on each side close to edge. Episterna of pronotum smooth, separated from prosternum by a fine, but distinct suture. Epipleura of pronotum smooth, narrow, almost parallel, enlarged towards anterior angle and towards base.

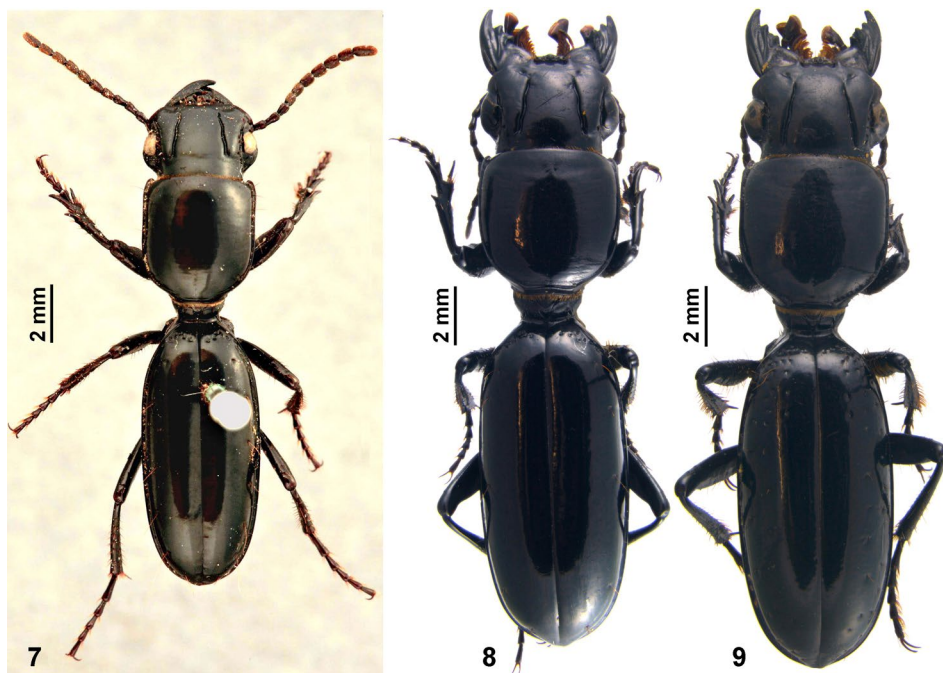
Elytral epipleuron broad in about basal fifth, here about  $1.4\times$  as wide as width of metepisternum, then abruptly narrowed, at level of posterior end of metepisternum, towards apex evenly narrowed and strongly convex, strongest convexity before apical quarter, from posterior end of metepisternum forming outline in posterior three quarters of elytra; bordered from posterior end of metepisterna, border evenly narrowed to a fine keel towards apex, where it is obsolete; smooth.

Metepisternum with lateral margin about  $1.3\times$  as long as anterior one, constricted towards apex, glossy, microreticulated, in middle with some irregularly arranged punctures, all sides without border. Mesosternum on declivity with 3–4 setae close to mesocoxae. Metasternum smooth, behind mesocoxa about  $0.45\times$  as long as mesocoxa; median sulcus almost obsolete, metasternum between mesocoxae broadly triangular, unbordered, distinctly bordered along mesocoxa only, lateral part with 7–8 setae behind mesocoxa, posterior processus bilobed.

Abdominal sterna 1–6 smooth, without puncturation or wrinkles, without transverse basal sulcus. Sterna 3–4 with accessory setae behind metacoxa. Sterna 3–5 each with one pair of paramedian setae. Lateral margin of sternum 6 each side with two setae, far apart from each other.

Genitalia of male (Fig. 6). Median lobe of aedeagus almost circular at base in cross section, towards apex dorso-ventrally flattened. Apex obliquely rounded, distinctly bent ventrally. Parameres almost identical to each other, long and slender, towards apex slightly dilated, apex rounded, with densely setose mesal side.

**Distribution.** Only known from the type locality in the Kimberley Region.



Figs 7–9. Habitus of *Trichocarenum* species, dorsal view. (7) *Trichocarenum castelnaui*, syntype (sex unknown). (8) *Trichocarenum cylindricum*, male from Windorah, Queensland. (9) *Trichocarenum elderi*, male from Alice Springs, Northern Territory. © 7: L. Gibson, Museums Victoria CC/BY; 8, 9: H. Bruckner.

Collecting circumstances unknown. Label data of this and other specimens suggest that species of *Trichocarenum* can be found at night on sandy soil.

**Species epithet.** Latinized noun, genitive case, an eponym based on the name of my good friend and colleague Maximilian Fuchs (Rottenmann, Styria, Austria), an excellent specialist of Carabidae and Staphylinidae.

**Comparative notes.** The eyes do not form a continuous outline with the temples, as temples are laterally surpassing the eyes. The shapes of pronotum and elytra are very similar in all species of *Trichocarenum*; however, in *T. maxfuchsi* sp.n. the base of the pronotum is not bordered above the peduncle, which is unique within the genus. For additional characters see the key below. In the genitalia I could not find any notable differences to the males of the other species available to me.

#### Key to species of *Trichocarenum*

- 1 Frons above eye with 2 supraorbital setae. Prosternum with setiferous pores in front of precoxa, none anteriorly in the middle. Hind margin of front femur with 4 setiferous pores. Elytron with a single row of setiferous pores along margin. Pronotum with 3 marginal setae on each side. Body length 22 mm (Fig. 8). ..... *Trichocarenum cylindricum*

- Frons above eye with 3–6 supraorbital setae. Prosternum with long setae also in the middle. Hind margin of front femur with about 4–10 setiferous pores. Lateral margin of pronotum with more than 3 setiferous pores. .... 2
- 2 Frons above eye with 3 supraorbital setae. Pronotum with six marginal setae. Elytron with a single row of setiferous pores along margin. Pronotum longer than wide. Body length 17.5 mm (Fig. 7). .... *Trichocarenum castelnaui*
- Frons above eye with 4–6 or more supraorbital setae. Elytron with two or three rows of setiferous pores along margin. .... 3
- 3 Pronotum with a closely set row of numerous marginal setae; base of pronotum distinctly bordered. Elytron with three rows of setiferous pores; both elytra together convexly curved from one side to the other and towards suture slightly depressed; surface glossy. Body length 19.4–23.5 mm (Fig. 9). .... *Trichocarenum elderi*
- Pronotum without setae between posterior angle (marked with seta) and base; margin with 4–5 loosely placed setae in anterior half; base unbordered. Elytron with two rows of setiferous pores, each one convexly curved, towards suture distinctly depressed; surface silky-matt. Body length 18.7 mm (Fig. 3). .... *Trichocarenum maxfuchsi* sp.n.

### Additional material examined

#### *Trichocarenum cylindricum* SLOANE, 1897 (Fig. 8)

1 male, Australia, SW Queensland, 12 km W of Windorah, 110 m alt., sand dunes, 28.–31.01.2011, S 25°21' E 142° 32'.

#### *Trichocarenum elderi* BLACKBURN, 1892 (Fig. 9)

1 male, Australia, NT, 50 m, Alice Springs env., 01.2009; 1 ex., Australia, north of Queensland, Wonga environment, 700 m, S 16°42', E 145°25', 02.10.1997; 1 female, 2 males, Australia centr. NT., Watarka NP, 620 m, nr Kathleen Springs, sand dunes, 04.–06.01.2002.

### Catalogue

Genus *Trichocarenum* BLACKBURN, 1892

Type species. *Trichocarenum elderi* BLACKBURN, 1892, by monotypy.

<i>Trichocarenum castelnaui</i> SLOANE, 1905	Western Australia: Roebuck Bay
<i>Trichocarenum cylindricum</i> SLOANE, 1897	Western Australia: Anketell; Queensland: Windorah
<i>Trichocarenum elderi</i> BLACKBURN, 1892	Western Australia: Victoria desert; Northern Territory: Alice Springs, Kathleen Springs; Queensland: Wonga
<i>Trichocarenum maxfuchsi</i> sp.n.	Western Australia: Kimberley Region

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