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A new species of the genus *Sloaneana* Csiki from Tasmania

(Coleoptera, Carabidae, Zolini)

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A new carabid species of the tribe Zolini is described from Tasmania: *Sloaneana curvicollis*, spec. nov. It is compared with the widespread *S. tasmaniae* (Sloane) which likewise occurs in Tasmania. For the four recorded species of the genus *Sloaneana* Csiki, 1933 a complete new key is provided.

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Introduction

Zolini Sharp, 1886 (former Merizodini Sloane, 1920) is a small tribe of carabid beetles of the Trechine lineage which has a decidedly southern distribution in South America, southern Australia, Tasmania, New Zealand, and on some subantarctic islands. From Australia so far four genera are recorded, namely the cave inhabiting *Idacarabus* Lea, 1910, and the genera of ground living species *Percodermus* Sloane, 1920, *Pterocyrtus* Sloane, 1920, and *Sloaneana* Csiki, 1933.

Within material borrowed from Australian National Insect Collection, Canberra, for examination I detected a series of specimens of the genus *Sloaneana* Csiki that are clearly different from the likewise Tasmanian species *S. tasmaniae* (Sloane, 1915), also from both species described from Lamington Plateau in south-eastern Queensland (*S. lamingtonensis* Baehr, 2002 and *S. similis* Baehr, 2002). Additional specimens were detected in a sample of specimens sent to Arnaud Faillie for DNA extraction. The new species is described in the present paper, the male and female genitalia are figured, and a new key for all four species of the genus is provided.

Methods

In the taxonomic survey standard methods are used. For dissecting the genitalia, the specimens were relaxed overnight in a jar under moist atmosphere and then cleaned for a short while in 10 % KOH. The habitus photograph was obtained by a digital camera using ProgRes CapturePro 2.6 and AutoMontage and subsequently was edited with Corel Photo Paint 14.

Measurements were taken using a stereo microscope with an ocular micrometer. Body length was measured from apex of labrum to apex of elytra, length of pronotum along midline, length of elytra from the most produced part of the humerus to the most produced part of the apex.

The types of the new species are stored in the Australian National Insect Collection, Canberra (ANIC), in the working collection of the author at Zoologische Staatssammlung, München (CBM), and in the collection A. Faillie, Paris (CFP).

Taxonomy

Genus *Sloaneana* Csiki

Brachydema Sloane, 1915: 452 (non *Brachydema* Fairmaire, 1881). – Sloane 1920: 130.

Sloanella Csiki, 1928: 224 (nom. nov. for *Brachydema* Sloane, 1915, non *Sloanella* Jeannel, 1927).



Fig. 1. *Sloaneana curvicollis*, spec. nov. Habitus. Body length: 3.9 mm.

Sloaneana Csiki, 1933: 1651 (nom. nov. for *Sloanella* Csiki, 1928). – Moore et al. 1987: 123; Baehr 2002: 9; Lorenz 2005: 201; Eberhard & Giachino 2011: 3.

Type species: *Brachydema tasmaniae* Sloane, 1915, by monotypy.

***Sloaneana curvicollis*, spec. nov.**

Figs 1–3

Types. Holotype: ♂, “42.10S 146.07E 4 km SSE of Mt. Rufus 800 m TAS 26–28 Jan 1980 Lawrence & Weir” (ANIC). – Paratypes: 1♂, “43.22S 146.09E TAS Celery Top Islands Bathurst Harbour 3–7 Dec. 1990 T. Weir in rotten logs” (CBM); 1♂, “43.22S 146.09E TAS Celery Top Islands Bathurst Harbour 3–7 Dec. 1990 T. Weir, I. Naumann / Winkler ANIC 1140 closed forest litter”

(ANIC); 1♂, 1♀, “43.22S 146.09E TAS Celery Top Islands Bathurst Harbour 28–29 Nov. 1991 I. D. Naumann” (ANIC, CBM); 1♀, “SW Tasmania Lower Gordon R. 42.31–56S 145.42–56E Howard, Hill... / H.E.C. Survey 141.250 Jan. 1978 handpicking” (ANIC); 1♂, “Tasmania” (ANIC); 3♀♀, “42°5'55"S 146°10'17"E GPS 750 m TAS. Lake St Clair NP, 1.5 km N along Overland track from Watersmeet / Hand collected day. Rainforest with *Eucalyptus* sp., under bark and in rotting logs / Australia (Tasmania) 12.III.2008 – T. Weir & C. Lemann” (ANIC, CFP).

Etymology. The name refers to the remarkably convex lateral margins of the pronotum of this species.

Diagnosis. Comparatively large species with remarkably convex lateral margins and comparatively narrow base of pronotum, and with oviform elytra with rather narrow base. Apart from those characters, distinguished from the other Tasmanian species, *S. tasmaniae*, by presence of only 2 impressed elytral striae, presence of three setiferous punctures on the disk of the elytra, presence of a distinctly impressed basal transverse sulcus on the pronotum, and bisetose left paramere.

Description

Measurements. Length: 3.65–4.2 mm; width: 1.6–1.8 mm; ratio width/length of pronotum: 1.31–1.33; ratio base/apex of pronotum: 1.27–1.34; ratio width of pronotum/width of head: 1.56–1.60; ratio length/width of elytra: 1.39–1.46; ratio width of elytra/width of pronotum: 1.24–1.30.

Colour (Fig. 1). Black, with more or less distinct metallic lustre. Lateral margins of pronotum and elytra narrowly reddish. Mandibles and palpi dark red, penultimate palpomeres slightly darker. Three basal antennomeres more or less pale reddish, rest piceous. Legs red to reddish-piceous, femora in parts and external surface of tibiae slightly darker. Lower surface and epipleurae reddish-piceous.

Head (Fig. 1). Rather narrow in comparison with prothorax. Frons convex, with or without some shallow transverse furrows. Frontal furrows deep, semicircular to irregularly sinuate, prolonged onto clypeus. Eyes large, moderately protruded, with small, obliquely convex orbits. Clypeo-frontal suture distinct. Anterior margin of clypeus straight, bisetose. Labrum short and wide, apex straight, 6-setose. Mandibles moderate, acute. Terminal palpomeres elongate, acute, impilose. Mentum with obtuse, triangular tooth, bisetose. Gula quadrisetose. Glossa narrow, bisetose, paraglossae barely surpassing glossa. Antenna moderately elongate, surpassing base of pronotum by one antennomere, median antennomeres slightly $< 2 \times$ longer than wide, three basal antennomeres sparsely setose, antenna densely

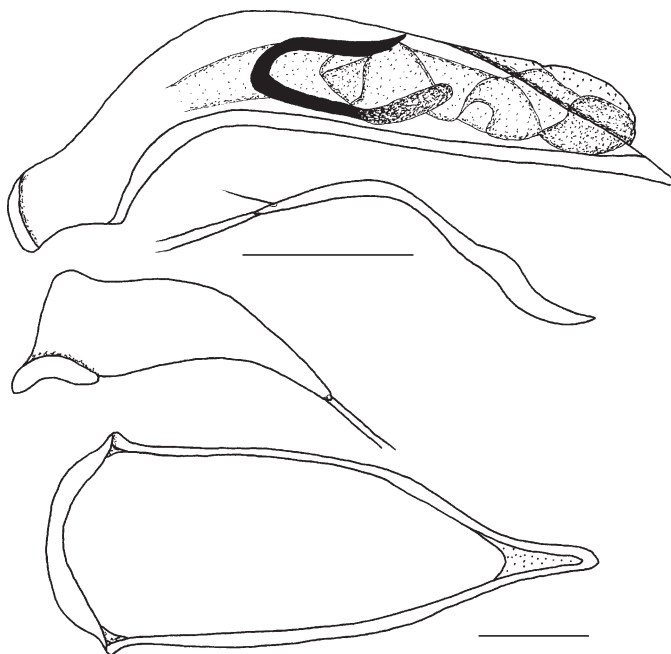


Fig. 2. *Sloaneana curvicollis*, spec. nov. Male genitalia: aedeagus (left side), left and right parameres, genital ring. Scale bars: 0.25 mm.

setose from middle of 4th antennomere. Microreticulation distinct on labrum, clypeus, and anterior part of frons, and on vertex, rather superficial or almost wanting on most of frons, about isodiametric. Surface impunctate, impilose, rather glossy.

Pronotum (Fig. 1). Wide, laterally markedly convex. Apex narrower than base, barely to very feebly produced. Sides almost evenly rounded, widest about at middle, remarkably narrowed towards base. Basal angles angulate but slightly obtuse, about 100–110°. Base almost straight. Apex feebly bordered but border narrowly interrupted in middle, lateral margins narrow, strongly bordered, border not widened apicad. Base bordered throughout. Lateral channel narrow. Disk evenly convex. Median line distinct, faintly impressed, complete. Anterior transverse sulcus very shallow, prebasal sulcus laterally close to basal margin, in middle convex, fairly deep. Basal grooves wide, fairly deep, oblique, separated from lateral margin by a moderately conspicuous, convex hump. Anterior marginal seta situated at or slightly in front of middle, posterior marginal seta situated at basal angle. Both setae slightly removed from margin. Microreticulation absent or extremely superficial traces of extremely fine, transverse meshes here and there visible at very high magnification. Surface almost impunctate, impilose, very glossy.

Elytra (Fig. 1). Moderately short and wide, markedly oviform, widest about at middle, moderately convex. Base comparatively narrow. Humerus angulate though not dentate, sides moderately, almost evenly convex, without any sinuation. Marginal channel narrow throughout. In apical fourth with an externally careniform internal plica. Epipleurae distinctly crossed near apex. Sutural stria complete and well impressed, 2nd and sometimes also parts of 3rd striae visible but usually not complete and little impressed, lateral striae invisible. Sutural stria almost impunctate, other striae merely consisting of punctures. Scutellary pore present, scutellary stria indistinct. 3rd interval with three discal punctures, all situated near 3rd stria. Marginal series consisting of 8 setiferous punctures, in two groups of four setae each which are widely separated. Also with a setiferous puncture near apex at end of 3rd stria. Microreticulation almost wanting, here and there just visible at very high magnification as extremely fine and superficial, transverse lines. Surface impunctate, very glossy. Metathoracic wings reduced, only about half as long as the elytra.

Lower surface. Whole lower surface impilose. Metepisternum slightly longer than wide at apex. Terminal abdominal sternum in both sexes quadrisetose.

Legs. Fairly elongate, especially tarsi rather

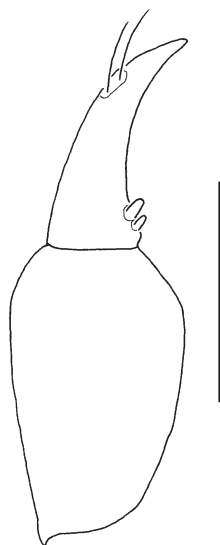


Fig. 3. *Sloaneana curvicolis*, spec. nov. Female gonocoxites. Scale bar: 0.25 mm.

slender and elongate. Two basal tarsomeres of male protarsus at median side slightly triangularly widened and biserially squamose.

Male genitalia (Fig. 2). Genital ring narrow, elongate, almost parallel sided, fairly symmetric, apex narrow and elongate. Aedeagus narrow and elongate, sharply curved near base, lower surface almost straight, apex short, straight. Orificium short. Internal sac rather complexly folded, with a narrow, coiled sclerite in basal part. Parameres large, very dissimilar, right paramere very narrow, elongate, with two elongate apical setae and one shorter dorsal seta slightly removed from apex; left paramere large, rather triangular, apical part curved down, with two elongate setae at apex.

Female gonocoxites (Fig. 3). Apex of gonocoxite 1 asetose. Gonocoxite 2 elongate, narrow, with acute apex, without a dorso-median ensiform seta, with one or two very small, obtuse latero-ventral ensiform seta(e) which are located close to base, and with two elongate, nematiform setae near apex that originate from an oblong pit.

Variation. Slight variation noted in relative width, or length, of pronotum and elytra, and in distinctness of the median elytral striae.

Distribution. South-western part of Tasmania and Central Highlands.

Collecting circumstances. Most specimens probably were collected in dense forest on the ground, “in rotten log”, “under bark in rotten log in Eucalypt forest” and “in closed forest litter”.

Key to the species of the genus *Sloaneana* Csiki

1. Pronotum narrower, ratio width/length < 1.35 , with much narrower base due to remarkably incurved lateral margins, ratio width of base/width of apex < 1.35 ; base of elytra narrow, lateral margins remarkably incurved (Fig. 1); left paramere bisetose, right trisetose (Fig. 2). South-western and central Tasmania.
..... *curvicolis*, spec. nov.
- Pronotum wider, ratio width/length > 1.45 , with much wider base due to little incurved lateral margins, ratio width of base/width of apex > 1.65 ; base of elytra wide, lateral margins little incurved; both parameres either trisetose, or bisetose. Tasmania, south-eastern Australia from eastern Victoria to south-eastern Queensland. .
..... 2.
2. Posterior lateral seta of pronotum slightly removed from lateral margin; pronotum without conspicuous boss in basal angle; transverse basal sulcus indistinct, not sharply impressed; elytra bipunctate; apex of aedeagus narrow, straight, neither short and compact, nor curved down; female gonocoxite 2 with two ventro-lateral ensiform setae. Tasmania, eastern Victoria, adjacent south-eastern New South Wales.
..... *tasmaniae* (Sloane, 1915)
- Posterior lateral seta of pronotum situated at lateral margin; pronotum with conspicuous fold in basal angle; transverse basal sulcus distinct, sharply impressed; elytra tripunctate or quadripunctate; apex of aedeagus either short and compact, or curved down; female gonocoxite 2 without ventro-lateral ensiform setae. Lamington Plateau, south-eastern Queensland. 3.
3. Larger species, body length > 3.6 mm; elytra quadripunctate, striae more deeply impressed, distinctly punctate; apex of aedeagus curved down, both parameres shorter and wider.
..... *lamingtonensis* Baehr, 2002
- Smaller species, body length < 3.3 mm; elytra tripunctate, striae barely impressed, almost impunctate; apex of aedeagus short and straight, both parameres longer and narrower.
..... *similis* Baehr, 2002

Remarks

The occurrence of a clearly distinct, second species of *Sloaneana* in Tasmania is surprising, at the first glance, because the single recorded species, *S. tasmaniae* (Sloane), is not only widely distributed in Tasmania

but also occurs on the mainland in southern Victoria, in similar environments as those in Tasmania. However, common occurrence of two species of *Sloaneana* is not unusual, as is demonstrated by the occurrence of two species on Lamington Plateau in south-eastern Queensland.

Very little is known about the habits of any species of the genus, except that all seem to live in litter on the floor of rather dense forest, either temperate, either montane subtropical to temperate. Therefore, nothing can be said about possible competition between, or specialization of, sympatric or even syntopic species.

According to the striation of the elytra, the structure of the male genitalia, and the setosity of the parameres, the new Tasmanian species seems to be more related to *S. tasmaniae* than to both Queensland species. In some respects, e.g. setosity of the parameres, setosity of the gonocoxite 2, number of elytral punctures, reduction of elytral striae, *S. curvicolis* is apomorphic as compared with *S. tasmaniae* but plesiomorphic as compared with both species from Queensland. Because *Sloaneana*, as well as the tribe Zolini in general, are decidedly southern, “bassian” faunal elements, the apotypic phylogenetic status of the northern species, in comparison to both southern ones, makes sense, although, surprisingly, at present there is a wide distribution gap between the southern part of the genus’ range and the restricted range in south-east Queensland, from where no species so far were recorded. At present, therefore the following phylogenetic scenario seems most probable: a generally plesiotypic species widespread in Tasmania and south-eastern Australia, a species that is apomorphic in several respects in a restricted area in Tasmania and being still rather closely related to the widespread species, and two much more apotypic species ranging far north, without our knowledge in which way they achieved their present range. However, all species, including the northern ones, still occur in rather similar environment, namely dense, quite wet forest.

The wet forests of south-western and western Tasmania apparently are home of a somewhat distinctive carabid fauna that includes some species, or subspecies, with restricted ranges as compared with their widespread relatives. Apart from *Sloaneana curvicolis*, other examples of taxa having similar restricted ranges in western or south-western Tasmania are found in the genera *Scopodes* Erichson (Baehr 2010) and *Calyptogonia* Sloane (Baehr 2013).

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