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A new species of the genus *Speotarus* Moore from interior Australia

(Coleoptera, Carabidae, Lebiini)

Martin Baehr (†)

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A new species of the lebiine genus *Speotarus* Moore, 1964 is described from western New South Wales and southern central Northern Territory, Australia: *S. opacipennis*, sp. nov. is distinguished from the widespread *S. lucifugus* Moore, 1964 by slightly different shape of head and prothorax, opaque elytra, and different structure of the internal sac of the aedeagus. For comparison, habitus and aedeagus of *S. lucifugus* Moore are also figured.

Martin Baehr, SNSB – Zoologische Staatssammlung München, Münchhausenstr. 21, 81247 München, Germany

Introduction

In material from Australian Museum, Sydney, kindly loaned by David Britton, I found two specimens of lebiine beetles which turned out to belong to the genus *Speotarus* Moore, 1964. According to comparison with the single described species *S. lucifugus* Moore, 1964, they belong to another, new species. This is described in the present paper, and, for easier distinction, the habitus of *S. lucifugus* and of the subspecies *S. lucifugus princeps* Moore, 1984 is figured. Also the aedeagus of *S. lucifugus* is figured, because the internal structure was not described nor figured in the original description.

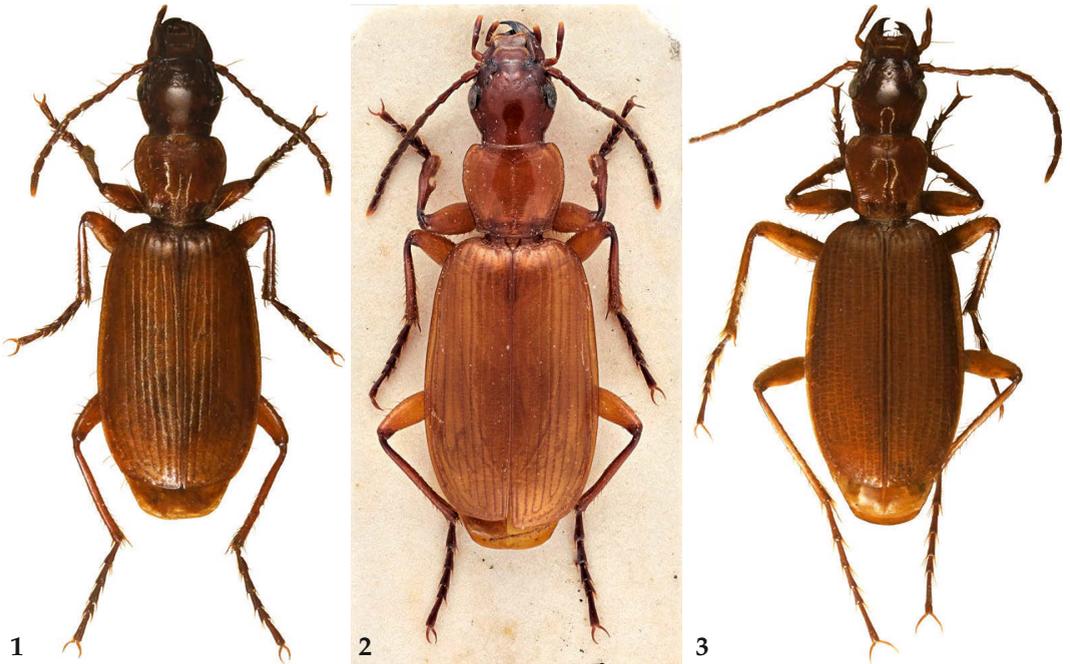
The genus *Speotarus* seems to be widely distributed in southern Australia, from southern Western Australia, through southern South Australia, to south-eastern New South Wales. Specimens that bear indications about their collecting circumstances usually have been found in caves. Therefore it is quite surprising that specimens from extreme south-western Western Australia and those from south-eastern South Australia and south-eastern New South Wales seem to be very similar. I tested this in a few specimens from Western Australia and South Australia by examination of their aedeagi

and found no substantial differences between those specimens. According to Moore (1964), the aedeagus of the subspecies *S. lucifugus princeps* Moore, 1964 likewise does not exhibit any differences. This subspecies was described mainly on its larger size, slightly different proportions of head and prothorax, longer legs, and punctulate elytral striae. Actually, however, according to kind information given by Cate Lemann (Canberra), the aedeagus of the holotype was not dissected, therefore the identity of this subspecies is uncertain.

The present new species again exhibits different body proportions, but also a different internal structure of the aedeagus.

Taxonomic methods

In the taxonomic survey standard methods are used. For dissecting the genitalia, the specimens were relaxed overnight in a jar under moist atmosphere, then cleaned for a short while in 10 % KOH. The habitus photographs of *S. lucifugus* and *S. opacipennis* were obtained with a digital camera using ProgRes CapturePro 2.6 and Auto-Montage and subsequently were edited with Corel Photo Paint 14. The photo of *S. lucifugus princeps* I owe the courtesy of Cate Lemann (Canberra).



Figs 1-3. Habitus. Body lengths in brackets. 1. *Speotarus l. lucifugus*, Moore (9.0 mm). 2. *S. lucifugus princeps* Moore (11.0 mm) (by courtesy of C. Lemann, Canberra). 3. *S. opacipennis*, sp. nov. (9.8 mm).

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 in a straight line from the most produced part of the humerus to the most produced part of the apex.

The holotype of the new species is stored in Australian Museum, Sydney (AMS), the paratype is stored in the working collection of the author at Zoologische Staatssammlung München (CBM).

Taxonomy

Genus *Speotarus* Moore, 1964

Moore, 1964: 71. – Moore et al. 1987: 304; Lorenz 2005: 497.

Type species. *Speotarus lucifugus* Moore, 1964 (by original designation).

Diagnosis. Genus of Lebiini, apparently related to the anomotarine lineage within the subtribe Calleidina, as it will be used in the forthcoming book on the Australian Carabidae (Australian beetles vol. 2). Elongate, rufous species; eye moderately large, but laterad little produced, orbit elongate; mentum dentate; apical palpomere of labial palpus moderately

widened. Prothorax narrow; base not produced and laterally not excised; elytra striate, glabrous; apex convex, not excised; metathoracic wings present; 4th tarsomeres narrow and not excised, not squamose beneath; tarsal claws not denticulate; aedeagus elongate, internal sac with an elongate, basally incurved, sclerotized rod; gonocoxites elongate, gonocoxite 2 straight, with tapering apex, with a tuft of short subapical setae and a larger dorsal and ventral seta each near apex.

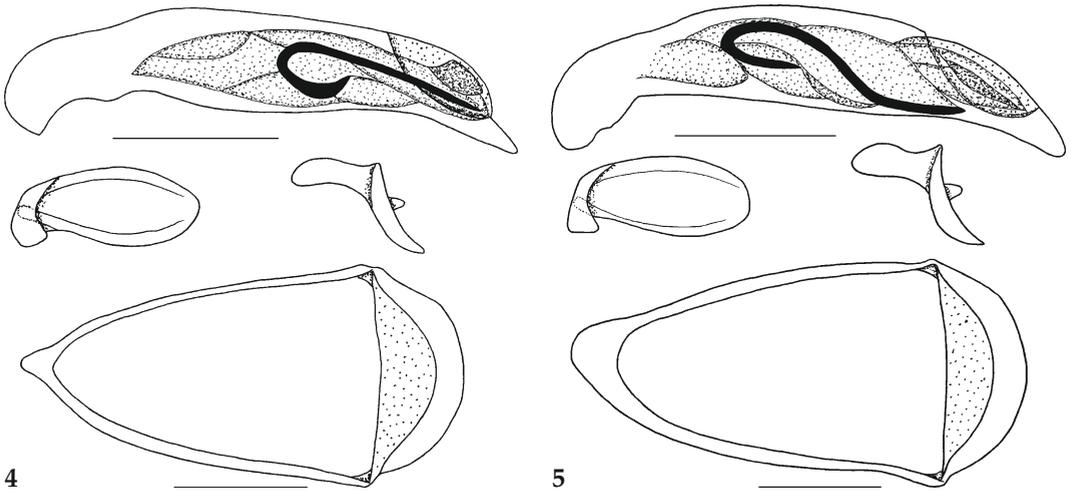
The single described species and one subspecies are recorded from caves in south-western Australia, south-western and south-eastern South Australia, and eastern New South Wales.

Speotarus opacipennis, sp. nov.

Figs 3, 5

Type material. Holotype: ♂, "Fowlers Gap, NW.NSW G.Campbell 1976 / *Speotarus* sp. n. det. B. P. Moore 1999" (AMS K 255284). – Paratype: ♀, "AUSTRALIA, NT Areyonga 1 December 1980 Joe Sedlacek / AMS K 241130" (CBM).

Etymology. The name refers to the opaque surface of the elytra.



Figs 4–5. Male aedeagus, parameres, and genital ring. Scale bars: 0.5 mm. 4. *Speotarus l. lucifugus* Moore. 5. *S. opacipennis*, sp. nov.

Diagnosis. Characterized by the strikingly opaque surface of the elytra that is produced by very distinct, isodiametric microreticulation; further distinguished from *S. lucifugus* Moore, 1964 by slightly more prominent eye, differently shaped pronotum with basally deeper marginal channel, and sinuate, instead of straight, anterior part of the sclerotized rod in the internal sac of the aedeagus.

Description

Measurements. Length: 9.1–9.8 mm; width: 3.5–3.7 mm. Ratios. Width/length of pronotum: 0.96–0.98; width base/apex of pronotum: 1.01–1.02; width pronotum/head: 1.04–1.08; length/width of elytra: 1.65–1.66; length orbit/eye: 1.40–1.45.

Colour (Fig. 3). Upper surface, including labrum, mandibles, palpi, and legs uniformly, more or less pale reddish-brown, but head darker than pronotum and elytra; lateral margin of pronotum slightly paler than disk; apices of palpi slightly paler than the rest; antenna very slightly paler than the body; lower surface more or less dark rufous.

Head (Fig. 3). Narrow and elongate, little narrower than prothorax. Neck rather wide, dorsally with a slight transverse impression. Eye moderately large, but laterally little protruded, orbit obliquely convex, slightly longer than the eye. Laterally of eye with a more or less distinct sulcus; frons in anterior part with some irregular longitudinal striae, that are less distinct in the paratype. Clypeal suture distinct. Labrum rectangular, apex straight. Mandible moderately elongate, straight. Antenna rather slender and elongate, just attaining base of pronotum,

median antennomeres c. 2.7 × as long as wide. Both palpi slender and elongate, basal palpomere of maxillary palpus thickened. Maxillary palpus almost impilose, labial palpus with moderately sparse but distinct pilosity. Mentum with an elongate, unidentate tooth. Median gular setae very elongate. Both supraocular setae present, the posterior one slightly removed from the eye. Microreticulation superficial, composed of about isodiametric meshes, punctures sparse, surface glossy.

Prothorax (Fig. 3). Narrow, gently cordate, widest in apical third, in the posterior two thirds oblique, near base slightly concave. Disk gently convex; lateral margin raised, with a fairly deep sulcus that is distinctly widened towards base. Apex straight, anterior angle barely projecting, obtuse. Base in middle slightly convex, laterally oblique, basal angle c. 100°, but quite obtuse. Both, anterior and posterior transverse sulci shallow. Median line almost complete, rather deep. Apex only laterally very inconspicuously bordered, base coarsely bordered. Anterior marginal seta located at apical third, at the widest diameter, posterior seta situated slightly in front of the basal angle, both setae elongate. Disk apparently impunctate, with several fine, irregular, transverse striae. Microreticulation fine though rather distinct, composed of slightly transverse meshes. Surface moderately dull.

Elytra (Fig. 3). Comparatively narrow and elongate, slightly widened apicad, lateral margin in middle straight but slightly oblique. Dorsal surface rather depressed. Humerus widely rounded, apex unarmed, slightly oblique and gently convex, not incurved at suture. Striae complete, well impressed, at

bottom very finely punctate-crenulate; intervals well raised, even slightly tectiform. Two discal punctures and setae present; the anterior one located at the basal two fifth and in middle of the 3rd interval, the posterior one located far behind, about at the apical eighth and attached to the 2nd stria. 12 marginal setae present, consisting of a humeral group of 6 setae, a median group of two, and a subapical and an apical group of two setae each. Also one preapical seta at the end of the 2nd stria present. Intervals impunctate. Microreticulation isodiametric, fine though very distinct, making the surface strikingly opaque.

Metathoracic wings. Fully developed.

Lower surface. Prosternal process short, posteriorly slightly convex, bordered. Proepisternum and mesepisternum impunctate. Metepisternum elongate, >2× as long as wide at anterior border, impunctate. Whole lower surface with fine and rather superficial, isodiametric microreticulation, glossy. Male sternum VII bisetose, female sternum VII quadrisetose.

Legs. Elongate and very slender. Tibiae in apical half of the inner side rather densely pilose. Tarsomeres not sulcate. 4th tarsomeres not excised. 5th tarsomeres setose beneath. 1st–3rd tarsomeres of male protarsus and mesotarsus densely biserially squamose.

Male genitalia (Fig. 5). Genital ring moderately wide, triangular, apex slightly asymmetric. Aedeagus rather stout, symmetric, lower surface, apart from basal part, almost straight, towards apex slightly directed down. Apex moderately elongate, triangular, obtuse at tip. Orificium short, situated mainly on the left side. Internal sac with an elongate, sclerotized rod that is incurved in the posterior part, and sinuate in the anterior part; also with some little sclerotized folds. Both parameres rather elongate, at apex obtusely rounded.

Female gonocoxites. Unknown, because the female is not well preserved.

Variation. Some variation noted in relative width of pronotum and in shape of elytra, which are shorter and wider in the female.

Distribution. Extreme western New South Wales and southern central Northern Territory.

Collecting circumstances. Not recorded.

Key to the taxa of *Speotarus* Moore

1. Colour yellow to pale red; head barely darker than pronotum and elytra; eye slightly larger but depressed (Fig. 2); lateral margin of pronotum regularly convex; base relatively wider; elytral striae finely and regularly punctulate (Fig. 2); aedeagus unknown.
..... *lucifugus princeps* Moore, 1964
- Colour darker, rufous to brown; head darker than pronotum and elytra; eye slightly smaller but less depressed (Figs 1, 3); lateral margin of pronotum only in apical half convex, basad oblique and slightly concave; base slightly narrower; elytral striae little or not punctate (Figs 1, 3); aedeagus elongate, internal sac with a narrow, sclerotized rod which is incurved in different ways (Figs 4, 5). 2.
2. Head and prothorax slightly wider; elytra slightly shorter and wider, ratio length/width <1.62; eye slightly longer; elytral striae more deeply impressed, irregularly punctulate (Fig. 1); microreticulation faint, surface of elytra glossy; apex of aedeagus acute; rod in internal sac straight, basally more deeply incurved; incurved part wider and shorter; both parameres narrower (Fig. 4). *l. lucifugus* Moore, 1964
- Head and prothorax slightly narrower; elytra longer and narrower, ratio length/width >1.58; eye slightly shorter; elytral striae little impressed, impunctate (Fig. 1); microreticulation distinct, surface of elytra rather opaque; apex of aedeagus obtuse; rod in internal sac slightly sinuate, basally less deeply incurved; incurved part narrower and longer; both parameres wider (Fig. 5). *opacipennis*, sp. nov.

Table 1. Comparison of measurements and ratios of the taxa of *Speotarus* mentioned in the present paper. N, number of specimens measured; l,= body length in mm; w/l pr, ratio width/length of pronotum; b/a pr, ratio width base/apex of pronotum; w pr/h, ratio width pronotum/head; l/w el, ratio length/width of elytra; orb/eye, ratio length of orbit/length of eye.

	N	l	w/l pr	b/a pr	w pr/h	l/w el	orb/eye
<i>l. lucifugus</i>	6	8.0–9.2	1.06–1.07	1.04–1.05	1.08–1.09	1.59–1.62	1.2–1.3
<i>lucifugus princeps</i>	1	11.0	1.16	0.99	1.17	1.58	1.0
<i>opacipennis</i>	2	9.1–9.8	0.96–0.98	1.01–1.02	1.04–1.08	1.65–1.66	1.4–1.45

Remarks

The most striking character states of *S. opacipennis* which confirm the status of a separate species are the opaque surface structure of the elytra, i. e. the coarse, isodiametric microreticulation, and the different internal structure of the aedeagus, i. e. the form of the curved sclerotized rod inside the internal sac.

It is unknown, whether the new species was collected from caves, as most recorded specimens of *S. lucifugus* have been. The rather small eye could be evidence of cavernicolous habits, but this hypothesis should be verified, or denied, by additional material which should bear well documented collecting circumstances.

It seems that this genus is very widespread throughout the southern part of Australia, with some species perhaps having more restricted ranges, others being very widespread in many caves.

Additional collecting efforts or future examination of material yet undetected but present in collections may again reveal addition species.

Acknowledgments

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