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A new and another remarkable species of the genus *Sphallomorpha* WESTWOOD from central Queensland, Australia (Coleoptera, Carabidae, Pseudomorphae)

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Abstract

Sphallomorpha pauciseta **sp. n.** is described from central Queensland, Australia. The species is related to *S. multiseta* BAEHR from southern Queensland and northern New South Wales but differs from that species in the lesser number of marginal elytral and terminal abdominal setae and in shape and structure of aedeagus and genital ring. The new species fills a distribution gap within its species-group in central Queensland.

A new record of *S. spurgeoni* BAEHR from North Queensland, which so far was known only from the holotype, corroborates the rain forest dwelling habits of this species.

Introduction

Sphallomorpha WESTWOOD is the most plesiotypic genus within the outstanding carabid subfamily Pseudomorphae which status is demonstrated by the ovipary of all known species, possession of still elongate legs, little or not reduced chetotaxy, and "normal" shaped, not foliaceous female stylomeres. The genus has been divided into a number of more or less distinct species-groups that are characterized by either body shape, colouration, chetotaxy, or structure of their male, and in some groups, also female genitalia. At present the genus includes 145 species of which 139 occur throughout Australia, the other are found in New Guinea. Species of *Sphallomorpha* prefer eucalypt forests and woodlands and are mostly detected under the loose bark of bark-shedding eucalypts. Less commonly they can be found in deep cracks in the bark of non bark-shedding eucalypts, acacias and other trees. Very few species occur in rain forest, but without our knowing under which circumstances they live.

In the large amount of unidentified carabid species in Queensland Museum, Brisbane (QMB), recently I found *inter alia* a new species of the genus *Sphallomorpha* WESTWOOD which is described herein. The description is rendered another supplement to the revision of the Oriental-Australian members of this subfamily; the paper also includes a second record of a *Sphallomorpha* species which was so far known only from the holotype.

Methods of examination and style and format of the description exactly correspond to those in my pseudomorphine revisions (BAEHR 1992, 1993a, b, 1994, 1997, 2002, 2004, 2005) which also can be used to gain additional information about the genus *Sphallomorpha* WESTWOOD, its morphology, distribution, and habits, and generally about the Australian pseudomorphae.

Sphallomorpha pauciseta **sp. n.** (Figs 1a-g, 2)

Holotype: ♂, CSQ: 23°32'S x 147°18'E Drummond Ra. summit 24-26 Oct. 2000. 920m Cook, Wright, Vanderduys At MV light. O/F. **9478** (QMT).

Diagnosis. Large, rather elongate, unicolourous black species with inconspicuous, feebly marked elytral striae and faintly raised, rather smooth intervals. Distinguished from most species of the *lata*-group in the sense of BAEHR (1992), except *Sphallomorpha multiseta* BAEHR, by the low number of marginal elytral setae

which are arranged almost regularly behind humerus, and by the short and very wide aedeagus. From the latter species distinguished by the lesser number of marginal elytral and male terminal abdominal setae, and wider male genital ring, narrower aedeagus bearing a less evenly rounded apex, and slightly longer right paramere.

Description

Measurements (because the elytra of the single specimen are creased, measurements and ratios of elytra are somewhat inaccurate): Length: c. 14.6 mm. Ratios: Width pronotum/head: 1.73; width elytra/pronotum: c. 1.05; width/length of pronotum: 2.62; length/width of elytra: c. 1.26; length elytra/pronotum: 3.30.

Colour: Black. Mouth parts dark piceous, with apex of palpi reddish. Antenna dark reddish. Lower surface dark piceous to black, metathorax and abdomen slightly lighter. Legs including femora dark piceous.

Chetotaxy (Figs 1a, b): Supraorb: 1; preorb: 1; clyp: 1; labr: 5; ment.med: 2; ment.lat: 5; gloss: 3-4; gul: 2; postorb: 4-6; suborb: 9-10; pron.ant: 1; pron.post: 1; proeps: 2-3 + 5-6; marg: 19-20; st VI: 2; ♂ st VII: 4; ♀ st VII: ?.

Head (Fig. 1a): Rather wide, fairly depressed, with inconspicuous, very shallow frontal impressions. Eyes large, convex. Clypeus very gently concave, clypeal sutures distinct, rather impressed, elongate. Lateral margin of head evenly convex, rather oblique, slightly incurved in front of eyes. Labrum wide, short, laterally convex, anteriorly straight, asymmetrically 5-setose. Wings of mentum short, wide, apex evenly rounded, subapically straight, medially oblique. Glossa feebly excised, border obtuse, lateral setae longest. Dorsal part slightly surpassing ventral, medially slightly excised, without bristles or hairs. Terminal palpomere of labial palpus elongate, rather narrow, with extremely oblique apex, somewhat securiform, terminal palpomere of maxillary palpus elongate, with very oblique apex, barely securiform. Median antennomeres of antenna c. 4.7 x as long as wide. Microreticulation very dense and fine, punctuation dense, fine, though well visible under high magnification, surface with some transverse striae laterally of clypeal sutures and with some irregular longitudinal striae medially of the paraorbital sulcus, without pilosity, rather glossy. Palpi with fine, fairly dense pilosity. Galea with some short hairs at apex. Lower surface apparently impilose.

Pronotum: Wide, moderately depressed, laterally fairly explanate. Apex with rather deep excision. Anterior angles moderately protruding, wide, apex faintly obtuse. Sides evenly convex, widest slightly in front of posterior marginal seta. Base gently bisinuate. Lateral margin with fine border line. Dorsal surface rather uneven, discal impressions fairly well developed, also with a shallow, oblique impression near anterior border. Microreticulation very fine, dense, punctuation very fine, though well visible, surface with more or less conspicuous network of irregular striae, with extremely fine, scattered pilosity, moderately glossy.

Elytra: Wide, rather elongate, not much wider than pronotum, laterally almost straight, moderately depressed. Apex moderately wide, slightly oblique, almost straight. Striae virtually not impressed, only marked by rather fine punctures, even inner intervals depressed. Series of marginal punctures almost uninterrupted in middle, at shoulders not irregular, arranged in a fairly straight line. Microreticulation very fine though rather distinct and dense, almost isodiametric, surface with scattered, rather fine punctures especially near apex, with extremely short, sparse, erect pilosity, fairly glossy, slightly iridescent.

Lower surface: Prosternal process rather elongate, moderately wide, apex fairly rounded, ventral surface convex, feebly curved to apex, with a single elongate seta at apex and with some short hairs. Metepisternum c. 2 x as long as wide.

Legs: Very elongate. Metatarsus slightly longer than metatibia. Upper surface of tarsi sparsely pilose. 1st tarsomere of metatarsus about as long as 2nd and 3rd tarsomeres together.

♂ genitalia (Figs 1 b-g): Sternum VII rather wide, with wide, fairly deep excision and with 4 setae on either side. Genital ring wide, triangular, basal border almost straight, lateral angles little rounded, basal plate short, anteriorly deeply excised, arms slightly sinuate. Aedeagus short, depressed, wide, lower surface gently bisinuate, apex wide and very obtuse, but not regularly rounded. Orifice rather elongate. Internal sac inconspicuously microtrichiate, for pattern see Figs 1 d.e. Right paramere with elongate and attenuate apex, basal part rather straight. Left paramere fairly narrow, almost straight on lower border, convex on upper border, apex wide, gently oblique.

♀ genitalia: Unknown.

Variation: Unknown.

Distribution (Fig. 2): Drummond Range, west of Emerald, central Queensland. Known only from type locality.

Habits: Largely unknown. Holotype collected at light in open forest at the top of range in October. Most probably this is also a bark-inhabiting species that may live under loose eucalypt bark like almost all of its congeners.

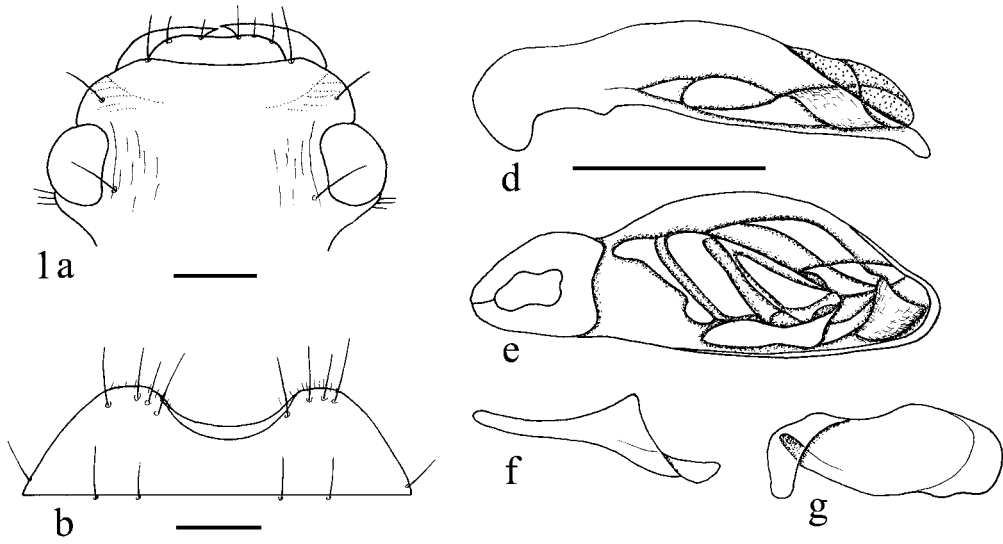
Material examined: Only the holotype specimen.

Etymology: Latin “*pauci*” means “less” and refers to the lesser number of marginal elytral and male terminal abdominal setae as compared with the next related *S. multiseta* BAEHR.

Relationships: According to chetotaxy of labrum, shape of terminal male sternum, and shape and structure of male genitalia, this species belongs to the *lata*-species group in the sense of BAEHR (1992) and is most closely related to *S. multiseta* BAEHR from south-eastern Queensland and northern New South Wales.

Recognition: To insert this species in the general key (BAEHR 1992), this has to be altered as following (Figures of the revision are inserted as **B92** Fig.):

12. Labrum at most with shallow excision, commonly 6-setose (Fig. 1a; **B92** Fig. 62a); aedeagus short, sinuate, right paramere usually elongate with markedly attenuate apex (Figs 1e, f; **B92** Figs 56k, l-59k,l, 62 k, l) 13.
- Labrum with deep excision, usually 4-setose (**B92** Fig. 34a); aedeagus varied, though different; apex of right paramere not attenuate 17.
13. Labrum barely excised (Fig. 1a; **B92** Fig. 62a); marginal pores of elytra fewer (19-24), behind humerus not irregularly arranged (**B92** Fig. 62p); aedeagus markedly widened in middle, apex short and very obtuse (Fig. 1e, **B92** Fig. 62k) 13a.
- Labrum distinctly excised (**B92** Figs. 56a-59a); marginal pores of elytra numerous (24-39), behind humerus very irregularly arranged (**B92** Fig. 56p); aedeagus varied, not as markedly widened in middle, apex usually less obtuse (**B92** Figs. 56g, k-59g, k) 14.
- 13a. Pronotum with two ill defined, reddish spots, head with reddish centre; marginal pores of elytra more numerous (21-24); sternum VII with 5-7 setae (**B92** Fig. 62g); genital ring narrower, aedeagus wider, apex evenly rounded, apex of right paramere slightly shorter (**B92** Figs 62h,k,l). Southern QLD ... *multiseta* BAEHR
- Pronotum without reddish spots, head black throughout; marginal pores of elytra fewer (19); sternum VII with 4 setae (Fig. 1b); genital ring wider, aedeagus narrower, apex slightly incised laterally, apex of right paramere slightly longer (Figs 1c,e,f). Central QLD *pauciseta* **sp. n.**



Figs 1 a-b, d-g. *Sphallomorpha pauciseta* sp. n. Details of head and male genitalia. **a.** Dorsal surface of head. **b.** Male sternum VII. **d.** Lateral view of aedeagus. **e.** Lower surface of aedeagus. **f.** Right paramere. **g.** Left paramere. (Scales: 1 mm)



Fig. 1 c. *Sphallomorpha pauciseta* sp. n. Details of male genitalia. **c.** Male genital ring.

Fig. 2. Distribution. *Sphallomorpha pauciseta* sp. n.: ●; *S. spurgeoni* BAHR: ■.

***Sphallomorpha spurgeoni* BAEHR, 1992**

(Fig. 2)

BAEHR 1992, p. 130.

New record: 1 ♂, QLD: 16°35'S x 145°16'E Leichardt Creek, upper 28 May 2003. GB Monteith Pyrethrum on Bunya Pine trunks. **11311** (QMB).

Note: *S. spurgeoni* so far was known only from the male holotype captured on Mt. Spurgeon at the western margin of Mossman Tableland, north-eastern Queensland. The mentioned additional specimen was collected not far from this locality. Different from the holotype, the new specimen bears exact information about the collecting circumstances and thus corroborates the occurrence of this species in tropical rain forest. In the Mt. Spurgeon area this forest is intermixed with Araucarias: as well with the more common Hoop Pine, *Araucaria cunninghami* AITON, as the Bunya Pine, *A. bidwillii* HOOKER which is much rarer in northern Queensland. The specimen was fogged from the rough, deeply cracked bark of the latter Bunya Pine. This sampling record is in particular interesting, because very few records of large species of the genus *Sphallomorpha* sampled in rain forest are available and even fewer records of specimens sampled on conifers.

Remarks

In spite of the great number of described species in the pseudomorphine genus *Sphallomorpha* and of the fairly common occurrence of a couple of species, certain regions, including some which are reasonably easy to visit, have been so far very unsatisfactorily sampled for pseudomorphines and for carabid beetles in general. Central Queensland seems to represent such an area, because collectors so far have concentrated either on the South-east or the Far North of Queensland, since the species diversity is believed to be much greater in both mentioned areas than in the central parts with their fairly uniform open woodland. For vegetation of the little visited Drummond Range see the National Wilderness Red Index (see "References"). On these reasons, it is not too surprising that new species appear in those parts of Queensland that are situated west of Great Dividing Range, as more systematic sampling work is done.

The new species described herein is closely related to the south-eastern *Sphallomorpha multiseta* BAEHR but shows also relations to the northern species of the *lata*-group in the sense of BAEHR (1992) which group of species extend from north-eastern Queensland through the northern parts of Northern Territory. It fills the distributional gap between the mentioned southern and northern species of this group.

Generally the black, not patterned species of the genus *Sphallomorpha* are highly similar in their external morphology, e. g. in body shape and surface structure, but are reasonably easy to distinguish by chetotaxy and their characteristic male, and usually also female, genitalia. Although being very similar in body shape and structure to *S. multiseta*, the new species in the same ways differs by sparser chetotaxy on elytra and male sternum VII, as well as in the structure of its male genitalia.

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