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Pseudoshaira, a new leaf beetle genus occurring in Borneo (Coleoptera: Chrysomelidae: Galerucinae)

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Abstract. *Pseudoshaira warchalowskii*, new genus and species, is described from Borneo. Its taxonomic position within brachelytrous genera of Galerucinae is discussed.

Key words: entomology, taxonomy, Coleoptera, Chrysomelidae, Galerucinae, *Pseudoshaira*, new genus, new species, Borneo, Sabah.

INTRODUCTION

Beetles showing abbreviated elytra (brachelytry) occur in Chrysomelidae in Galerucinae and Alticinae only (Beenen & Jolivet in press). One of the Galerucinae genera with brachelytrous species is *Shaira* Maulik, 1936.

The classification of species in the genus *Shaira* has been unclear for a long time. The genus was erected by Maulik (1936) who designated *S. maculata* Maulik, 1936 as type species. Maulik included four species in *Shaira*: *S. maculata* from Manipur, India, *S. krishna* Maulik, 1936 from South-Eastern Tibet, *S. palnia* Maulik, 1936 from Southern India and *S. andrewesi* (Jacoby, 1904) from Nilgiri Hills, India. Since then five species from China (*S. tenuipes* (Chen & Jiang, 1981), *S. atra* Chen et al., 1987, *S. fulvicollis* Chen *et al*. 1987, *S. quadriguttata* Chen et al., 1987, *S. hemipteroides* Lopatin, 2006) and one species from Formosa (*S. chujoi* Kimoto, 1982) have been attributed to this genus.

An indication that even Maulik was not certain of the inclusion of all these species in *Shaira* is his remark with the description of *S. krishna*: "Owing to several peculiar characters of this species I am not satisfied about its generic position". This species was transferred later to *Geinella* by Wilcox (1971).

In 1936 another brachelytrous genus was presented: *Parageina* Laboissière, 1936 with a single species *P. bouvieri* Laboissière, 1936 from Shambaganur, Madurai, India. *Shaira andrewesi* is close to *Parageina bouvieri* and currently classified in *Parageina* Laboissière (Wilcox 1971).

Recently Mauro Daccordi forwarded some specimens of a strange galerucine beetle collected in Borneo (Sabah) which seemed to be related to *Shaira* or *Parageina*. Later more specimens from the same locality turned up. They all were from Mount Kinabalu. They proved to belong to a new species that is described here. Although these specimens superficially resemble *Shaira* and *Parageina* they differ in essential characters and will be attributed to a new genus.

Acronyms

MHNG	Muséum d'Histoire Naturelle, Genève.
NMW	Naturhistorisches Museum, Wien.
RBCN	Ron Beenen collection, Nieuwegein.

Pseudoshaira n. gen.

Etymology

This genus closely resembles the genus *Shaira*.

Type species

Pseudoshaira warchalowskii n. sp.; gender feminine.

Description

This genus is very similar to *Shaira* and *Parageina* but differs in the bulbous maxillary palpi and the short antennae (with second segment about one third or less of the length of the third segment). The male specimens have strongly dilated antennal segments. The aedaeagus lacks basal spurs and has a very small basal orifice.

Pseudoshaira warchalowskii n. sp.

Etymology

I am glad to have the opportunity to dedicate this interesting species to my dear friend Andrzej Warchałowski whose revisions of several leaf beetle genera have been examples of tough scientific work resulting in clear descriptions and very useful identification keys.

Diagnosis

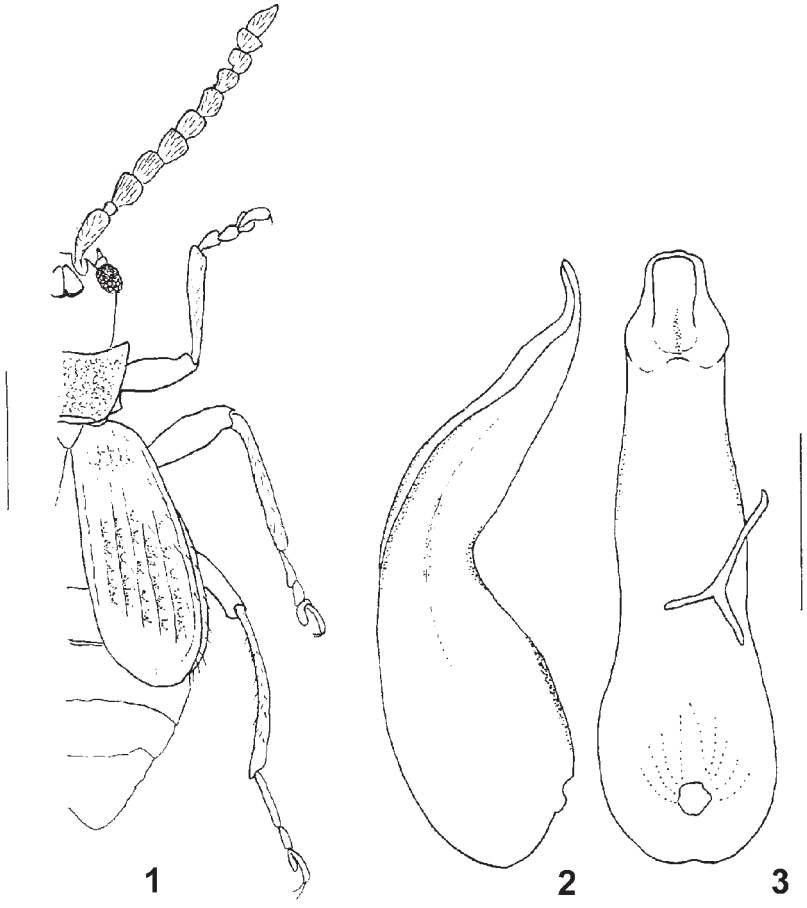
Pseudoshaira warchalowskii n. spec. is easily recognizable due to its reduced elytra with large irregular depressions arranged in elongated lines. This character also occurs in *Apteraltica schawalleri* Medvedev, 2004 described from peninsular Malaysia.

Medvedev (2004) writes that he has never noticed a similar structure in Chrysomelidae and compares it with the elytral pattern occurring in many Carabidae. Due to the short elytra, large maxillary palpi and robust antennae males of *Pseudoshaira warchalowskii* n. spec. superficially resemble pselaphid beetles.

The aedaeagus with a very small basal orifice is unlike any galerucine aedaeagus known to me.

Description

Total length: 3.00-4.50 mm. Length from the anterior border of the eyes to the tip of the elytra: 2.50-3.15 mm. Apterous. General color brown. In male antennal segments 8 onwards gradually darkened where 10 is black; 11 yellow. In female antennal segments 4 onwards gradually darkened where 8 and 9 are black; segments 10 and 11 yellow. Elytra abbreviated and slantingly cut away. Male habitus as in figure 1.



1. Sketch of the right upper half of *Pseudoshaira warchalowskii* n. sp. Scale bar = 1 mm; 2-3. Aedaeagus of *Pseudoshaira warchalowskii* n. sp. 2 – lateral view, 3 – ventral view. Scale bar = 0.5 mm

Head: maximum width of head across the eyes: 0.80-0.90 mm. Upper surface impunctate with scattered fine hairs. Frontal tubercles oblong; rounded at top and with a sharp edge near clypeus. Clypeus as a reverse 'Y'; smooth. Preapical segments of maxillary palpus bulbous; apical segment narrow, peg-like. Antennae in female with narrow segments as in figure 2a. In male with dilated segments as in figure 2b. The last two segments with ventral side flattened. Segment 10 with a protuberance bearing bristles; segment 11 with some scale-like hairs (fig. 6).

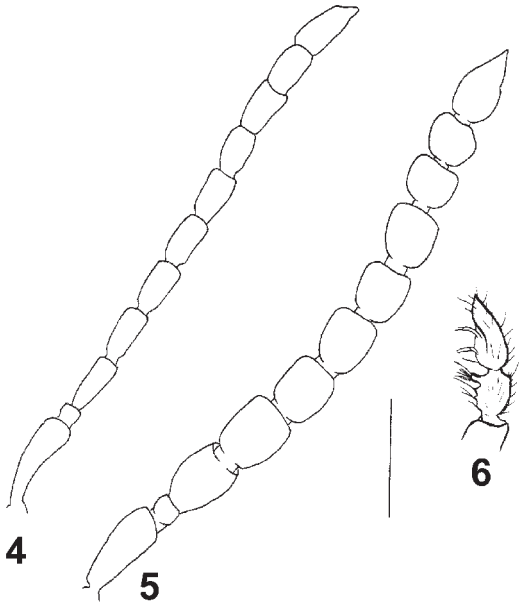
Pronotum: length in middle: 0.40-0.55 mm. Width between anterior corners: 0.85-0.90 mm. Greatest width between anterior corners. Sides gradually narrowing towards posterior corners. All four corners with hair-bearing pit. Base straight with emarginations near posterior corners. All borders with well defined margins. Upper surface wrinkled and dull.

Scutellum: triangular with an obtuse angle; impunctate.

Elytra: at base as broad as pronotum widened behind; apical margin rounded, slanting towards suture. Surface uneven with large irregular depressions arranged in elongated lines. Ridge from humerus to half of elytral length dividing surface into horizontal and inclined portions. Regularly arranged setae present. Elytra short, leaving large part of abdomen exposed.

Underside: front coxal cavities closed. Legs long slender. Hind tibiae with spine at apex. First segment of hind tarsus as long as remaining segments combined. Claws appendiculate with large spines.

Aedaeagus: figs. 2, 3.



4-6. Antenna of *Pseudoshaira warchalowskii* n. sp.: 4 – females antenna, 5 – males antenna, 6 – apical segments of males antenna. Scale bar = 0.5 mm

Sexual dimorphism: females have slender antennae (fig. 4). Males have modified, robust antennae (fig. 5) in which the two apical segments are flattened at their ventral side. They have a protuberance and scale-like setae (fig. 6).

TYPE MATERIAL

Holotype male: SABAH Mt. Kinabalu, 1500 m., 21 v 1987, Burckhardt – Löbl (MHNG).

Paratypes: 11 males, 12 females: SABAH Mt. Kinabalu, 1500 m., 21 v 1987, Burckhardt – Löbl (MHNG, RBCN). 1 female: SABAH Mt. Kinabalu, 1900 m., 26 iv 1987, Burckhardt – Löbl (MHNG). 1 female: MALAYSIA SABAH Crocker Range, Rafflesia Centre, around km 61 of road Kola Kinabalu Tambunan, 13-14 vi 1996, 6d (NMW). 1 male, 1 female: MALAYSIA SABAH Crocker Range, 17 vi 1996, Mawar Waterfall env. (9c), vegetation debris and forest litter around fallen tree (NMW, RBCN). 1 male: MALAYSIA SABAH Crocker Range, Gunung Emas, 1500-1700 m., around km 52 of road Kola Kinabalu Tambunan, 6-18 vi 1996, 2c (NMW).

DISCUSSION

The genus *Pseudoshaira* includes one species collected in Sabah, Borneo. The species of the genus *Shaira* occur in India, China and Formosa, finally the two species of *Parageina* occur in Southern India.

The classification of *Pseudoshaira* n. gen. is uncertain. According to WILCOX (1965) the lacking of basal spurs in the aedaeagus, the rectangular median lobe of the last abdominal segment in the male and the absence of a coronal suture this genus belongs to the tribe Luperini. Although *P. warchalowski* n. sp. resembles species of *Shaira*, the strange morphology of the aedaeagus, with the very small basal orifice makes it unique among Luperini. *P. warchalowskii* also resembles *Parageina bouvieri*. It differs from the latter in having front coxal cavities closed and having a spur at the hind tibia.

The classification of *Parageina* in Galerucini by WILCOX (1971) needs reconsideration. *Parageina bouvieri* of which I have seen a single specimen from Kodai Kanal (MHNG) has the antennal insertions as wide as in *Pseudoshaira* n. gen. and not as near as in *Geinella punctipennis* CHEN & JIANG, 1987 of which I have seen specimens from Tibet (RBCN). From this we might conclude that *Geinella* is correctly classified in Galerucinae, and that *Parageina* should be transferred to Luperini. However before this is carried through, more characters need to be analyzed.

BEENEN & JOLIVET (in press) found brachelytrous Chrysomelidae to occur in different harsh environments, like alpine habitats and deserts, but some species seem to live in tropical rainforests. *Pseudoshaira warchalowskii* belongs to the latter group. Some of the studied specimens have been collected from debris on the forest floor in highland forests (altitude between 1000-1500 m). Ivan LÖBL informed that all specimens collected by Daniel BURCKHARDT and him came from forest litter and none came from the vegetation which was studied intensively too. This is a very peculiar niche for leaf beetles, but there is no information available whether these beetles stay in this niche

permanently or only temporarily. The highland forests on Mount Kinabalu are a habitat supporting a very high diversity of Galerucinae (Mohamedsaid 1999).

Acknowledgements

Mauro Daccordi first made me aware of this unusual galerucine species. Later Ivan Löbl, Claude Besuchet and Giulio Cuccodoro (all MHNG) discussed this unusual species and lent specimens that resulted in this description. Manfred Jäch and Harald Schilhammer (both NMW) made specimens available for this study. Finally, discussion with Mohamed Mohamedsaid who is well acquainted with Malaysian Galerucinae resulted in the decision to describe this interesting species.

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