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The *Palorus* Group – a new subfamily of Tenebrionidae

(Insecta, Coleoptera)

Eric G. Matthews

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Evidence is provided for the *Palorus*-group of genera to represent a separate subfamily of Tenebrionidae.

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The higher classification of the Tenebrionidae is moving towards a consensus although there are still some points of disagreement. With regard to the Australian fauna I recognise three major divisions or branches with their included subfamilies as follows: the lagrioid branch (Lagriinae, Phrenapatinae, Palorinae), the pimelioid branch (Pimeliinae, Zolodininae), and the tenebrionoid branch (Tenebrioninae, Opatrinae, Alleculinae, Diaperinae and Coelometopinae, with Toxicini and Bolitophagini possibly being subfamilies).

Halstead (1967) recognised and revised an informal grouping which he called the *Palorus* genus group comprising seven genera characterised by 1) eyes entire, 2) antennae with only a poorly differentiated club, 3) scutellum transverse, 4) metendosternite without lamellae, 5) males with deep internal ventral abdominal pits, 6) elytra striate-punctate, and 7) wing venation with reduced anal area. He believed that the group was otherwise most closely related to *Tribolium* Macleay and its relatives, consequently the *Palorus* group has been placed within the tribe Triboliini, subfamily Tenebrioninae.

With our present better understanding of the characters on which tenebrionid higher classification is based, we can discern that the *Palorus* group has the following additional key character states: 8) a subquadrate labrum, 9) simple antennal sensilla, 10) absent tentorial bridge, 11) unstriated mandibular mola, 12) unarmed lacinia, 13) sometimes ten elytral striae, 14) an elytro-abdominal interlocking groove along the edges of the last three ventrites, 15) absent aedeagal alae, 16) inverted aedeagus, 17) very short basal piece of aedeagus, and 18) spermatheca not derived from bursa copulatrix. The *Palorus* group differs from Triboliini in all the characters listed except 6 and 9. Character states 8, 10, and 13-18 are unknown in the Tenebrioninae and rare in the tenebrionoid branch (14 is entirely unknown there). Conversely, character states 8-15 are common in the lagrioid branch.

It is clear that the *Palorus* group cannot be associated with Triboliini, Tenebrioninae, or even the tenebrionoid branch. It falls within the lagrioid branch, but the question then is should it be a tribe of Lagriinae or a subfamily in its own right? This is a difficult question because the lagrioid branch is probably a polyphyletic assemblage of taxa displaying mainly primitive characteristics. The subfamily Lagriinae itself is defined mainly on a larval apomorphy: pubescent two-segmented antennae, but the larvae of the lagriine Cossyphini and Chaerodini are unknown. Palorine larvae have three-segmented antennae.

On the whole, it may be best to consider the

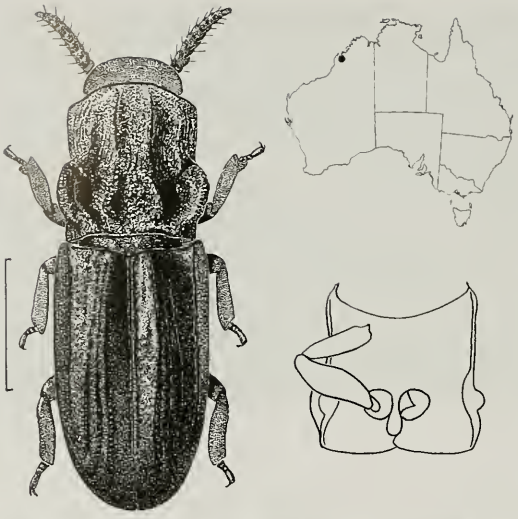

Fig. 1. *Eutermiticola sculpticollis* Lea, 1916. Habitus (left), underside of prothorax (right). Scale bar 1 mm.

Palorus group to be a subfamily, possibly the sister group of Phrenapatinae with which it shares character states 1, 4, 7, 8, 9, 12, 14, 15, 17 and 18. Phrenapatinae differs from Palorinae mainly in having a tentorial bridge, an antennal club, a striated molar surface, and absent defensive glands. Subfamily status for Palorinae is further supported by two extraordinary autapomorphies: the abdominal pits (character 5, not always present) and the inverted aedeagus (character 16). The former have not been observed in any other tenebrionids, and the latter is almost unknown outside the pimelioid branch. In fact, the aedeagus of Palorinae is identical to that of some pimeliines in both shape and orientation, but the presence of defensive glands makes it impossible to place the group in the pimelioid branch.

Palorinae have endemic genera in Madagascar, the Oriental Region and northern Australia, while *Palorus* is more widespread in Africa, Eurasia and the Pacific. The group does not occur naturally in the New World. The original seven genera included by Halstead are *Palorus* Mulsant, *Coelopalorus* Blair (shown by Scupola [2002] to be a synonym of *Ulomina* Baudi di Selve), *Palorinus* Blair, *Prolabrus* Fairmaire, *Astalbus* Fairmaire, *Austropalorus* Halstead and *Pseudeba* Blackburn. Subsequently Doyen et al. (1990) added *Platycotylus* Olliff, and I am adding *Eutermicola* Lea here (Fig. 1). In the checklist of Doyen et al. (1990) *Eutermicola* was left in an uncertain position because at that time the characteristics of the Palorinae were not understood. In fact *Eutermicola* agrees with all the character states of the subfamily as listed above but it has some striking autapomorphies as well. It is a monotypic genus represented by just three males collected in a termite nest prior to 1916 in north-western Australia (Fig. 1, upper right), and never seen again. *Pseudeba* is also termitophilous and may be the most closely related genus.

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