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***Haemolaelaps* Berlese removed from synonymy with *Androlaelaps* Berlese (Acari: Laelapidae)**

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Abstract

Comparison of species of *Androlaelaps* with all members of the *Haemolaelaps marsupialis* group show these to be two consistently distinct groups. *Haemolaelaps* is removed from synonymy with *Androlaelaps* and rediagnosed. A close relationship between *Peramelaelaps* Womersley and *Haemolaelaps* is proposed.

Key words: Australo-Papuan region, spermadactyl, *Peramelaelaps*

Introduction

The mite genus *Androlaelaps* Berlese, 1903 was initially described as a subgenus of *Laelaps*, based on type species *Laelaps (Iphis) hermaphrodita* Berlese, 1887, collected from the countryside around Rome (“*in agro Romano*”). The subgenus was initially defined simply by its spur-like setae on femur II, genu II and tibia II.

The genus *Haemolaelaps* Berlese, 1910 was based on *Laelaps (Haemolaelaps) marsupialis* Berlese, which was described from an Australian bandicoot. The description referred only to a female, with the anal shield being spaced apart from the genito-ventral shield, and having a very long pilus dentilis. This subgenus was initially monotypic, but later Berlese (1911) added four species, including *L. (H.) fahrenheitzi* and *L. (H.) centrocarpus*. These additions represented a substantial broadening of the concept of *Haemolaelaps*. An additional four species were added in two instalments by Berlese (1916, 1921), with *Haemolaelaps* then treated as a subgenus of *Hypoaspis*, although later the subgenus was again transferred back to *Laelaps*. *Laelaps (Haemolaelaps)* was described in more detail, but still without figures, by Berlese (1922).

Strandtmann (1949) revised the American species attributed to *Haemolaelaps*, but without access to material from the type species, warning that “a satisfactory description or illustration has never been published. The status of *Haemolaelaps* is still doubtful but it has been accepted by European and British acarologists for mites of a structure similar to those which this monograph deals and for this reason we have chosen to adopt it”. Despite these reservations, Strandtmann's revision grouped species such as *marsupialis* together with dissimilar species such as *casalis* (as *megaventralis*), and a broad concept of *Haemolaelaps* was then further reified. Given the apparent ignorance of the type species at this time, this was a surprising decision.

Keegan (1956) published figures from Berlese's type of *H. marsupialis*. Soon afterwards, Womersley (1957) described new material, importantly male specimens of *H. marsupialis* and two other closely related species. Womersley (1957) referred to these three species as the *Haemolaelaps marsupialis* complex. However these publications, which had implications for the status of *Haemolaelaps*, were not evaluated or even cited in most subsequent literature.

Synonymy of *Haemolaelaps* and *Androlaelaps*

Till (1963) made *Haemolaelaps* Berlese, 1910 a synonym of *Androlaelaps* Berlese, 1903. However, Till (1963) did not refer to any details of the type species of *Haemolaelaps*, nor to any detail contained in subsequent papers

have thickened ventral setae in females, but as Till (1963) stated this is not a useful character at the genus or higher levels (and requires subjective interpretation in intermediate cases).

Some subgroups currently considered as *Androlaelaps* do not readily fit this set of character states, and this has been acknowledged previously for some groups e.g. some African mole rat associates (Till, 1963). Thus while some subgroups of *Androlaelaps* may require revision, for present purposes all remaining species of *Androlaelaps* remain amply distinct and easily distinguished from *Haemolaelaps*.

Peramelaelaps bandicoota Womersley is found in Papua New Guinea and Queensland, mostly on peramelid marsupials (i.e. bandicoots; Domrow 1972, 1988). This small, specialised mite is clearly very closely related to *Haemolaelaps*. It is very similar to *Haemolaelaps* as defined here, fitting all points of the above diagnosis (including having incurved corniculi), except that it has coxal protrusions, and is otherwise simplified and slightly smaller, with smooth dorsal setae, smooth epistome, a short pilus dentilis and only a small median pore-like structure on the post-stigmatal platelet. The male also has Jv3 off the reduced holovenral shield. Many of these differences could be interpreted as modifications that tend to occur when host-association is escalated, and *Peramelaelaps* does seem to be very strongly host-associated. It is retained as a separate taxon to *Haemolaelaps* and requiring the same rank. However phylogenetic analysis will be required to test whether it has originated from within *Haemolaelaps*.

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