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Re-evaluation of *Pseudoparasitus (Gymnolaelaps) annectans* (Womersley): a new genus and two new species (Acari: Mesostigmata: Laelapidae)

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Abstract

Pseudoparasitus (Gymnolaelaps) annectans (Womersley) and two new species are assigned to a new genus, *Nidilaelaps*. *Nidilaelaps* has a number of important differences from *Pseudoparasitus* and other genera that *Nidilaelaps annectans* has been previously assigned to, but shares characters with Australopapuan vertebrate-associated taxa, particularly the “*Androlaelaps*” *ulysses* species group and *Laelapsella* Womersley. *Nidilaelaps annectans* is common in a variety of mammal and bird nests and also in forest litter. The two new species (*N. holdsworthi* sp. nov., *N. lisae* sp. nov.) are recorded from mammals, birds, or their nests in Papua New Guinea or Australia. *Nidilaelaps* is inferred to be endemic to the Australopapuan region. The presence of *N. annectans* in other regions is suggested to be due to relatively recent colonisation, facilitated by its many phoretic associations, particularly with synanthropic rodents.

Key words: phoresy, nidicole, Australopapuan distribution, mite, introduced species

Introduction

Womersley (1955) described *Gymnolaelaps annectans* from shearwater nesting burrows on islands of Bass Strait, southern Australia. Hunter (1966) transferred *Gymnolaelaps annectans* Womersley to *Pseudoparasitus* Oudemans because it shared more characteristics with that genus, but noted that it lacked three typical *Pseudoparasitus* characters (expanded exopodal IV, dorsal shield turning onto venter, and a 3-tined palp tarsal claw). Domrow (1961) maintained the original designation but suggested that this species may prove to be *Laelaspis* Berlese. Karg (1978), without referring to Hunter (1966), made *Gymnolaelaps* Berlese a subgenus of a broadly conceived *Pseudoparasitus*, along with three other subgenera. Incidentally, *Pseudoparasitus (Gymnolaelaps) annectans* does not match the diagnosis implied by Karg (1978), as it lacks a denticulate epistome and an enlarged exopodal IV shield.

Considering the assertion of a close relationship between *Gymnolaelaps* and *Pseudoparasitus* by Karg (1978), the placement of *P. (G.) annectans* might have seemed a matter of only modest uncertainty. However, a junior synonym of *P. (G.) annectans*—*Hypoaspis nidicorva* Evans & Till—was first considered to belong in the subgenus *Gaeolaelaps* (Evans & Till, 1965, p. 288), then later in an unnamed but “distinct” species-group along with *H. heselhausi* (Evans & Till 1966, p.159), and then later transferred to yet another supraspecific grouping as *Hypoaspis (Laelaspis) nidicorva* by Karg (1979).

Radovsky (1985) proposed an evolutionary scheme where all parasitic dermanyssoid lineages originated from *Hypoaspis* s.l. ancestors. Several “*Hypoaspis*” spp were mentioned as having phoretic and nidicolous habits which allegedly predisposed them to develop parasitism. Radovsky (1985) singled out *P. (G.) annectans*, stated to be closely related to *Hypoaspis*, as an exemplar of a mite that, according to this scheme, gave rise to parasitic (haematophagous) taxa, perhaps including *Androlaelaps*. Thus in this scheme it is not just the ecology of *Pseudoparasitus (Gymnolaelaps) annectans* that was viewed as intermediate between a free-living predator and a nest-dwelling parasite, it was also viewed as phylogenetically intermediate. However no specific morphological characters were cited to support this scheme. Ecologically, *Pseudoparasitus annectans* (Womersley) has been confirmed to have a strong propensity for phoresy on small mammals, and to inhabit a wide variety of nests (Woolley 1989, and see Specimens Examined for new nest records).