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***Ulyxes*, a new Australopapuan mite genus associated with arboreal nests (Acari: Laelapidae)**

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Abstract

As part of a survey of mammal and bird nests, new species, new male stages, and some feeding observations have been collected from what was formerly called the *Androlaelaps ulysses* group. As many features of this group are consistently different from *Androlaelaps*, and also from *Haemolaelaps* where it was formerly placed, this group is here elevated to *Ulyxes* new genus, and *U. autolytus*, *U. euryclea*, and *U. theoclymenus* are described as new species. This genus has a broad range of feeding behaviour spanning intranasal parasitism, nidicolous parasitism, and at least one species is a nidicolous predator. Its host range is broad; two new species are shown here to cohabit with parrots while most remaining species associate with mammals. In contrast to the variation in feeding behaviour, *Ulyxes* spp are associated with a narrow range of nest types, being confined to arboreal nests, usually tree hollows (rarely fallen logs), and on the parrot or mammal hosts that use them. *Ulyxes* spp show a remarkable variability in male cheliceral development, which assorts according to feeding behaviour. There is a strong contrast between male chelicerae of predatory and parasitic species that has not been previously observed in such a compact dermanyssine genus. Previously male cheliceral morphology was thought to be conservative enough to provide diagnostic characters at suprageneric rank. For systematics, these findings complicate previous attempts to recognise male mouthparts as reliable features marking higher-level natural groups that include dermanyssoid vertebrate parasites. For evolutionary studies, this may be relevant in seeking examples of transitions to, or away from, parasitism.

Key words: key, nidicole, tree hollow nests, spermatodacty

Introduction

Species in the *Haemolaelaps ulysses* species group are commensals of vertebrates, most commonly mammals. The first described species was from a pseudocheerid possum (Domrow, 1961) and subsequent collections came from two other families of possums and a small dasyurid marsupial (Domrow, 1964). A collection from a second species of pseudocheerid possum was initially assigned to *Haemolaelaps ulysses* Domrow, but was later found to have consistent differences from that species, and was named *H. ulixes* Domrow, 1972. All specimens of this group have been recovered from the bodies of hosts, but heretofore no collections have been made from nests, which might explain why males have been so rarely collected. Domrow's (1971) general comment on vertebrate-parasitic Laelapidae seems to apply here, viz: "The frequent absence of males on the host indicates they are, if not rare still largely nidicolous."

Species such as *Haemolaelaps penelope* Domrow, 1964, *H. telemachus* Domrow, 1964 and *H. ulysses* Domrow, 1961, with short, relatively edentate cheliceral digits were previously suggested to be parasitic (Domrow, 1964). The form of chelicerae of species such as these, taken together with their seemingly strong host specificity, might suggest that the *H. ulysses* group could be generally characterised as blood-feeders living in the pelage of various possums. However subsequent discoveries demonstrated far greater evolutionary plasticity, and included *H. laertes* Domrow, 1972, a very large species from a rodent with massive, probably predaceous, chelicerae (Domrow, 1972); and *H. sisyphus* Domrow, 1981, a species living inside the nasal passages of a possum (Domrow, 1981). Thus habits, and the form of the chelicerae, differ markedly between *H. ulysses* group species and are not fixed to a single feeding mode.

not always homologous. For instance the relative position of the pilus dentilis shows that the proximal portion of the fixed digit may become relatively shorter in *Androlaelaps* males whereas it is the distal portion that is shortened in *Haemolaelaps* males (Shaw, 2014). These convergences are interesting and surely say something about the regime of selection experienced by Dermanyssina that evolve parasitism. Ecology and parasitic behaviour may affect the evolution of male mouthparts (Hunter & Rosario, 1988), and *Ulyxes* new genus is here highlighted as a compact system within which interesting questions could be addressed.

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