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## Two new parasitic mites (Acari, Astigmata) from the skin of Australian Vertebrates

ALEX FAIN<sup>1)</sup> and FRITZ S. LUKOSCHUS<sup>2)</sup>  
(With 6 text-figures)

### Abstract

Two new parasitic astigmatic mites are described from the skin of Australian Vertebrates: *Petauralges rackae* n. g., n. sp. (Psoroptidae) from a marsupial *Petaurus breviceps* and *Neocnemidocoptes australiensis* sp. n. (Knemidokoptidae) from a bird *Taeniopygia guttata* (Passeriformes, Ploceidae).

We describe here two new parasitic mites collected by the junior author. One is a new genus and species *Petauralges rackae*, from the skin of an Australian marsupial, *Petaurus breviceps* (Phalangeridae); the other is a new species of *Neocnemidocoptes*, *N. australiensis* and was found on a bird, *Taeniopygia guttata* (Passeriformes, Ploceidae).

Family **Psoroptidae** CANESTRINI, 1892  
Subfamily **Listropsoralginae** FAIN, 1965  
*Petauralges* gen. nov.

**Definition:** Shape of the body and structure of the legs as in *Listropsoralges* Fain, 1965 and *Listropsoralgoides* FAIN & LUKOSCHUS, 1970. This new genus is distinguished from these genera, in the male by the absence of suckers on tarsi IV and the absence of a shield on opisthogaster; in the female by the absence of suckers on tarsi III and IV. In both sexes by the presence of the *d* 1 setae.

**Type species:** *Petauralges rackae* sp. n.

*Petauralges rackae* spec. nov.

This species is named for the distinguished Acarologist Dr. GISELA RACK, Zoological Institute and Zoological Museum of the University, Hamburg.

**Male** (fig. 1-2): Holotype 159 µm long and 154 µm wide (idiosoma). Body strongly widened in its middle part, this widening is in relation with the very large size of the legs III. Opisthosoma broadly conical with rounded extremity. **Dorsum:** there is one large median and pitted shield covering the middle part of dorsum and extending from the *vi* setae until posterior margin of body; this shield is interrupted by the incomplete sejugal furrow. **Venter:**

<sup>1)</sup> Prof. Dr. ALEX FAIN, Institute of Tropical Medicine, 155 Nationalestraat, B-2000 Antwerp, Belgium.

<sup>2)</sup> Dr. FRITZ S. LUKOSCHUS, Katholieke Universiteit Nijmegen, Toernooiveld, Nijmegen, Nederland.

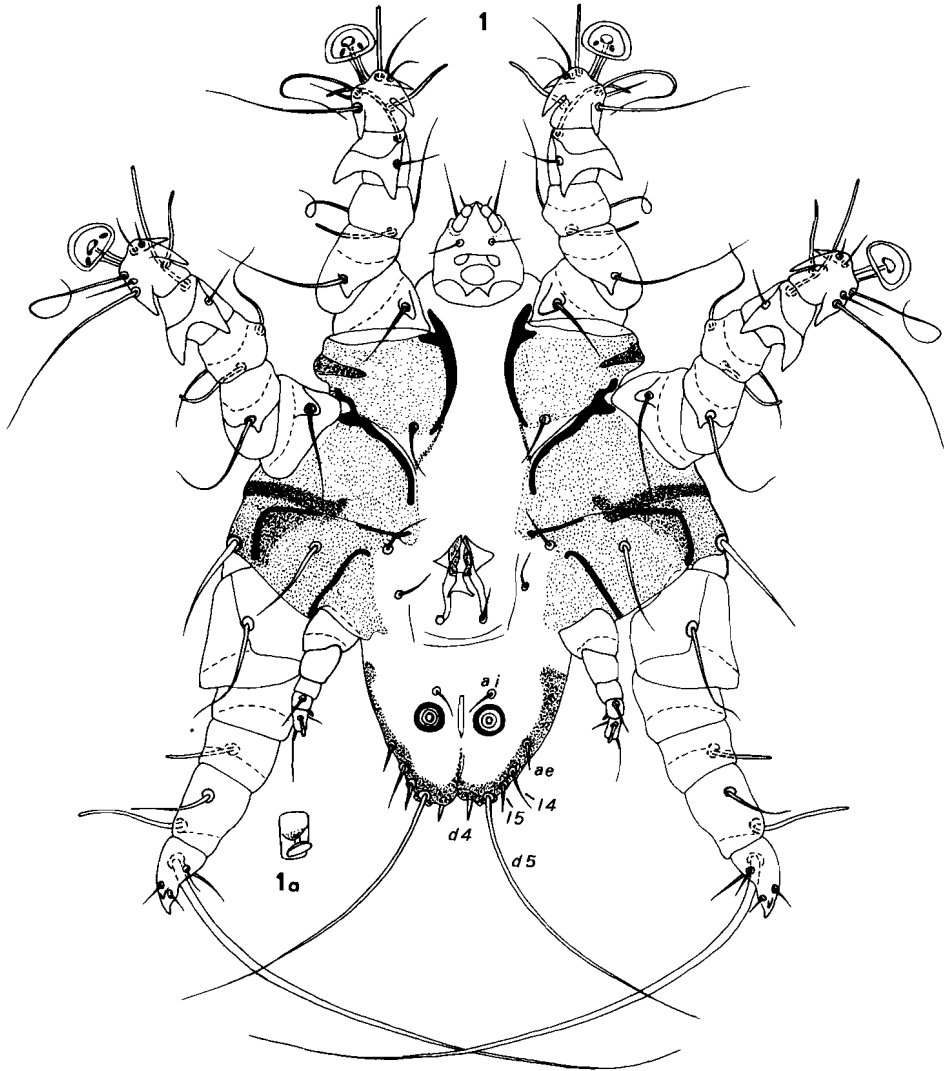


Fig. 1-1a: *Petauralgae rackae* sp. n. Holotype male, ventrally (1); tarsus IV dorsally (1a).

all the epimerae are free, epimerae I widely separated. Anus flanked with 2 rather large copulatory suckers. Legs I and II as in the genera *Listropsoralges* and *Listropsoralgoides* but the tibial ventral processes bear two prongs. Legs IV very short and devoid of pedonculate sucker, however the tarsus IV bears dorsally a modified disciform sensory hair. Chaetotaxy: A complete set of setae is present except for the *ve* setae which are lacking; there are 2 pairs of anals. The *sc e*, *h*, *d 1*, *d 2*, *d 3*, *d 4* and *d 5* are 60  $\mu\text{m}$ , 75  $\mu\text{m}$ , 36  $\mu\text{m}$ , 30  $\mu\text{m}$ , 15  $\mu\text{m}$ , 6  $\mu\text{m}$  and 75  $\mu\text{m}$  long respectively.

Female (fig. 3-4): Allotype 204  $\mu\text{m}$  long, 150  $\mu\text{m}$  wide (idiosoma). Dorsum as in the male but the shields are wider and the propodotal shield is more widely separated from the hysteronotal shield. Venter: epimerae free. There is a large epigynium. The coxae III bears two sclerotized bifid pro-

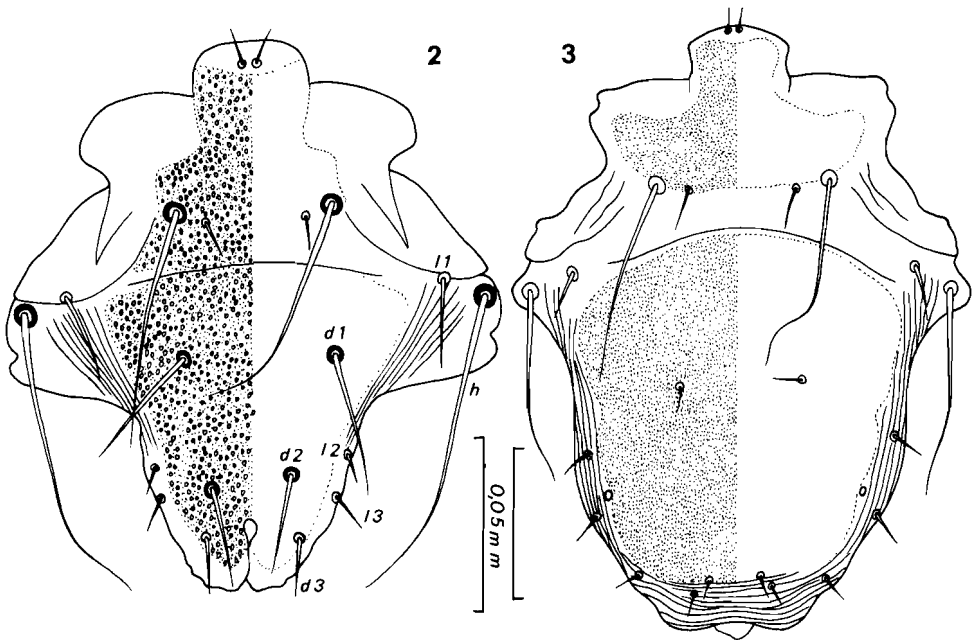


Fig. 2-3: *Petauralges rackae* sp. n. Male (fig. 2) and female (fig. 3) dorsally.

cesses; coxae IV with a triangular process directed inwards. Legs I-II as in the male. Legs III much longer and stronger than legs IV. Tarsus III very short, ending in 2 strong triangular processes. Tibia III with a long triangular basal process. Tarsus IV ending in a thick hair finely attenuated apically.

**Tritonymph:** Length 165  $\mu\text{m}$ , width 138  $\mu\text{m}$  (idiosoma). Dorsum with 2 large shields: one propodosomal, the other hysterosomal. All epimera free. Legs I-II as in the adults. Leg III as in the female. Leg IV vestigial represented by a small rounded cuticular elevation bearing several thin and short setae.

**Protonymph:** Length 140  $\mu\text{m}$ , width 115  $\mu\text{m}$ . Resembles the tritonymph but all the setae are shorter, there is only one pair of genital setae and the trochanter setae and the solenidia  $\omega$  3 are lacking.

**Host and locality:** On *Petaurus breviceps*, Australia, 29. XI. 1913. Animal n° T 663 conserved in the Zoological Museum of Hamburg. Holotype and 6 paratypes male, allotype and 1 paratype female, 8 nymphs paratypes. Type in the Zoological Museum, Hamburg.

#### Host-parasite relationship in Listropsoralginae

The subfamily Listropsoralginae was represented so far by two genera and three species living on South-American mammals.

The genus *Listropsoralges* FAIN, 1965 is represented by two species parasitizing marsupials: *L. marmosae* FAIN, 1965, from *Marmosa* spp. and *L. monodelphis* FAIN, 1965, from *Monodelphis dimidiata*. The second genus, *Listropsoralgoides* FAIN and LUKOSCHUS, 1970 contains only one species, *L. surinamensis* FAIN and LUKOSCHUS, 1970, which parasitizes a primitive rodent *Proechimys guyannensis* (Echimyidae).

One might be surprized to find another member of this very specialized group of mites on an Australian marsupial. The genus *Petauralges* presents a more complete chaetotaxy (presence of the *d1* setae) than the two

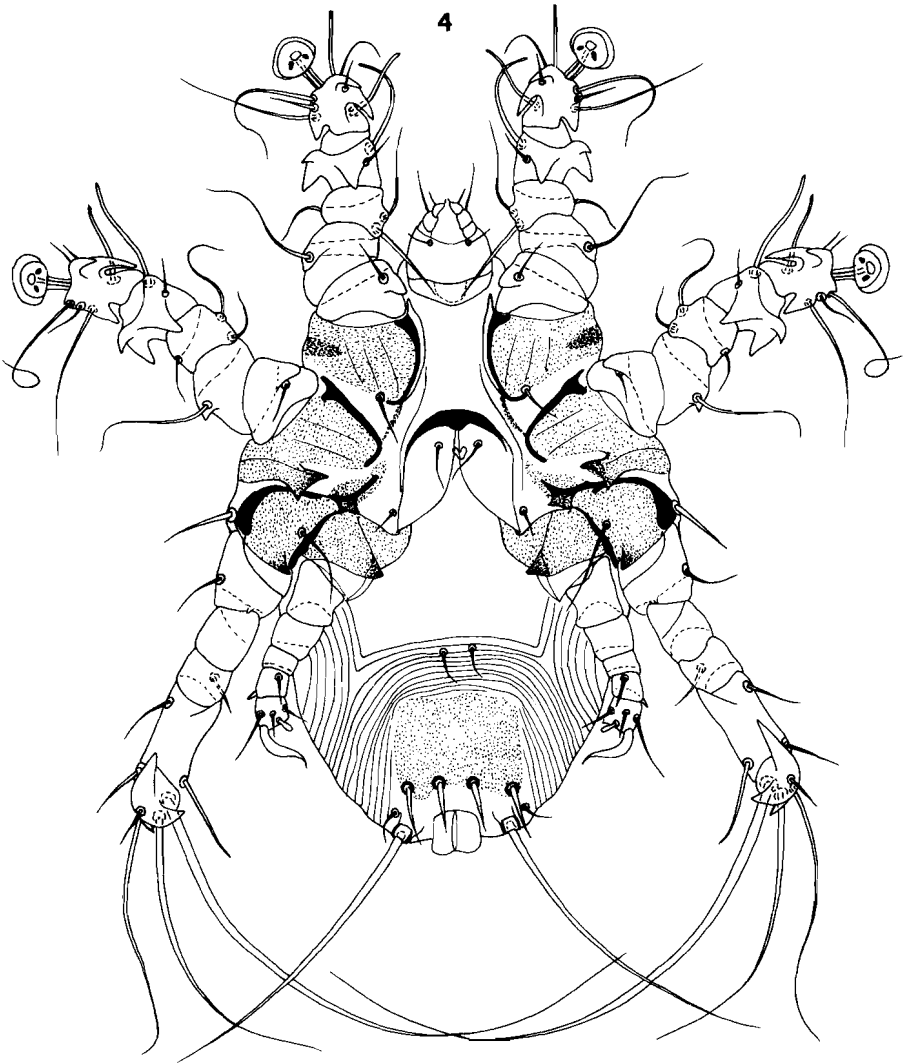


Fig. 4: *Petauralges rackae* sp. n.: Allotype female ventrally.

South-American genera and it could appear, at first aspect, more primitive than the latter. However, if we consider another, apparently more important character, e. g. the disappearance of the tarsal suckers on the posterior legs, in both sexes, in *Petauralges*, than this genus should appear as more evolved than the two others.

By some characters, such as the shape of the attaching organs of legs I and II (with strong recurved hooks), the Listropsoralginae resemble closely the primitive subfamily Makialginae (Psoroptidae) living on Lemuridae and the family Galagalgidae parasitic on *Galago senegalensis* (Lorisidae). These resemblances could be explained, at least partly, by convergence, as all these mites living attached to the skin of their hosts. However in another group of psoroptid skin mites such as the Paracoroptinae living on more evolved primates (Cercopithecidae and Pongidae), these hooks are absent and that leads to believe that convergence alone cannot explain all the resemblances existing between the skin parasites of both Marsupials and primitive primates.

Family **Knemidokoptidae** DUBININ, 1953  
Genus *Neocnemidocoptes* FAIN, 1966

The new species of *Neocnemidocoptes* that we describe here is represented only by a single male. This specimen presents well-formed adanal suckers and it can therefore belong to three different genera: *Evansacarus* FAIN, 1962, *Neocnemidocoptes* FAIN, 1966 and *Picicnemidocoptes* PENCE, 1972. These three genera are distinguished from each other by the structure of the females (see FAIN & ELSEN, 1967 and FAIN, 1974). In the absence of a female it is not possible to determine the exact generic status of that species. We place it provisionally in *Neocnemidocoptes* because this genus contains another species from Passeriform birds.

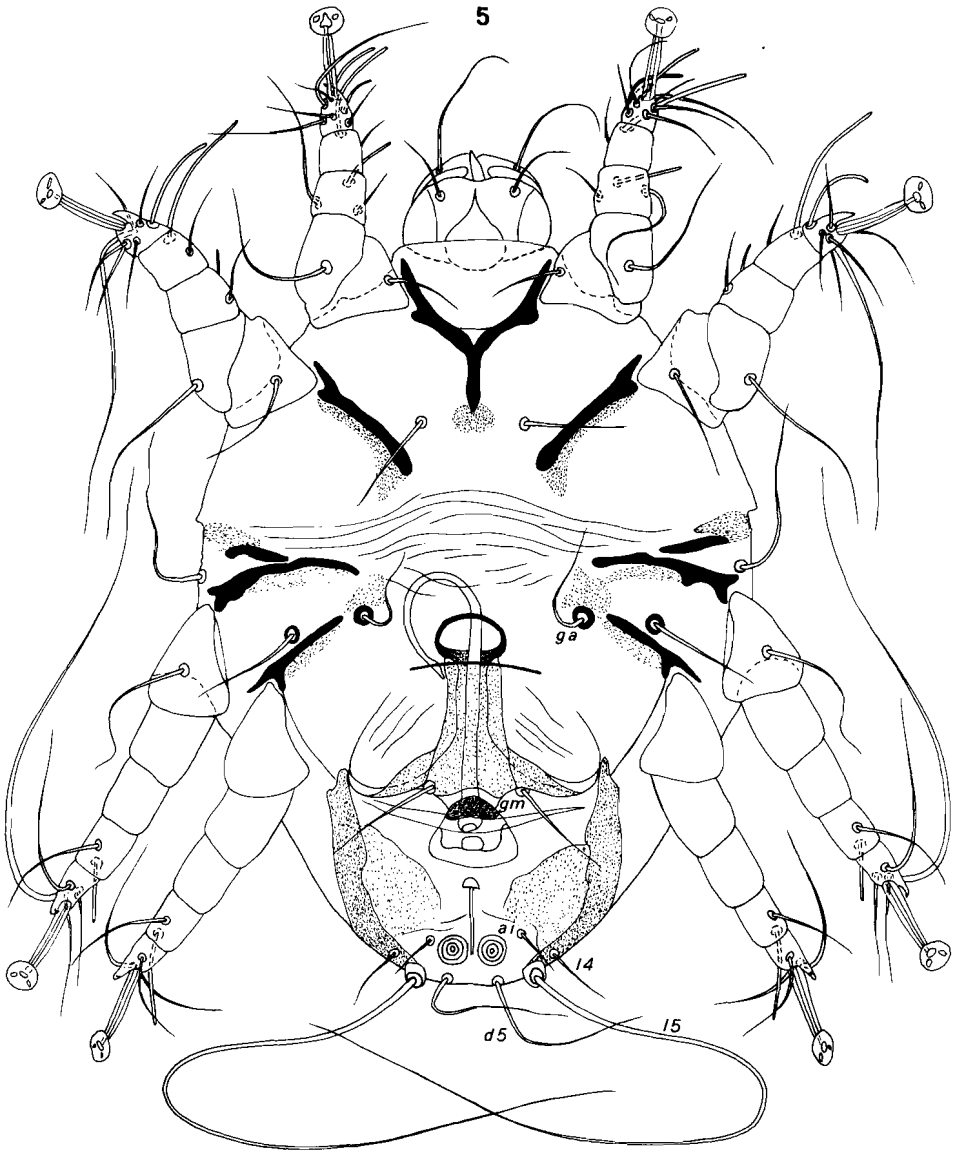


Fig. 5: *Neocnemidocoptes australiensis* sp. n.: Holotype male ventrally.

*Neocnemidoptes australiensis* spec. nov.

This species is characterized by the great development of the genital organ in the male.

Male (fig. 5–6): Idiosoma 183  $\mu\text{m}$  long and 135  $\mu\text{m}$  wide. Cuticle ventrally and dorsally without scales. Dorsum: With a large hysteronotal shield longer (50  $\mu\text{m}$ ) than wide (45  $\mu\text{m}$ ). The *sc e* and *h* setae are strong and long (60  $\mu\text{m}$  and 75  $\mu\text{m}$  respectively). Venter: Epimerae I completely fused in a short sternum; other epimera free. Genital organ very large, with a long cylindrical curved penis. Adanal suckers well developed. There are two paramedian opisthogastric shields, situated behind the penis. Legs and gnathosoma as in *Neocnemidoptes gallinae* (RAILLIET) FAIN, but the tarsi have longer sucker stalks. Chaetotaxy: Setae *vi*, *ve*, *d 1*, *d 4*, *l 2*, *l 3*, *ae* and *gp* are lacking.

Host and locality: On *Taeniopygia guttata* (Ploceidae) from Brooking Springs, 2. X. 1976 (coll. F. S. LUKOSCHUS) (holotype male). Type in Western Australian Museum, Perth.

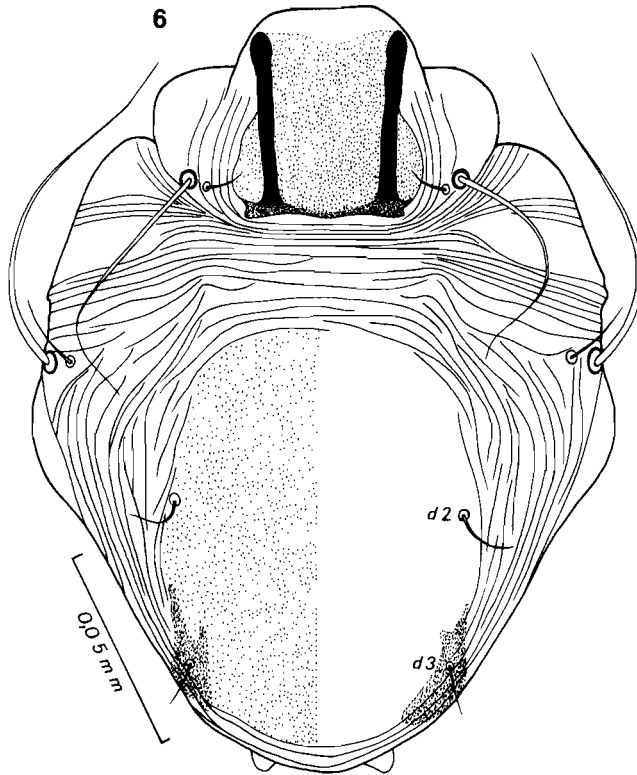


Fig. 6: *Neocnemidoptes australiensis* sp. n.: Holotype male dorsally.

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