

# THE HYPOPIAL NYMPHS OF THE GENUS *MARSUPIOPUS* FAIN, 1968 (ACARINA: ASTIGMATA) INCLUDING FOUR NEW TAXA

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## ABSTRACT

3 new species and 1 new subspecies of hypopi of the genus *Marsupiopus* Fain, 1968 (Glycyphagidae) are described from Australian mammals.

All these species were embedded in the hair follicles, except one which was found in the superficial layers of the skin and had produced thickening of the epidermis and hyperkeratosis.

## INTRODUCTION

The hair follicles of numerous mammals harbour heteromorphic deutonymphs (=hypopi) belonging to various groups of mites (Fain, 1969).

All the hypopi that infest the hair follicles of Australian mammals belong to two genera: *Marsupiopus* Fain, 1968 and *Alabidopus* Fain, 1967.

Until now, the genus *Marsupiopus* was represented by only 3 species, all from Australia: *Marsupiopus trichosuri* Fain, 1968, from *Trichosurus vulpecula*; *M. leporilli* Fain, 1969, from *Leporillus jonesi*; and *M. michaeli* Fain, 1969, from *Mesembriomys gouldi*.

The first species of this genus was discovered in a marsupial, hence the name *Marsupiopus*, but later it appeared that Murinae also were infested with these hypopi.

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Recently the junior author discovered numerous specimens of this kind of hypopi in various Australian mammals preserved in alcohol in different museums. Among this material we found 3 new species and 1 new subspecies of hypopi of the genus *Marsupiopus*. They are described here.

These new species do not correspond exactly with the original definition of the genus. In *M. antechinus* sp. n. and *M. acrobates* sp. n. there is a distinct sejugal furrow, and a small anus is present inside the genital ring. We propose therefore to emend the scope of the genus *Marsupiopus* in order to include these new characters.

The genus *Marsupiopus* is known only from the hypopial stage. The life cycle is still unknown. All these hypopi live in the hair follicles, except one species (*M. myrmecobius*) which lives like most of the Sarcoptidae, in the corneous layers of the skin, especially in the hairless regions of the ears.

The genus *Marsupiopus* is the type genus of the subfamily Marsupiopiniae Fain, 1968, which has been included in the Glycyphagidae Berlese, 1887, by Fain, 1968.

#### KEY TO SPECIES AND SUBSPECIES OF THE GENUS *MARSUPIOPUS* (HYPOPI)

1. Femora I-II with a short thick spine ... .. 2  
    Femora I-II with a fine seta ... .. 5
2. Apical half of tarsi I-II with two thick spines  
    ... .. *M. michaeli* Fain, 1969  
    Apical half of tarsi I-II either with only thin  
    setae or with one small ventral spine ... .. 3
3. Tibia I-II with 1 seta and 1 spine. Posterior  
    region of hysterosoma with a small dorsal  
    shield much wider than long. Solenidia alpha  
    distinctly separated. Idiosoma rounded anter-  
    iorly. Pregenital longitudinal sclerite well  
    developed... .. 4  
    Tibia I-II with 2 spines. Hysteroma without  
    dorsal shield. Solenidia alpha close together.  
    Idiosoma ending anteriorly as a narrow cone.  
    Pregenital sclerite very poorly developed  
    ... .. *M. trichosuri* Fain, 1968

4. Tarsal claws I-II as long as their pretarsi  
 ... .. *M. leporilli leporilli*  
 Tarsal claws I-II distinctly longer than their  
 pretarsi  
 ... .. *M. leporilli pseudomys* ssp. nov.
5. Genital ring longer than wide. Sejugal furrow  
 absent. Dorsal surface with a long punctate  
 shield  
 ... .. *M. myrmecobius* sp. nov.  
 Genital ring wider than long. Sejugal furrow  
 present. Dorsal shield either absent or much  
 reduced ... .. 6
6. Body 260-280 $\mu$  long. Distance alpha-alpha  
 16 $\mu$ . Tarsi I 2.5 times longer than its maxi-  
 mum width. Posterior spines of tibiae and  
 genua I-II strong and equal  
 ... .. *M. antechinus* sp. nov.  
 Body 190-210 $\mu$  long. Distance alpha-alpha  
 6-8 $\mu$ . Tarsi I 1.4 times longer than its maxi-  
 mum width. Posterior spine of genua I-II much  
 smaller than corresponding spine of tibiae I-II  
 ... .. *M. acrobates* sp. nov.

1. *Marsupiosus leporilli* Fain, 1969

This species has been described from *Leporillus jonesi*, South Australia.

We have found this species in two new hosts. As these specimens are slightly different from the typical series we separate them as a new subspecies.

*Marsupiosus leporilli pseudomys* ssp. nov.

This new subspecies is distinguished from the typical series by the size of the claws I-II which are distinctly longer than their pretarsi. Besides, the cuticle is less sclerotised than in *M. l. leporilli*. It is to be noted that there are 2 small punctate areas laterally at the level of coxae III. These areas are also present in *M. l. leporilli*. Holotype hypopus 295 $\mu$  long and 166 $\mu$  wide. Average for 10 paratypes: 311 $\mu$  long (288-336 $\mu$ ) and 154 $\mu$  wide (154-182 $\mu$ ).

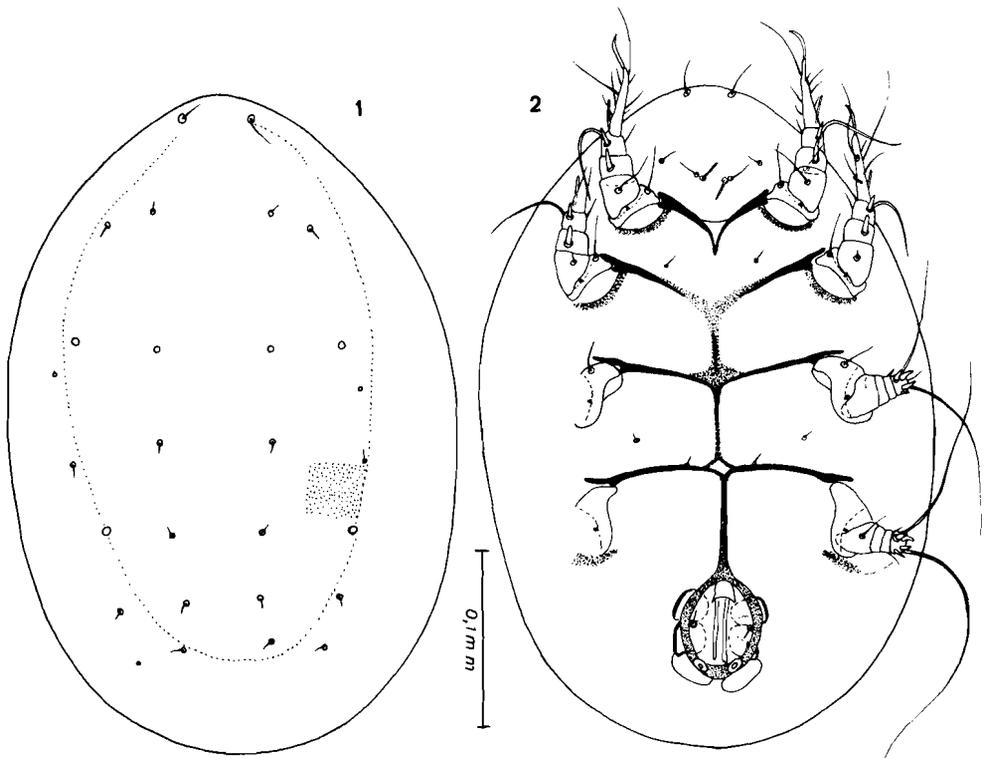
## Hosts and localities

On *Pseudomys hermannsburgensis*, Hermannsburg, Central Australia, 1910 (holotype and 40 paratypes). The mites were embedded in the hair-follicles. Host specimen in the Senckenberg Museum, Frankfurt.

On *Rattus fuscipes*, Australia, 1869 (10 paratypes) (Coll. F.S. Lukoschus). Host specimen in the Rijksmuseum, Leiden. 5 paratypes in the Natural History Museum, Leiden; other paratypes in the Western Australian Museum, Perth, and in the collections of the authors.

### 2. *Marsupiopus myrmecobius* sp. nov.

This species is clearly distinguished from the 3 previously described species by the genital ring being longer than wide (cf. wider than long in the other 3 species), the presence of a simple hair on the femora I-II, and the great length of the tarsal claws I and II. In addition it is distinguished from *M. michaeli* Fain by the absence of a spine on tarsi I-II.



Figs 1-2: *Marsupiopus myrmecobius* sp. n. Hypopus (holotype). Dorsum (fig. 1) and venter (fig. 2).

**Hypopus (Fig. 1-5):** Holotype  $360\mu$  long and  $240\mu$  wide. Average for 10 paratypes:  $355\mu$  long ( $336-374\mu$ ) and  $237\mu$  wide ( $221-250\mu$ ). Dorsal surface with a punctate shield covering most of the median region of the dorsum. This shield lacking in lateral and posterior regions of the dorsum. Sejugal furrow absent. Epimera I fused into V. Genital ring longer than wide and bearing membranous prolongation backwards. A small anus is present. Pregenital sclerite fused to epimera IV. Palposoma indistinct. Solenidia alpha narrow, close to one pair of simple setae, the other pair of setae situated more laterally. Tarsus I much longer ( $27\mu$ ) than wide ( $7\mu$ ). Claws I-II  $18\mu$  long, longer than the pretarsi. Femora I-II with a thin seta.

**Host and locality:**

On *Myrmecobius fasciatus*, Katoomba, N.S.W., Australia, 2.V.1906. The mites were enclosed in the corneous layers of the skin, especially the hairless region of the ears. They had produced thickening of the epidermis and hyperkeratosis. Host specimen (No. 12240) in the Senckenberg Museum, Frankfurt (holotype and 40 paratypes). Holotype and 13 paratypes in the Senckenberg Museum, Frankfurt; other paratypes in the Western Australian Museum, Perth, and in the collections of the authors.

**3. *Marsupiopus antechinus* sp. nov.**

In this new species the femora I-II bear simple setae, as in *M. myrmecobius*. It is distinguished from this species by the presence of a distinct sejugal furrow, and by the genital ring being wider than long.

**Hypopus (Fig. 6-10):** Holotype  $260\mu$  long and  $175\mu$  wide. Dorsum with a small punctate area in the posterior region. A distinct sejugal furrow present. Epimera I fused into a Y. Palposoma distinct, bearing 2 solenidia and 4 simple setae. Pregenital sclerite formed of two narrow longitudinal lines. Genital ring wider than long with slight lateral prolongations directed forwards. Femora I-II with setae simple. Tibiae and genua I-II with strong spines. Tarsi I-II  $21\mu$  long and  $8\mu$  wide. Claws I-II  $9\mu$  long, distinctly longer than the pretarsi.

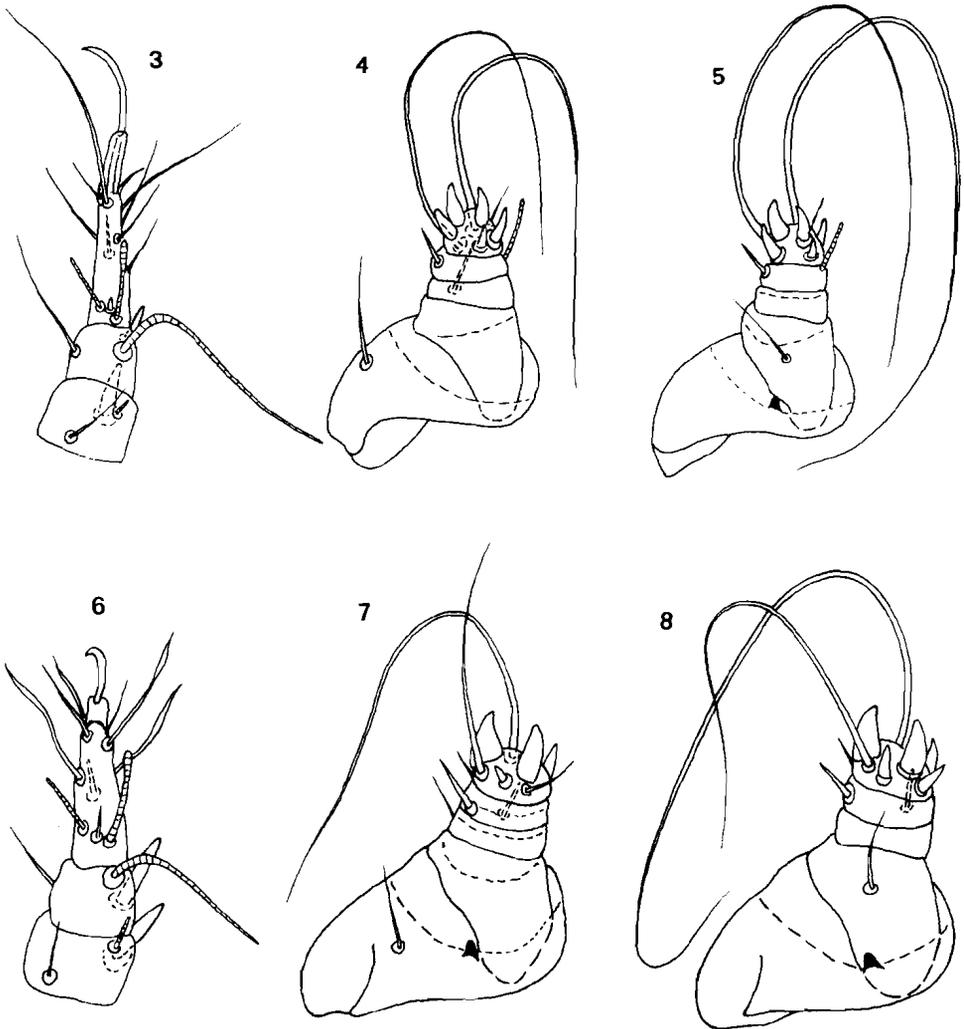
**Host and localities**

From the hair follicles of *Antechinus flavipes*, Australia, March 1884. Host specimen in the Museum of Leiden, Netherlands (holotype and 1 paratype).

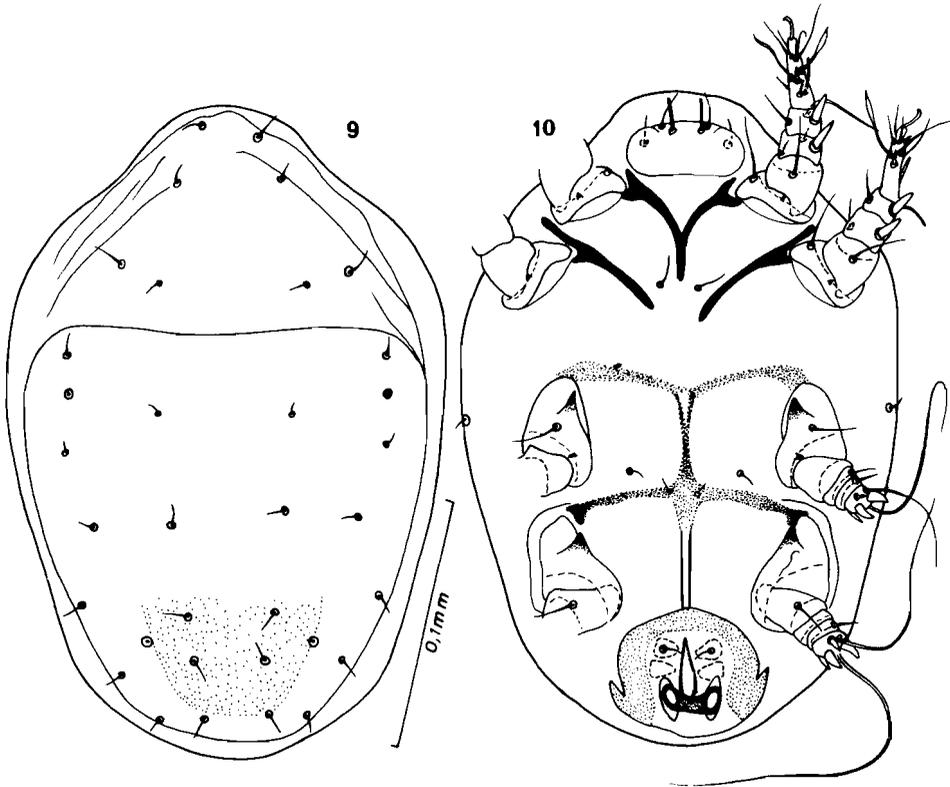
From the same host, Wandanian, N.S.W. (4 paratypes); Atherton Tableland, Queensland, 30.VII.1921 (2 paratypes); Ebor, N.S.W., 5.II.1921 (6 paratypes); Milton, N.S.W., 20.VII.1920 (1 paratype). These specimens

were collected from mammals in the Smithsonian Museum, Washington, by the junior author.

Holotype in the Rijksmuseum, Leiden, Netherlands. Paratypes in the Western Australian Museum, Perth, in the U.S. National Museum, Washington, and in the collections of the authors.



Figs 3-8: *Marsupiopus myrmecobius* sp. n. Hypopus (holotype). Tarsus, tibia and genu I dorsally (fig. 3). Leg III (fig. 4) and IV (fig. 5). *Marsupiopus antechinus* sp. n. Hypopus (holotype). Tarsus, tibia and genu I dorsally (fig. 6). Leg III (fig. 7) and IV (fig. 8).

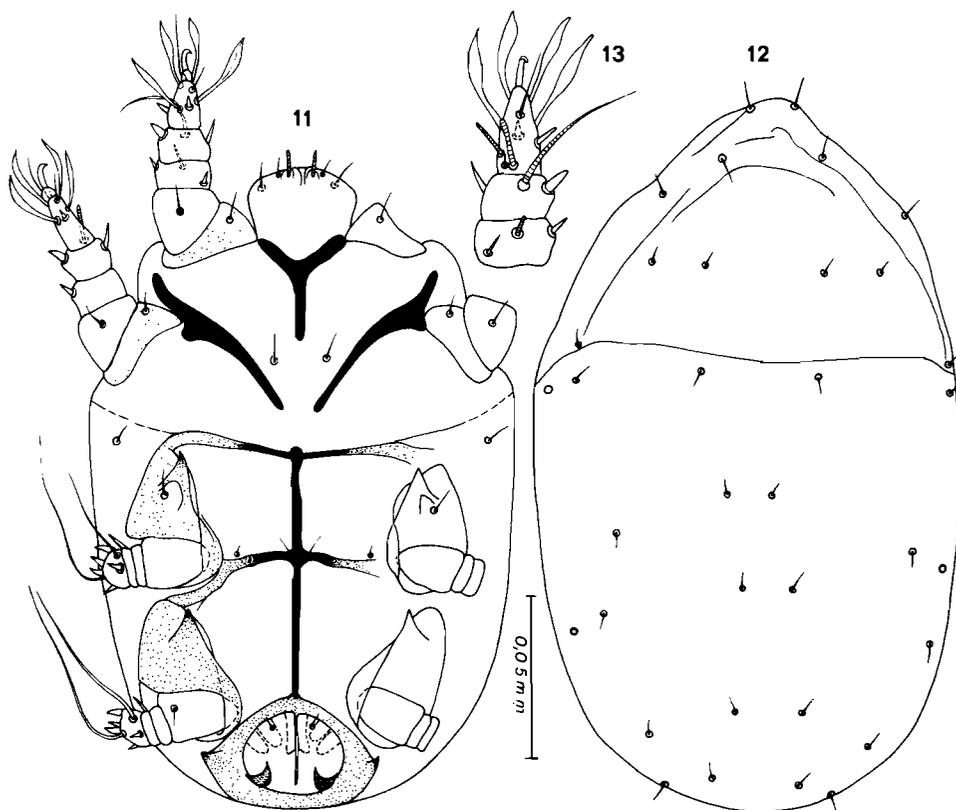


**Figs 9-10:** *Marsupiopus antechinus* sp. n. Hypopus (holotype). Dorsum (fig. 9) and venter (fig. 10).

#### 4. *Marsupiopus acrobates* sp. nov.

This species has a distinct sejugal furrow as in *M. antechinus*. It differs from this species by the much smaller size of the body, the broader tarsi I-II, and the unequal size of the spines on tibiae and genua I-II.

**Hypopus (Fig. 11-13):** Holotype  $195\mu$  long,  $120\mu$  wide. In 3 paratypes the length is  $210\mu$ ,  $190\mu$  and  $195\mu$ . Sejugal furrow well developed. In the anterior part of the dorsum there are several irregular transverse grooves. Palposoma well developed, rounded, with alpha solenidia short ( $5\mu$ ) and close together (distance alpha-alpha  $7\mu$ ) and 2 pairs of short hairs. Pregenital median sclerite strongly sclerotised. Pregenital ring wider than long, with 2 globulous setae bifid apically. Tarsus I  $13\mu$  long and  $8.5\mu$  maximum width; tarsus II a little longer ( $15\mu$ ) and narrower ( $7.5\mu$ ). Claws I-II  $7.5\mu$  long. Tibiae and genua I-II with 1 narrow setae and 1 spine, the spine of the tibia being 2 to 3 times thicker than that of the genu.



Figs 11-13: *Marsupiopus acrobates* sp. n. Hypopus (holotype). Venter (fig. 11) and dorsum (fig. 12). Tarsus, tibia and genu I dorsally (fig. 13).

### Host and locality

On *Acrobates pygmaeus*, Armidale, N.S.W., Australia. The mites were embedded in the hair follicles. Host specimen (No. 221347; collected by C.M. Hoy, 1916) in the Smithsonian Museum (holotype and 8 paratypes). Holotype and 3 paratypes in the U.S. National Museum, Washington; other paratypes in the Western Australian Museum, and in the collections of the authors.

### REFERENCES

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