

ECTOPARASITES OF WESTERN AUSTRALIA SPINTURNICID MITES FROM BATS¹

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ABSTRACT

Four species of spinturnicid mites are listed from bats from the Kimberley, Western Australia: *Spinturnix novaehollandiae* Hirst from *Chalinolobus gouldii* (Gray) (Vespertilionidae); *S. eptesici* Domrow principally from *Eptesicus pumilus* (Gray) and *E. douglasi* Kitchener (Vespertilionidae); *Meristaspis calcarata* (Hirst) from *Pteropus scapulatus* Peters and *P. alecto* Temminck (Pteropodidae); and *M. macroglossi* (Hirst) from *Macroglossus lagochilus* Matschie (Pteropodidae).

INTRODUCTION

This contribution to the ectoparasites of Western Australia collected by Dr F.S. Lukoschus, Catholic University, Nijmegen, concerns the Spinturnicidae, a compact family of mesostigmatic mites peculiar to bats. The fauna of Australia, New Guinea and, incidentally, the Orient was reviewed by Domrow (1972), with additions by Domrow & Nadchatram (1978). Tenorio (1976) listed the type material in the Bernice P. Bishop Museum, Honolulu. As only one species — *Spinturnix novaehollandiae* Hirst — was recorded from Western Australia, I now list four, in two genera, from the Kimberley.

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Hosts are largely after Ride (1970). Depositories are abbreviated: WAM Western Australian Museum, Perth; FMNH Field Museum of Natural History, Chicago; QIMR Queensland Institute of Medical Research, Brisbane; CU Catholic University, Nijmegen.

SPINTURNIX NOVAEHOLLANDIAE HIRST, 1931

Although this species was recorded by Domrow (1972) from all Australian vespertilionid genera except *Phoniscus* Miller, species of *Chalinolobus* Peters appear to be the principal hosts. It is the only species previously recorded from Western Australia, at Eucla in the extreme south-east, host *C. morio* (Gray).

Deutonymph (premale): Homomorphic. Too crinkled to illustrate profitably, but details (including those of capitulum and legs) as in ♀, except as follows. Idiosoma at least 780 µm long, 605 µm wide. Hysteronotal setae in narrow, essentially uninterrupted band of 10 pairs. Margin of sternal shield behind setae *st*₃ triangular rather than transverse. Ventral cuticle with 16 setae between coxae III and four setae (arranged 2.2) between coxae IV.

Host and Locality

On Gould's wattled bat, *Chalinolobus gouldii* (Gray) (Vespertilionidae) (2616), Beagle Bay, 25.VIII.1976 (1 ♀, 1 dn). In WAM, FMNH.

SPINTURNIX EPTESICI DOMROW, 1972

This species was described from the first host listed below. The specimens from the third and, certainly, the fourth hosts are best regarded as stragglers.

All the protonymphs are homomorphic and unsexable (Rudnick 1960). However, in line with the following paragraph, one protonymph enclosing a developing heteromorphic deutonymph would be prefemale, and another enclosing a developing homomorphic deutonymph premale.

Rudnick (1960) confirmed that the deutonymphs of *S. kolenatii* Oudemans [identified as *S. vespertilionis* (Linnaeus) by Oudemans (1903)] are sexually dimorphic — indeed, to the extent that the prefemale could be termed heteromorphic (in the simple sense of differing in *habitus* from all other stages). The only developing adult enclosed in a heteromorphic deutonymph is unfortunately too young to sex, only the claws of legs II-IV being clear, but it would be female. One homomorphic deutonymph predictably encloses a developing male and another an adult so young that only the claws of legs II-IV are clear.



Fig. 1: *Spinturnix eptesici* Domrow. Heteromorphic (prefemale) deutonymph. Dorsum of idiosoma. Photo by Miss Robyn Wilson.

In agreement with Rudnick's (1960) statement that birth is given to the protonymph, the latest stage seen enclosed within the female was the protonymph, sometimes itself developing within a larva. What happens to the egg shell and larval pelt is uncertain; perhaps they are absorbed, perhaps expelled in some manner, cf. genus *Glossina* Guenée (Diptera: Muscidae) (Gordon & Lavoipierre 1972).

Protonymph: Homomorphic. Capitulum holotrichous [using *S. myoti* Kolenati as basis for comparison, see Evans (1968)]; similar in outline to that of the adult of its own species. Idiosoma 650-750 μm long, 530-630 μm wide (larger specimens enclosing developing deutonymph). Dorsum as in *S. myoti*, except as follows. Two most widely set pairs of setae on anterior portion of dorsal shield tending more to be on shield. Hysteronotal setae comprising one pair immediately behind stigmata and two terminal pairs. Venter as in *S. myoti*, except as follows. Genital setae (i.e. first pair of setae preceding pair of accessory genital shieldlets in later stages) absent. Ventral cuticle with four setae between coxae III and two (occasionally one) setae between coxae IV.

Deutonymph (prefemale) (Fig. 1): Markedly heteromorphic. Details (including those of capitulum and legs) as in ♀, except as follows. Idiosoma probably normally well within following limits: 825 μm long, 715 μm wide (slightly ruptured), 660 μm long, 550 μm wide (crinkled). Dorsal shield ovate, 460 μm long, 285 μm wide, with all eight pairs of setae very elongate (cf. second phenon of *S. loricata* Domrow, 1972), any seta being at least twice as long as longitudinal interval between it and next seta; surface with heavy areolations possibly representing muscle insertions. Four dorsal glands opening submarginally onto dorsal shield. Hysteronotal setae in about 26 pairs, very elongate and crowded around posterior margin of dorsal shield, but less so terminally. Sternal shield with setae st_{1-3} set submarginally, and margin behind st_3 triangular rather than transverse. Ventral cuticle with nine to 10 setae between coxae III and two to four setae between coxae IV.

Deutonymph (premale): Homomorphic. Too similar to ♀ to illustrate profitably, and details (including those of capitulum and legs) as in ♀, except as follows. Idiosoma either ruptured or crinkled, but probably about 715 μm long, 530 μm wide. Four dorsal glands opening submarginally onto dorsal shield. Hysteronotal setae in narrow, essentially uninterrupted band of about 10 pairs (range 8.9 to 10.12). Sternal shield with setae st_{1-3} set submarginally, and margin behind st_3 triangular rather than transverse. Ventral cuticle with four (occasionally five) setae between coxae III and two (occasionally one) setae between coxae IV. In one specimen, tarsus IV on

one side and tibia-tarsus IV on other are mere stumps, with correspondingly reduced setation and no ambulacra.

Hosts and Localities

On little bat, *Eptesicus pumilus* (Gray) (Vespertilionidae) (2643), Napier Downs, 1.IX.1976 (1 ♀). On *E. pumilus* (2756), Beverley Springs, 20.IX.1976 (1 ♀). On *E. pumilus* (3076), Mitchell Plateau, 23.X.1976 (3 ♀♀, 4 ♂♂, 1 dn). In WAM, FMNH, QIMR, CU.

On bat, *Eptesicus douglasi* Kitchener (2745), Beverley Springs, 20.IX.1976 (3 ♀♀, 1 ♂, 2 pn). On *E. douglasi* (2831), Brooking Springs, 29.IX.1976 (1 ♀, 2 ♂♂, 1 dn, 1 pn). On *E. douglasi* (2846, 2848, 2895, 2900, 2911, 2914, 2915, 2916, 2926, 2929, 2964, 2980), Geikie Gorge, 30.IX, 3, 4, 5, 8, 9.X.1976 (13 ♀♀, 11 ♂♂, 5 dn, 5 pn). In WAM, FMNH, QIMR, CU.

On Arnhem Land long-eared bat, *Nyctophilus arnhemensis* Johnson (Vespertilionidae) (2756), Beverley Springs, 20.IX.1976 (1 ♀, 1 pn). In WAM, FMNH.

On common sheath-tailed bat, *Taphozous georgianus* Thomas (Emballonuridae) (2658), Napier Downs, 2.IX.1976 (1 ♀). In WAM.

MERISTASPIS CALCARATA (HIRST, 1923)

This parasite has species of *Pteropus* Brisson as its principal hosts (Malagasy, Oriental and Australian Regions).

Deutonymph (prefemale): Slightly heteromorphic. Too similar to ♂ to illustrate profitably, and details (including those of capitulum and legs) as in ♂ except as follows. First pair of proteronotal setae set in anterior angles of transverse rectangular shield convenient to truncated anterior margin of dorsal shield and of a size equal to that of tritosternum. Dorsal cuticle with one pair of postscutal setae in addition to two pairs of terminal (dorsocaudal) setae as in adult (Wilson 1967, Domrow 1972); not spinulose terminally. Tritosternum slightly convex posteriorly.

Deutonymph (premale): Homomorphic. Too similar to ♂ to illustrate profitably, and details (including those of capitulum and legs) as in ♂, except as follows. Dorsal cuticle not spinulose terminally. Tritosternum slightly convex posteriorly.

Hosts and Localities

On red flying fox, *Pteropus scapulatus* Peters (Pteropodidae) (2632, 2633, 2634), Napier Downs, 31.VIII.1976 (6 ♀♀, 4 ♂♂, 3 dn). On *P. scapulatus*

(2820, 2876), Brooking Springs, 29.IX, 1.X.1976 (1 ♀, 1 dn). In WAM, FMNH, QIMR, CU.

On black flying fox, *Pteropus alecto* Temminck (2819, 2877, 2962), Brooking Springs, 28.IX, 2, 7.X.1976 (10 ♀♀, 3 ♂♂, 2 dn). On *P. alecto* (2969), Geikie Gorge, 8.X.1976 (1 ♀). In WAM, FMNH, QIMR, CU.

MERISTASPIS MACROGLOSSI (HIRST, 1923)

This species occurs on pteropodid genera other than *Pteropus* (Oriental and Australian Regions).

Male: Homomorphic. As described by Prasad (1969) under name *M. dusbabeki* Baker & Delfinado, with one exception: hair-like setae on idiosoma in same number (17 pairs) and arrangement as described by Wilson (1967) for *M. calcarata*.²

Host and Locality

On northern blossom bat, *Macroglossus lagochilus* Matschie (Pteropodidae) (3002, 3013, 3017, 3020, 3022, 3023, 3042), Mitchell Plateau, 17, 19, 20.X.1976 (13 ♀♀, 4 ♂♂). In WAM, FMNH, QIMR, CU.

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² Prasad mentioned 'three pairs of setae on integument between coxae IV and the anal shield', but illustrated only two pairs in this region, which is the first to be obscured by excretory granules; while the terminal setae are uniformly 2.2 in my four specimens, they are certainly variable in *M. calcarata*, being 2.2 in five of the seven specimens listed above, 2.1 in one and 1.1 in one.

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