

## FLEAS (SIPHONAPTERA) FROM SOME WESTERN AUSTRALIAN MAMMALS

F.G.A.M. SMIT\*

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### INTRODUCTION

As a member of the 'Kimberley District Expedition of the Field Museum of Natural History, Chicago', Dr F.S. Lukoschus was able to examine 508 mammals for ectoparasites (with emphasis on mites) in north Western Australia for about three months in 1976. Thus 24 fleas were collected from echidnas and 40 from a species of bat. These fleas belong to the following two species.

#### *ECHIDNOPHAGA LIOPUS* JORDAN & ROTHSCILD, 1906

8 ♂, 15 ♀, Napier Downs (a homestead at 17°15'S, 124°44'E), from *Tachyglossus aculeatus* (Shaw), 5.IX.1976.

1 ♀, Mitchell Plateau, from *Dasyurus hallucatus* Gould, 22.X.1976.

This species was only known from the type series (24 ♂, 66 ♀) collected by C.J. Tunney on Mount Anderson (18°01'S, 123°56'E), Western Australia, from *Tachyglossus aculeatus* in November 1901. The two females supposedly from Agra (27°10'N, 78°00'E), India (from rats, II.1904, leg. Captain Windsor), as listed in the original description, are doubtless mislabelled specimens. It is inconceivable that this flea, with a very restricted distribution in Australia, would also occur in central northern India on rats (whereas it appears to be specific to the echidna). Hopkins & Rothschild (1953: 78, footnote) made the suggestion that 'This Australian species was presumably accidentally introduced into India by man, possibly with horses, which at one time were imported on a large scale.' This would seem to be a rather far-fetched explanation.

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\* British Museum (Natural History), London.

*Echidnophaga liopus* is easily distinguishable from the eleven other representatives of the genus occurring in Australia by the greatly reduced chaetotaxy of the distitarsomeres, there being normally only one basal pair of stout lateral setae and, on the apical half, only two pairs of short and very thin lateral setae (apart from the normal apico-lateral pair of long slender setae and the pair of stout apical plantar setae). It must be noted, though, that occasionally (in about 10% of the specimens examined) a distitarsomere may deviate from that setal pattern and in both the type series and the material collected by Dr Lukoschus a hind distitarsomere may have one or both setae of the second lateral pair much thickened, attaining the stoutness of the setae of the basal pair; they may also be somewhat displaced and sometimes an extra thin lateral seta is present. Such setal abnormalities are very rare in the mid distitarsomere while I have not seen any unusual fore distitarsomeres.

#### LAGAROPSYLLA MERA JORDAN & ROTHSCHILD, 1921

11 ♂, 20 ♀, Mount Hart (16°55'S, 125°05'E), from *Tadarida jobensis* (Miller), 10-18.IX.1976.

4 ♂, 5 ♀, Beverley Springs (16°35'S, 125°29'E), same host, 18-22.IX.1976.

Quite a common flea of various species of *Tadarida* in Australia, Java, Malaya and the Philippines. In Australia (apart from Western Australia also known from the Northern Territory and Queensland; see Dunnet & Mardon 1974: 124) presumably mainly associated with *Tadarida jobensis*.

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Deposition of specimens: Western Australian Museum, Perth; Field Museum of Natural History, Chicago; British Museum (Natural History), London; Department of Zoology, Nijmegen.

## REFERENCES

- DUNNET, G.M. & MARDON, D.K. (1974)—A monograph of Australian fleas (Siphonaptera). *Aust. J. Zool.* (Suppl.) no. 30: 1-273.
- HOPKINS, G.H.E. & ROTHSCHILD, M. (1953)—*An illustrated catalogue of the Rothschild collection of fleas (Siphonaptera) in the British Museum (Natural History)*. 1. London: The Trustees of the British Museum.

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