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Cover: The tritonymphal stage of a parasitic mite, *Marsupiolopus zyzomys*. The hypopial stage of this mite lives in the hair follicles of the tail of the Common Rock Rat (*Zyzomys argurus*) which in Western Australia occurs in the Pilbara and Kimberley regions.

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PARASITES OF WESTERN AUSTRALIA

I

HYPOPI OF THE FAMILY HYPODERIDAE MURRAY, 1877

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and

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ABSTRACT

Two new species of heteromorph deutonymphs (hypopi) from Australian hosts (living under the skin of birds) are described and figured. For the first species collected from a caprimulgiform bird a new genus *Caprimuldectes* has been erected.

INTRODUCTION

Hypopi of family Hypoderidae live in the connective tissues under the skin of birds. During the breeding period hypopi leave their hosts and molt in the nest directly to adults. From the eggs free hypopi emerge and penetrate the soft skin of nestlings. In the connective tissue under the skin and around the trachea and oesophagus (and in strongly parasitized birds also around the lungs and heart), hypopi gorge an increase much in size although their mouthparts and mouthopenings are absent. Free hypopi and tissue hypopi have the same sclerotized parts such as legs, setae and shields. They differ however, in leg to body proportions. The life cycle is shortened by suppression of the larval, protonymphal and tritonymphal stages. Development is closely related to the generation cycle of the hosts. Hormonal changes in the hosts seem to be important (Fain 1967). Observations of hosts in zoological gardens indicate that infection by large numbers of mites results in serious illness or death. Representatives of the family are not yet

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recorded from Western Australia. Remarks are given below on the hypopi collected in three birds by one of us (F.S.L.) during the Western Australia Field Program 1976.

1 *Hypodectes (Hypodectoides) propus bubulci* Fain, 1967¹

The subspecies was first described from *Bubulcus ibis* by Fain and Hyland 1962. Specimens were found in *Ardea herodias cognata* from the Galapagos Islands and in *Tantalus leucocephalus* which died in the zoological garden at Vienna (Fain 1967). Cerny (1969) found them in *Ardeola ibis* and *Florida caerulea* from Cuba. All the above hosts belong to the Ciconiiformes.

We found larger numbers of hypopi in *Egretta garzetta* (Ardeidae: Ciconiiformes), Napier Downs, 3 September 1976, Lukoschus leg.

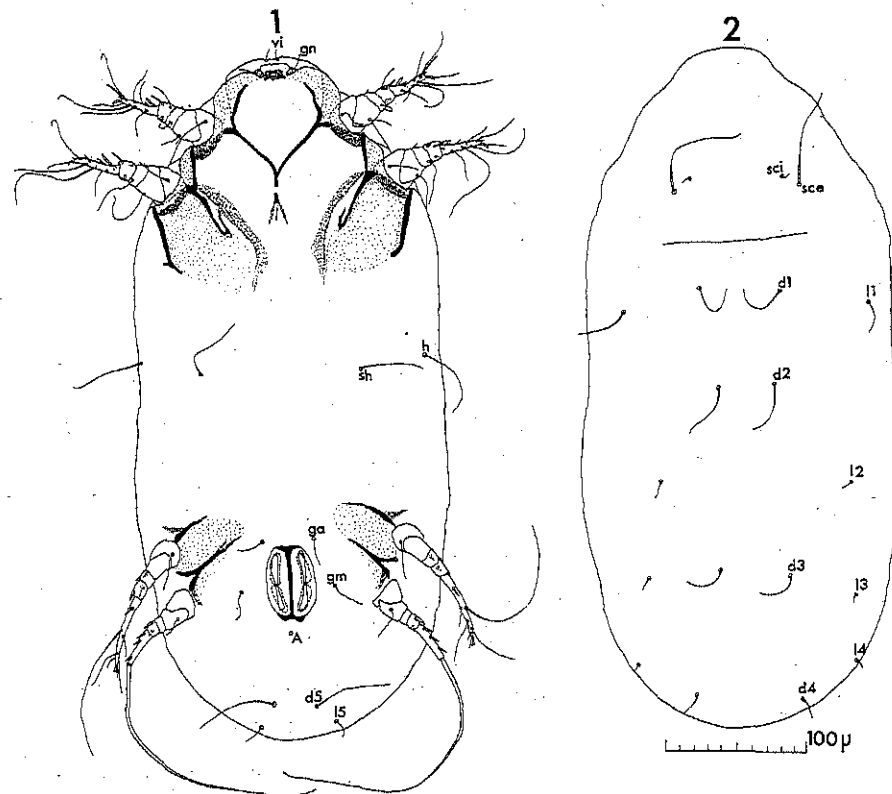
2 *Neottialges (Pelecanectes) grillinae* sp. nov.

With the characteristics of genus *Neottialges* Fain, 1966 and of subgenus *Pelecanectes* Fain, 1966. Known only from the hypopial stage. Hypopi of median size, white to pale yellow. Length holotype 499 μ , average 576 μ in 10 paratypes measured (437-665), width 219 μ , average in paratypes 243 (209-285).

Venter holotype (Fig. 1): Epimera I fused in Y-shape with bifid sternum, epimera II-IV free. Epimera and epimerite II of about same length. Formation of new epimera I and II in old hypopi distinct though feeble. Secondary sclerotization occurs in coxal fields II and III and partly in coxal region IV, and in some paratypes also between epimera I and the gnathosoma. Gnathosomatal shield with well marked anterior border. Gnathosomatal setae, 19 μ . Genital region with two pairs of parallel lying 20-23 μ long genital suckers and 52 μ long genital sclerite. Small anal pore (A) behind genital sclerite without sclerotized surrounding. Idiosomatal setae on ventral surface: *v i* (12 μ), *sh* (49), *h* (51), *g a* (20), *g m* (20), *d 5* (71) and *l 5* (14).

Dorsum (Fig. 2): Cuticle in some paratypes in opisthosomatal part slightly sclerotized without distinct pattern. Sejugal furrow present only in median part. Setae of dorsum setiform and thin: *sc i* (12), *sc e* (75), *d 1* (39), *d 2* (41), *d 3* (29), *d 4* (16), *l 1* (37), *l 2* (10), *l 3* (5), *l 4* (4).

¹ Dr R. Domrow, Brisbane, has since sent us 6 hypopi of this subspecies from 'breast muscle' of another new host, the white egret, *E. alba* (L.), Victoria, VIII.1977, J.H. Arundel. The smallest specimens (body length 800-900 μ) are intermediate between Fig. 18-19 of Fain (1967), lacking epimera II, and with neoepimera II extending down midline one-half to two-thirds of distance to epimerites II. The largest specimen (body length 1300 μ) is intermediate between Fig. 19-20, with neoepimera II touching on epimerites II, and with weak cross-bar between sternum and neoepimera II.



Figs 1-2: *Neottialges (Pelecanectes) grillinae* sp. nov., holotype venter (1) and dorsum (2).

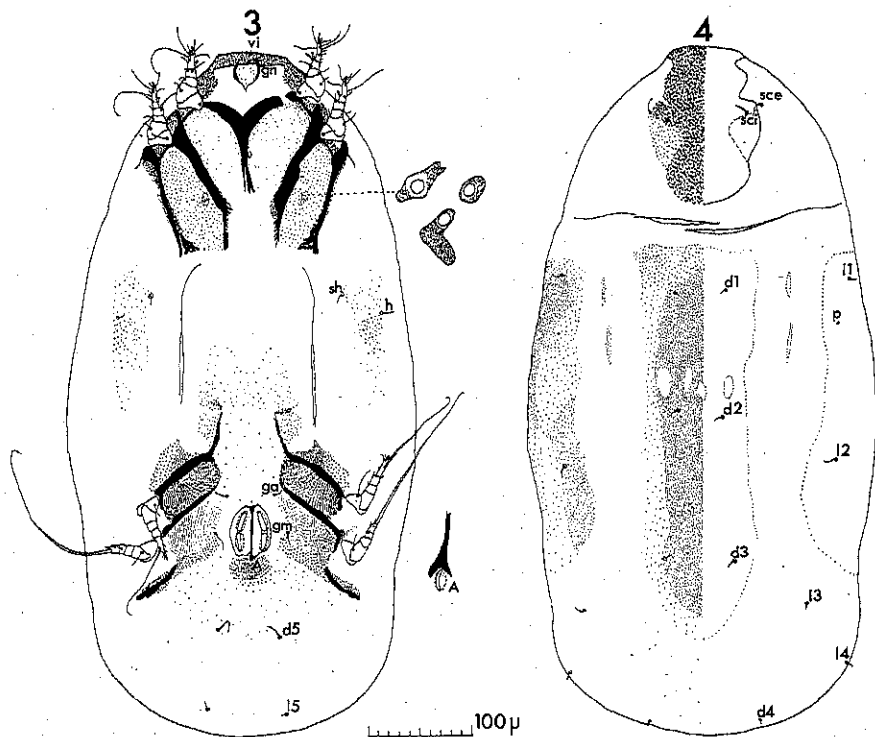
Legs (Figs 5-7): The five free segments without pretarsi and claws. All tarsi long (26, 29, 49, 32). Tarsi I and II with clawlike curved apical spine (8), tarsus III with 6 μ long bifid spine, tarsus IV with 181 μ long barbed strong seta. Chaetotaxy of legs: tarsi 10-10-9-4, tibiae 2-2-1-1, genua 2-2-1-0, femora 1-1-0-1, trochanters 1-1-1-0. Shape of setae as shown in the figures. Both setae on tibia II are spinelike (Fig. 5A). Solenidiotaxy: tarsi 2-1-0-0, tibiae 1-1-1-1, genua 1-1-1-0. *Omega* 1 10, *omega* 3 21, *omega* II 14, *phi* I-IV remarkable thin and tapering to end (14, 13, 10, 3).

Host and locality: *Grallina cyanoleuca* (Latham) (Grallinidae: Passeriformes), Napier Downs, 29 August 1976, Lukoschus leg.

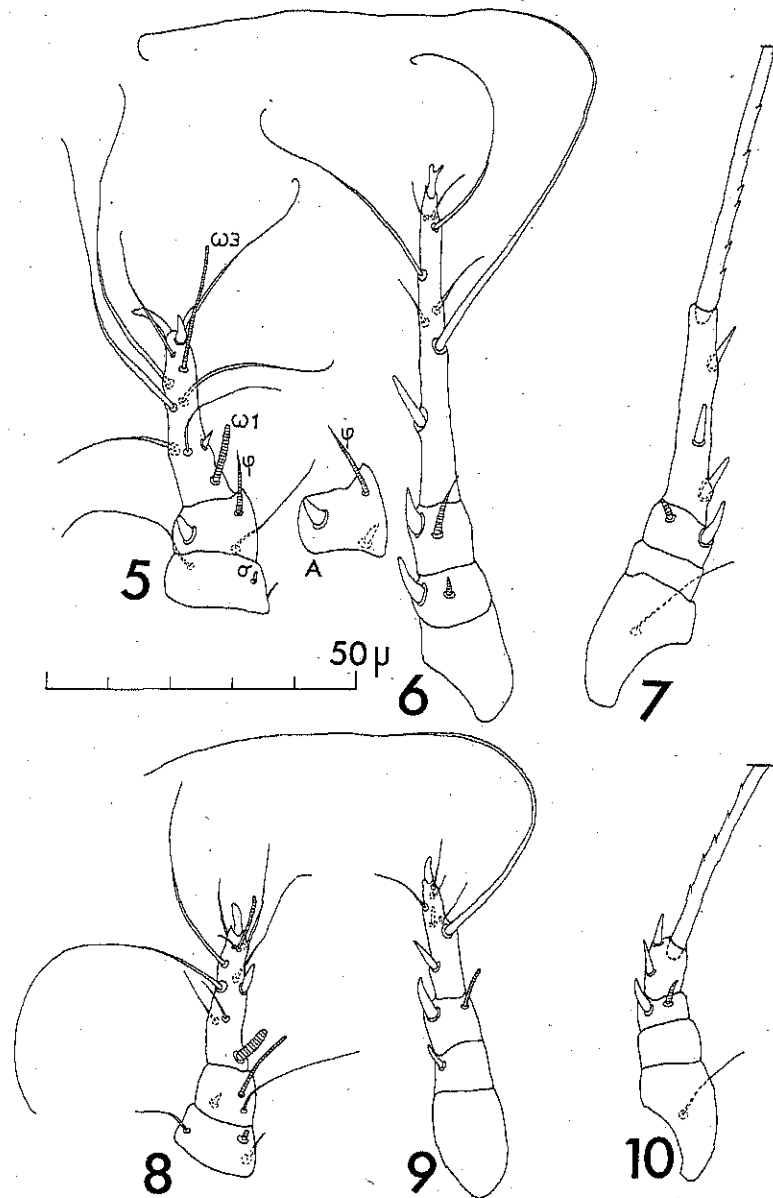
Deposition of types: Holotype in Western Australian Museum, Perth. Paratypes (50) in Perth; Field Museum of Natural History, Chicago; U.S.

National Museum of Natural History, Washington, D.C.; The Acarology Laboratory, Columbus, Ohio; British Museum (Natural History), London; Muséum National d'Histoire Naturelle, Paris; Institute of Parasitology, Prague; Zoologisches Museum Hamburg; Forschungsinstitut Senckenberg, Frankfurt; Bernice P. Bishop Museum, Honolulu; Institut de Médecine Tropicale Prince Léopold, Antwerp; Zoologisch Laboratorium, Nijmegen.

Hypopi collected from *Podargus strigoides* do not fit the definitions of known genera because of a combination of characteristics, viz. all idiosomatal setae short, short tarsus IV with barbed seta, presence of genital sclerite with anal pore in bifurcate end of sclerite, lateral gnathosomatal sclerites not fused with epimera I, fairly strong sclerotization of median part of propodosoma, elongate internal sclerotizations beneath sternum and epimera II, and absence of *sigma* III. We erect the following new genus for the first species found in a caprimulgiform bird.



Figs 3-4: *Caprimuldes podargi* gen. and sp. nov., holotype venter (3) and dorsum (4).



Figs 5-10: Legs I, III and IV of *Neottialges (Pelecaneetes) gallinae* sp. nov. (5-7) and of *Caprimuldes podargi* gen. and sp. nov. (8-10). A = tibia of leg II.

FAIN, A. & HYLAND, K.E. (1962)—The mites parasitic in the lungs of birds. The variability of *Sternostoma tracheocolum* Lawrence, 1948 in domestic and wild birds. *Parasitology* 52: 401-424.

FAIN, A. & LAURENCE, B.R. (1974)—A guide to the heteromorphic deutonymphs or hypopi (Acarina: Hypoderidae) living under the skin of birds, with the description of *Ibisidectes debilis* gen. and sp. nov. from the scarlet ibis. *J. nat. Hist.* 8: 223-230.

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PARASITES OF WESTERN AUSTRALIA

II

NASAL MITES FROM BIRDS (ACARINA: RHINONYSSIDAE, DERMANYSSIDAE, EREYNETIDAE AND CYTODITIDAE)

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ABSTRACT

Fifteen species of nasal mites (Acarina) from birds are reported from Western Australia. Amongst them 6 species are new and are described.

INTRODUCTION

Nasal mites from birds have been extensively studied in Australia by Domrow (1969). All these investigations were made in Eastern Australia, especially in Queensland. The western regions of Australia have apparently not been explored.

During the Kimberley expedition in Western Australia in 1976, one of us (F.S.L.) collected nasal mites belonging to 15 different species. Amongst these species 6 are new and are described herein.

The width of the body utilized here is the maximum width. The abbreviations utilized in the descriptions of Mesostigmata are those proposed by Fain & Hyland (1962).

The types of the new species are deposited in the Western Australian Museum, Perth. Paratypes are in the Field Museum of Natural History, Chicago, U.S.A. and in the collection of authors.

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