

## Ectoparasitic and Commensal Arthropods Occurring on the Rats of Manoa Valley, Oahu (Acarina, Anoplura, and Siphonaptera)<sup>1</sup>

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### INTRODUCTION

From March 24, 1962, through September 1, 1962, data were gathered on the population dynamics of *Laelaps nuttalli* Hirst and *Laelaps echidninus* Berlese in Manoa Valley, Honolulu, Hawaii. During the course of this study incidental observations were made on the occurrence and prevalence of other arthropods found on *Rattus rattus*, *R. exulans*, and *R. norvegicus* collected in the study area, and are reported here. The results of the population dynamics study will be published separately.

I am especially indebted to Dr. D. E. Hardy for advice and criticisms during the course of this study, and to Dr. Nixon Wilson for helpful suggestions. I also am grateful to Drs. Preston Hunter, Phyllis Johnson, and R. W. Strandtmann for their assistance in identifying the arthropods; the Rodent Control Division of the Hawaii State Department of Health for furnishing traps and bait; and the B. P. Bishop Museum for providing working space and other facilities.

### MATERIALS AND METHODS

All of the rodents utilized in this study were trapped in an area of approximately 100 square yards on the south side of Waiakeakua Stream near the head of Manoa Valley, between the stream and a banana plantation. Rats were live-trapped in Japanese cage traps baited with dried coconut and brought to the laboratory in their traps, then chloroformed and brushed for ectoparasites. The rats were skinned and the skins were dried and subsequently subjected to Cook's (1954) modification of Hopkins' dissolution technique in order to recover any arthropods overlooked by brushing.

### RESULTS

Twenty-five *R. exulans*, 64 *R. rattus*, and 9 *R. norvegicus* were examined for ectoparasites and the infestation data for all the arthropods encountered are

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recorded in table 1. Two female *Stratiolaelaps gurabensis* (Fox) were collected from a single specimen of *R. rattus*, the first record of this mite from Hawaii. Dr. Hunter informs me that in addition to the type material of this species from

Table 1. Infestation Data for Arthropods from Rats of Manoa Valley

	<i>R. exulans</i> (25)*		<i>R. rattus</i> (64)*		<i>R. norvegicus</i> (9)*	
	No. infested	No. arthropods	No. infested	No. arthropods	No. infested	No. arthropods
<i>Laelaps echidninus</i> .	17	151	36	165	4	7
<i>Laelaps nuttalli</i> . . .	24	1076	62	723	8	112
<i>Ornithonyssus bacoti</i>	1	3	11	61	1	1
<i>Androlaelaps hermaphrodita</i>	1	1	1	1	0	0
<i>Stratiolaelaps gurabensis</i> . . . .	0	0	1	2	0	0
Myobiidae . . . . .	16	not counted	43	not counted	6	not counted
Listrophoridae . . .	19	" "	34	" "	2	" "
Anoplura . . . . .	21	" "	45	" "	2	" "
<i>Xenopsylla cheopis</i> .	6	9	10	24	1	1
<i>Ctenocephalides felis</i>	1	1	0	0	0	0

\* Numbers in parentheses refer to the total number of hosts examined.

Puerto Rico, the U.S. National Museum collection also contains specimens from Florida, Mexico, and Guam, all of which were collected from murid rodents. In spite of this close association with rodents the relationship of this species to its host is probably commensal rather than parasitic.

Listrophorid and myobiid mites were extremely abundant and only representative specimens were identified from each of these families. The myobiids examined were *Radfordia ensifera* (Poppe) which has been recorded from Hawaii previously by Joyce (1958). The listrophorids examined were *Listrophoroides expansus* Ferris, which is the first record of this mite from Hawaii. *Ornithonyssus bacoti* (Hirst), present on all three species of rats, was reported from Hawaii previously by Bonnet (1948). Two female *Androlaelaps hermaphrodita* (Berlese) were collected during this study, one specimen from *R. rattus* and the other from *R. exulans*. According to Strandtmann (personal communication), this species is probably the same as *Androlaelaps setosus* Fox, which was reported from Hawaii by Joyce (1962). The foregoing is only an opinion and should not be misconstrued as constituting a synonymy.

Among non-acarine ectoparasites collected were lice identified as *Polyplax*

*spinulosa* (Burmeister) and *Hoplopleura pacifica* Ewing (= *H. oenomydis* Ferris according to some authors). Representatives from each individual louse collection were not identified and, therefore, both species are grouped together in table 1 under Anoplura. Two species of fleas, encountered very infrequently, were *Xenopsylla cheopis* (Rothschild) and *Ctenocephalides felis* (Bouche).

#### SUMMARY

Infestation data are given for 11 species of arthropods collected from three species of rats in Manoa Valley, Honolulu, Hawaii. Of these, two mites, *Stratiolaelaps gurabensis* (Fox) and *Listrophoroides expansus* Ferris, are reported from Hawaii for the first time.

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