

Studies on the Parasite Fauna of Thailand

3. Mites associated with Thai mammals

Kimito UCHIKAWA

*Department of Parasitology, Faculty of Medicine,
Shinshu University, Matsumoto, 390 Japan*

and

Hiroshi SUZUKI

*Department of Virology, Institute for Tropical Medicine,
Nagasaki University, Nagasaki, 852 Japan*

Abstract : Forty five species of mites parasitic or phoretic on Thai small mammals were recorded. Detailed morphology and figures for an anonymous *Laelaps*, the male of *Longo-laelaps whartoni* Drumond et Baker and both the sexes of the mite identified as *Hirstionyssus indosinensis* Bregetova et Grohovskaja were presented.

INTRODUCTION

During the survey of Thai mammals carried out in 1978 and 1979, the junior author collected acari found on all the catches. Parasitic acari have so far been studied extensively in Indochina region, and, in some genera or even in some families, it is rather difficult to get new records in this region. Collection records of any scale that always yield some valuable informations should, however, be properly presented. On this view, all the parastic acari, exclusive of ticks (Ixodides) and trombiculids (Trombidiformes) that will be dealt with in other papers, collected in the survey are recorded below.

It is usual to find non-parasitic acari on the fur of mammals. Some species are regular phoretic mites, and some others become associated with mammals quite accidentally. Both the groups of mites are expected to be indicative to some extent of environmental conditions of ranges of carrier mammals. Informations of these non-parasitic mites as well as nidicolous mites should be compiled hereafter systematically, improving any occasion. Thus, all the non-parasitic mites will be also recorded in this report.

HOSTS AND LOCALITIES

The mammals that yielded mites comprized 8 species of 4 orders as shown in Table 1. These hosts were caught at Mae Hongson, Nakorn Nayok and The River Kuwai, Thailand, in September to August, 1978, and at Nakorn Nayok and Doi Inthanon, Thailand, in February, 1979.

Table 1. Hosts that yielded mites

Chiroptera
<i>Rousettus leschenaulti</i>
<i>Myotis siligorensis</i>
Insectivora
<i>Anourosorex squamipes</i>
Rodentia
<i>Eothenomys melanogaster</i>
<i>Mus pahari</i>
<i>Rattus rattus</i>
<i>Rattus sabanus</i>
<i>Rattus niviventer</i>
<i>Rattus flavescens</i>
<i>Rattus surifer</i>
<i>Menetes berdmorei</i>
Primates
<i>Tupaia glis</i>

MITES RECORDS

The direct mite sampling method employed during survey resulted in the collection of a total of 45 species representing 25 genera, inclusive of some undetermined ones, of 19 families as presented in Table 2. Among these mites, the validity of *Radfordia* (*Radfordia*) sp. nr. *ensifera* (Poppe) (Myobiidae) is not confirmed.

Parasitic Laelapidae were most abundant on an insectivore and rodents. *Haemogamasus suncus* Allred new to Thailand was originally described as the parasite of *Suncus* (*Pachyura*) sp. and *Soriculus* spp. on Hymalayan high land, Nepal (Allred, 1969). The present record on Doi Inthanon suggests a continuous distribution of *H. suncus* from the northern high land to Hymalaya, associating with various insectivores. The Thai host, *Anourosorex squamipes*, was also infested with the 2 mites, *Androlaelaps* (*Haemolaelaps*) *sorcinus* (Jameson) and *Placomyobia wilsoni* Jameson, both of which occur on the same host on the high altitude of Taiwan (Jameson, 1966, 1970).

The mites of the genus *Longolaelaps* are endemic to the Oriental region. The three species of the genus have been described based on the females. In the case of *L. whartoni* Drummond et Baker, the original description was made on the 8 female specimens taken from *Rattus rajah* (type host) and *R. rattus argentiventer* in Malaya (Drummond et Baker, 1960). Then, Domrow et Nadchatram (1963) recorded 162 females from 3 hosts together with 206 females of *L. longula* Vitzthum from Malaya. Despite of abundant occurrence of *L. whartoni* females, the partner male has not so far been found out. This is also case of *L. longula*, though the third species, *L. traubi* Drummond et Baker, is

know from only a small number, that is 9, of the female. In the present survey, the 2 male and 7 female specimens of *L. whartoni* were fortunately found on the 2 rodents. The detailed morphology of the first *Longolaelaps* male will be presented later.

The mites of the genus *Laelaps* were most frequently collected from Muridae, and the subgenus *Laelaps* predominated over the subgenus *Echinolaelaps* in number of species and *vice versa* in number of individuals as shown in Table 2. This indicates that the mode of host preference is different in both the subgenera.

With respect to the mites of the subgenus *Laelaps*, *L. (L.) clethrionomydis* Lange new to Indochina is slightly deviated morphologically from that described by Russian acarologists in having larger dorsal shield (ca. 0.6mm), stout legs and setae, and adanal setae that are strong and somewhat spiniform and extending to the basal level of the postanal seta. Although further study of both the sexes is necessary, it is thought to be reasonable to relegate the mite to *L. (L.) clethrionomydis*. An anonymous species taken from *Menetes berdmorei* was regarded as *Laelaps (L.) B* in Allred (1970), which was recorded from *Rattus* sp. in Viet Nam. This mite seems to be identical with *Laelaps (L.)* sp. nr. *thamnomys* Taufflieb, 1954, in Hadi *et al.* (1977) that was taken from *M. berdmorei* in South Viet Nam. Allred (1970) noted as this "This mite represents an undescribed species". The present authors support Dr. Allred's view. As his description without figure is brief, supplemental morphological accounts will be presented later, expecting an accomplishment of Dr. Allred's work.

Of the 4 species of the subgenus *Echinolaelaps*, *L. (E) traubi* Domrow was encountered only on the hailand, Doi Inthanon. This mite was originally described on specimens taken on Cameron Highlands, Malaya (Domrow, 1962), and Strandtman and Mitchell (1963) added the records from high altitudes in Viet Nam and Thailand.

A pretty large number of the mite of the genus *Hirstionyssus** were taken from *Rattus sabanus*. This mite was tentatively identified as *H. indosinensis* Bregetova et Grohovskaja despite of some remarkable differences as compared with the original description (Bregetova et Grohovskaja, 1961). Bregetova and Grohovskaja (1961) described *H. indochinensis* on the specimens found on *R. sabanus* ssp. ?, *R. rattus flavipectus*, *Suncus murinus* from North Viet Nam and on *Callosciurus maccllelandi* and *C. swinhoei* from southern China. They also presented the closely allied species, *H. callosciuri* Bregetova et Grohovskaja, as the parasite of *Callosciurus erythreus* subspp. from the same localities in the same paper. The mites of the genus *Hirstionyssus* are not so rigidly host species specific, but phylogenetically and ecologically different host species are usually associated with different *Hirstionyssus*. In this respect, the host records presented in the original description of *H. indochinensis* as cited above are rather exceptional. Although the present author were not able to examine the type specimens of *H. indochinensis*, the *Hirstionyssus*

* The synonymy of the genus *Hirstionyssus* Fonseca, 1948, with the genus *Echinonyssus* Hirst, 1925, was recently suggested by Tenorio et Radovsky (1979)

Table 2. Mite Records — (1) Sub-order Mesostigmata

Family	Species
Parasitidae	Gen. sp.
Laelaptidae	<i>Hypoaspis (Cosmolaelaps)</i> sp. <i>Haemogamasus suncus</i> Allred <i>Longolaelaps whartoni</i> Drummond et Baker <i>Androlaelaps (Haemolaelaps) sorcinus</i> (Jameson) <i>Laelaps (Laelaps) algericus</i> Hirst <i>Laelaps (Laelaps) clethrionomydis</i> Lange <i>Laelaps (Laelaps) liberiensis</i> Hirst <i>Laelaps (Laelaps) nuttalli</i> Hirst <i>Laelaps (Laelaps) turkestunicus</i> Lange <i>Laelaps (Laelaps)</i> sp. B Allred <i>Laelaps (Laelaps)</i> sp. <i>Laelaps (Echinolaps) aingworthae</i> Strandmann et Mitchell <i>Laelaps (Echinolaelaps) echidninus</i> Berlese <i>Laelaps (Echinolaelaps) sanguisugus</i> Vitzthum <i>Laelaps (Echinoaelaps) traubi</i> Domrow
Macrochelidae	<i>Hirstionyssus indosinensis</i> Bregetova et Grohovskaja
Uropodidae	<i>Macrocheles muscaedomesticae</i> (Scopoli)
Spinturnicidae	Gen. sp. <i>Meristaspis lateralis</i> (Kolenati) <i>Ancystropus eonycteris</i> Delfinado et Baker <i>Ancystropus zekeborii</i> Kolenati <i>Ancystropus</i> sp.
Macronyssidae	<i>Steatonyssus</i> sp. nr. <i>afer</i> Radovsky et Ytunker

Locality : A-Doi Inthanon, B-Nakorn Nayok ;C-Mae Hongson

Number	Host	Locality and Date
3D N	<i>Anourosorex squamipes</i>	A, 1979 • II • 22—23
1 ♀	<i>A. squamipes</i>	A, 1979 • II • 21
14 ♂ ♂ 35 ♀ ♀ 23DN1PN	<i>A. squamipes</i>	A, 1979 • II • 21—24
2 ♂ ♂ 1 ♀	<i>Rattus surifer</i>	B, 1978 • VII • 23
6 ♀ ♀	<i>Menetes berdmorei</i>	C, 1978 • VII • 7
12 ♀ ♀ 4DN1PN	<i>A. squamipes</i>	A, 1979 • II • 21—23
1 ♂	<i>Rattus rattus</i>	
3 ♀ ♀	<i>Eothenomys melanogaster</i>	A, 1979 • II • 22
2 ♀ ♀	<i>Mus pahari</i>	A, 1979 • II • 20
1PN	<i>R. rattus</i>	C, 1978 • VIII • 1
1 ♂ 3 ♀ ♀	<i>Rattus fluvescens</i>	B, 1978 • VII • 23
1 ♂	<i>M. berdmorei</i>	C, 1978 • VIII • 7
8 ♀ ♀	<i>Rattus fluvescens</i>	A, 1979 • II • 23
3 ♀ ♀	<i>M. berdmorei</i>	C, 1978 • VII • 4
1 ♂	<i>Rattus niriventer</i>	A, 1979 • II • 22
7 ♂ ♂ 3PN	<i>R. surifer</i>	B, 1978 • VII • 23
4 ♂ ♂ 6 ♀ ♀	<i>M. berdmorei</i>	C, 1978 • VII • 7
10 ♂ ♂ 10 ♀ ♀	<i>R. surifer</i>	B, 1979 • II • 10
2 ♂ ♂ 3 ♀ ♀	<i>R. rattus</i>	B, 1979 • II • 10
1 ♂ 9 ♀ ♀	<i>R. surifer</i>	A, 1979 • II • 24
6 ♀ ♀	<i>R. rattus</i>	B, 1979 • II • 10
2 ♀ ♀	<i>M. berdmorei</i>	C, 1978 • VIII • 7
2 ♂ ♂ 2 ♀ ♀ 1DN	<i>R. surifer</i>	B, 1978 • VII • 23
4 ♀ ♀	<i>R. rattus</i>	B, 1979 • II • 10
2 ♂ ♂ 2 ♀ ♀	<i>M. berdmorei</i>	B, 1979 • II • 10
3 ♂ ♂ 8 ♀ ♀	<i>R. surifer</i>	B, 1979 • II • 10
3 ♂ ♂ 16 ♀ ♀	<i>R. surifer</i>	A, 1979 • II • 24
13 ♀ ♀	<i>Rattus niviventer</i>	A, 1979 • II • 21—22
8 ♀ ♀ 1DN	<i>R. flavescens</i>	A, 1979 • II • 23
1 ♀	<i>E. melanogaster</i>	A, 1979 • II • 23
11 ♂ ♂ 3 ♀ ♀	<i>R. sabanus</i>	B, 1978 • VII • 23
2 ♀ ♀	<i>A. squamipes</i>	A, 1979 • II • 22—23
1DN	<i>E. melanogaster</i>	A, 1979 • II • 21
18 ♂ ♂ 24 ♀ ♀ 21DN	<i>Rousettus leschenaulti</i>	C, 1978 • VII • 31
1 ♀	<i>R. leschenaulti</i>	C, 1978 • VII • 31
2 ♂ ♂ 2DN	<i>R. leschenaulti</i>	C, 1978 • VII • 31
1 ♀	<i>R. leschenaulti</i>	C, 1978 • VII • 31
1 ♀ 7PN	<i>Myotis siligarensis</i>	B, 1978 • VIII • 4

(Continued) mite Records — (2) Sub-order Trombidiformes

Locality : A-Doi Inthanon ; B-Nakorn Nayok ; C-Mae Hongson ; D-The River Kuwai

Family	Species	Number	Host	Locality and Date
Cheyletidae	<i>Cheyletus eruditus</i> (Schrank)	1 ♀	<i>M. berdmorei</i>	C, 1978 • VIII • 7
Cheyletiellidae	<i>Nihelia quinta</i> Domrow et Baker	5 ♀ ♀	<i>Tupia glis</i>	C, 1978 • VII • 19
Myobiidae	<i>Placomyobia wilsoni</i> Jameson	2 ♂ ♂ 2 ♀ ♀	<i>A. squamipes</i>	A, 1979 • II • 24
	<i>Radfordia</i> (<i>Radfordia</i>) <i>ensifera</i> (Poppe)	1 ♂ 2 ♀ ♀	<i>R. rattus</i>	C, 1978 • VIII • 2
	<i>Radfordia</i> (<i>Radfordia</i>) sp. nr. <i>ensifera</i> (Poppe)	1 ♀	<i>R. sabanus</i>	B, 1978 • VII • 23
Pygmephoridae	<i>Pygmephorus</i> sp. nr. <i>fercipatus</i> Willmann	1 ♀	<i>A. squamipes</i>	A, 1979 • II • 23
	<i>Rackia</i> sp.	1 ♀	<i>A. squamipes</i>	A, 1979 • II • 23
	<i>Bakerdania</i> sp. 1	1 ♀	<i>A. squamipes</i>	A, 1979 • II • 23
	<i>Bakerdania</i> sp. 2	1 ♀	<i>A. squamipes</i>	A, 1979 • II • 24

(Continued) Mite Records — (3) Sub-order Sarcoptiformes (not enumerated)

Locality : A-Doi Inthanon ; B-Nakorn Nayok ; C-Mae Hongson ; D-The River Kuwai

Family	Species	Host	Locality and Date
Sarcoptidae	<i>Nycteridocoptes asiaticus</i> Fain	<i>R. leschenaulti</i>	C, 1978 • VII • 31
Atopomelidae	<i>Listrophoroides</i> (<i>Meraquesania</i>) <i>cucullatus</i> (Trouessart)	<i>R. rattus</i>	B, 1979 • XI • 10
Listrophoridae	<i>Afrolistrophorus</i> sp. nr. <i>maculotus rattus</i> Fain	<i>R. sabanus</i>	B, 1978 • VII • 23
	<i>Afrolistrophorus</i> sp. (nymph)	<i>R. rattus</i>	B, 1979 • XI • 10
	<i>Afrolistrophorus</i> sp. nr. <i>mediolineatus</i> Fain	<i>M. berdmorei</i>	C, 1978 • VII • 4
	<i>Sciurochirus thailandiae</i> Fain	<i>R. niviventer</i> (transfer ?)	A, 1979 • II • 22
	<i>Lynxacarus tupaiae</i> Fain	<i>T. glis</i>	B, 1978 • VII • 23
Acaridae	<i>Psylloglyphus vietnamensis</i> Fain et Beaucourn	<i>R. rattus</i>	B, 1979 • II • 10
		<i>R. surifer</i>	B, 1979 • II • 10
		<i>M. berdmorei</i>	C, 1978 • VII • 4
		<i>A. squamipes</i>	A, 1979 • II • 23
Glycyphagidae	<i>Dermacarus</i> sp. nr. <i>novaequineae</i> Pain	<i>R. niviventer</i>	A, 1979 • II • 22
	<i>Alabidopus bipilifer</i> Fain et Uchikawa	<i>A. squamipes</i>	A, 1979 • II • 23
	<i>Tupaionus thailandicus</i> Fain et Uchikawa	<i>R. sabanus</i>	B, 1978 • VII • 23
		<i>T. glis</i>	B, 1978 • VII • 23
		<i>A. squamipes</i> (transfer ?)	A, 1979 • II • 23
Suctobelbidae (Oribatei)	<i>Suctobella</i> sp.	<i>R. rattus</i>	C, 1978 • VIII • 1

mite collected in the present survey was identified as *H. indochinensis* on morphological similarity and host record. A detailed morphology of the present mite will be described and figured below.

Macrocheles muscaedomesticae (Scopoli) is a common predacious mite phoretic on the flies. It was interesting to find the mite on the insectivore, which is easy to get composed and to become attractant to flies shortly after death.

The most extensive study of Spinturnicidae parasitic on Thai bats was made by Dr. N. Wilson in Hill and McNeely (1975). He recorded the four species, inclusive of an anonymous one, of *Ancystropus* from *Rousettus leschenaulti*. The present *Ancystropus* that is close to *A. eonycteris* Derfinado et Baker and Dr. Wilson's anonymous *Ancystropus* are possibly conspecific.

A *Steatonyssus* mite was newly found on *Myotis siligarensis*. The mite was very close to *S. afer* Radovsky et Yunker, but 4 pairs of minute posterior setae on the spithosomal shield of the female differ in size in the present mite and *S. afer*. The mite is thought to belong to a distinctive taxon, but the description on both the sexes is disirable.

Nine species of Trombidiformes were taken. *Nihelia quinta* Domrow et Baker, which has been recorded from *T. glis* on Malaya (Domrow and Nadchatram, 1963) in succession to the original description (Domrow and Baker, 1963), seemed to be common on the host, but male is still unknown. Although Smiley (1970) relegated the mite in the genus *Criekeron* Volgin, further studies of the genus of the mite are necessary to confirm his proposal. *Placomyobia wilsoni* Jameson was originally described from Taiwan as the parasite of *Anourosorex* (Jameson, 1970). Both the myobiid genus, *Placomyobia*, and its host genus, *Anourosorex*, are monotypic, suggesting a phylogenetic distinctiveness of the shrew-mole. As to a single, damaged female of *Radfordia* taken from *R. sabanus*, identification was restrained because of its larger size and slightly different setal nature, though the mite was very close to *Radfordia* (*R.*) *ensifera* (Poppe).

With respect to the 12 mites of the sub-order Sarcoptiformes, only *Nycteridocoptes asiaticus* Fain and *Tupaionus thailandicus* Fain et Uchikawa are picked up. The former mite has been known from the male and male tritonymph (Fain, 1959). Female of this mite is still unknown, though some males and a considerable number of immature stages were taken in the present survey. *Tupaionus thailandicus* Fain et Uchikawa was recorded from *T. glis* and *A. squamipes*, but the latter host record seemed to be dubious. A single mite was probably mislabelled by the senior author.

DETAILED MORPHOLOGY

1. *Longolaelaps whartoni* Drummond et Baker, 1960, male (Fig. 1.)

Idiosoma 420–415 μ long by 230–225 μ wide. Dorsal shield slightly concave laterally, 420–410 μ long by 200–200 μ wide at narrowest point over coxa IV, striated distinctly and

bearing 39 pairs of setae; 17 pairs of elongate and swollen setae on central part and the other marginal setae, but D_5 , which are conspicuous, being minute and spiniform. About 7 pairs of minute setae on dorsal soft integument. Holovenal shield expanded moderately behind coxae IV, bearing 10 pairs of prominent setae and minute adanal and postanal setae. About 10 pairs of minute setae ventrally on soft integument. Peitreme extending over midpoint of coxa II. Legs as illustrated in Fig. 1-1 and 2; leg setae rather short. Deutosternum with 8 rows of 3 teeth. Chelae as figured; fixed chela weak and membranous, probably with very minute pilus dentilis; spermadactyl $50-50\mu$ long; arthroal filaments prominent.

The above description was based on the two specimens in Table 2.

2. *Laelaps* sp. B Allred, 1970, female (Fig. 2.)

Idiosoma 650μ long by 430μ wide. Dorsal shield 650μ long by 430μ wide, bearing 39 hairs of short setae; setae j_2 and Z_3 being longest and central setae shortest. About 10 pairs of setae marginally on dorsum off the shield. Sternal shield $95-100\mu$ long by $135-150\mu$ wide at level of st_2 st_1 $70-78\mu$ long. Genito-ventral shield weakly expanded

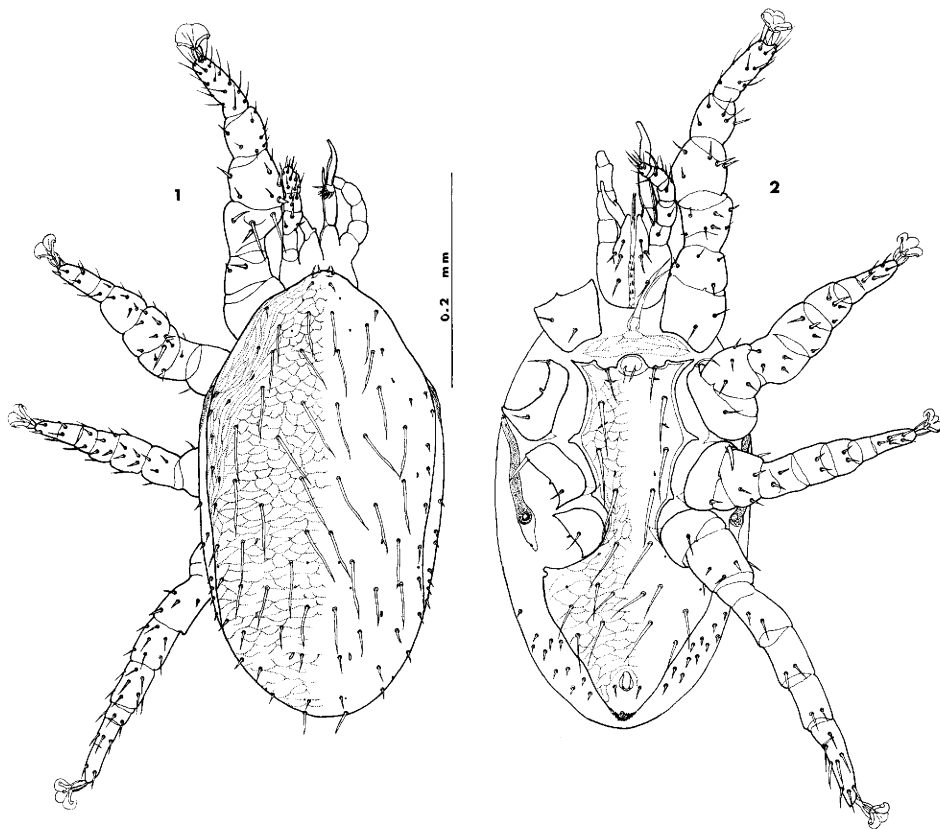


Fig. 1. *Longolaelaps whartoni* Prumond et Baker, 1960, male.
1-dorsum; 2-venter.

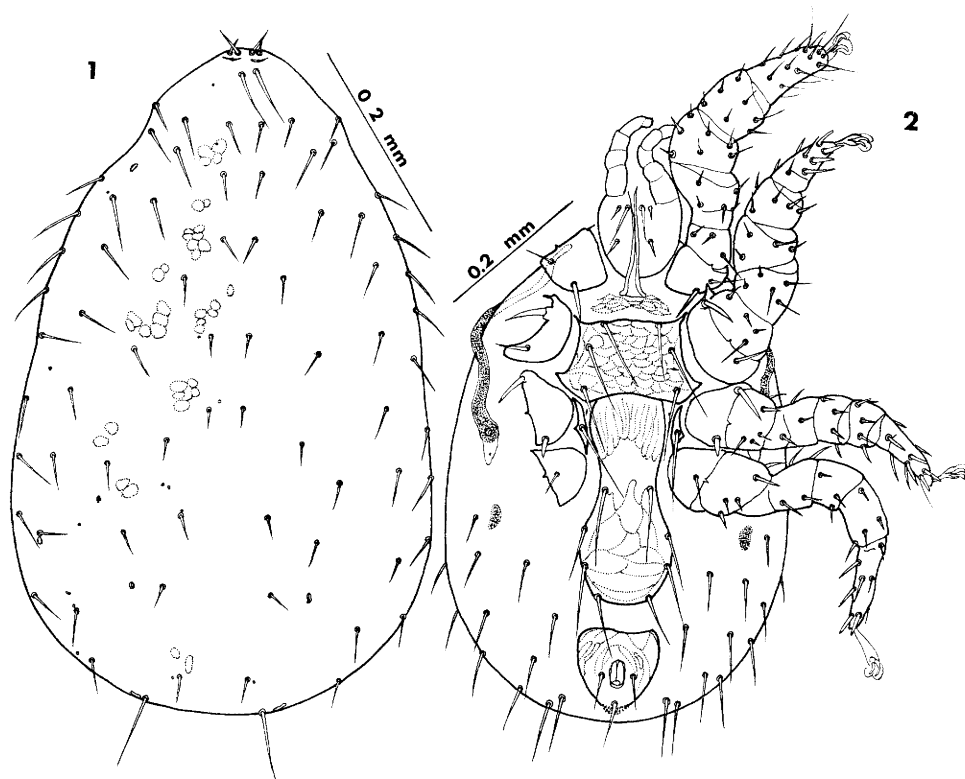


Fig. 2. *Laelaps (Laelaps)* sp. B Allred, 1970, female.
1-dorsal shield; 2-venter.

between the second and third setae, vl_1-vl_2 . Distance between setae g_1 , first pair of setae on genito-ventral shield, $58-63\mu$; vl_3-vl_3 , fourth setae on the shield, $73-80\mu$. Anal shield concave anteriorly, $83-88\mu$ long from anterior margin to base of postanal seta and $103-103\mu$ wide. Metapodal shield elongate. About 10 pairs of setae on ventral integument. Peritreme terminating over anterior one third of coxa I. Legs stout; coxa I with fine external and thickened internal setae; anterior setae on coxae II and III thickened; posterior seta on coxa III spiniform. Five, 6 and 6 thickened setae on tarsi II, III and IV, respectively. Chaelae minute, about 28μ long.

The above description was made on a whole mount and 2 dissected specimens, all of which were given in Table 2.

3. *Hirstionyssus indochinensis* Bregetova et Grohovskaja, 1961

Female (Fig. 3). Idiosoma $480-530\mu$ long by $330-380\mu$ wide. Dorsal shield $425-450$ long $245-255\mu$ wide, weakly striated marginally and granulated, bearing 26 pairs of minute setae. Seventeen pairs of setae marginally on soft integument. Tritosternum with well spinose laciniae. Presternal sculpture weak. Sternal shield $45-50\mu$ long and $110-115\mu$ wide

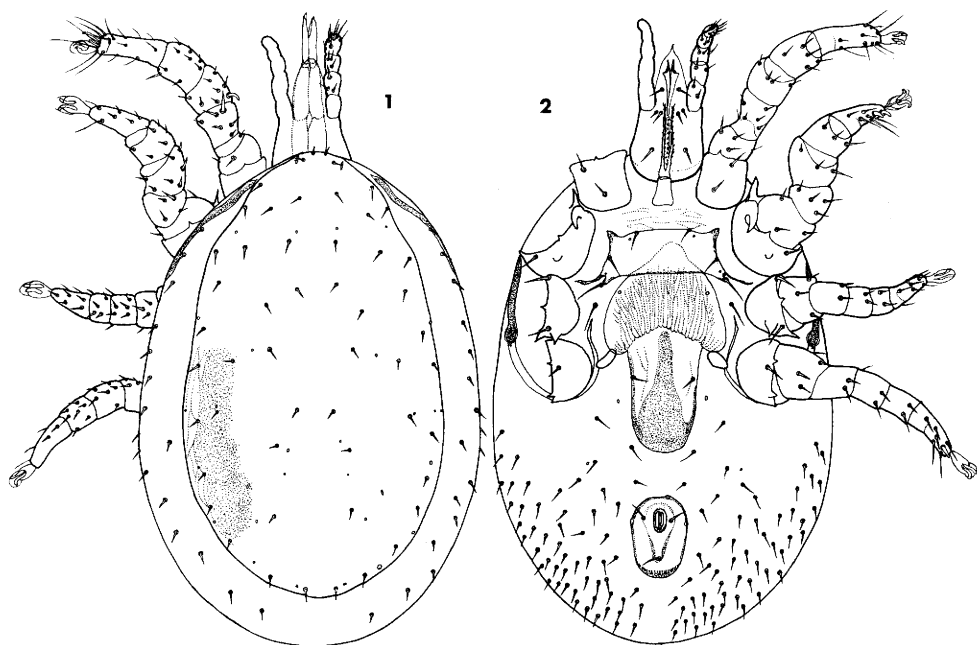


Fig. 3. *Hirstionyssus indochinensis* Bregetova et Grohovskaja, 1961, female. 1-dorsum; 2-venter.

at level of st_2 ; posterior margin flat; postero-lateral corners waning and setae st_3 almost off the shield; striation lacking on the shield; 2 pairs of small slits, but third pair on soft cuticle. Genito-ventral shield with large anterior membranous structure and posterior tongue-shaped part that bears a pair of genital setae and sclerotized portion. Anal shield longer than wide. About 50 pairs of minute setae ventrally on soft integument. Peritreme ventral at basal $1/3$ and, then, extending dorsally over anterior third of coxa I; peritremal shield posteriorly fused to parapodal shield. Coxal spur formula: 0-2-2-1, exclusive of anterior projection on coxa II and inclusive of small protuberance on coxa II; anterior spur on coxa II prominent. Av_1 and pv_1 on tarsus II clawlike and av_1 on tarsus IV spiniform. Gnathosoma as illustrated. Deuto-sternum probably with 11 rows of 1-2 teeth. Palpal tibia bearing 12 setae.

Male (Fig. 4). Idiosoma 390-420 μ long by 230-260 μ wide. Dorsal shield covering almost whole dorsum and essentially the same to that of female. Holoventral shield as illustrated in Fig. 4-1 bearing 3 pairs of gastric setae. About 45 pairs of setae ventrally on soft integument. Peritremal shield free from parapodal shield. Chaelae as in Fig. 4-2. Other structures of idiosoma, legs and gnathosoma as in female.

The above description was based on the specimens presented in Table 2, and the measurements were taken from 5 pairs of the male and female specimens.

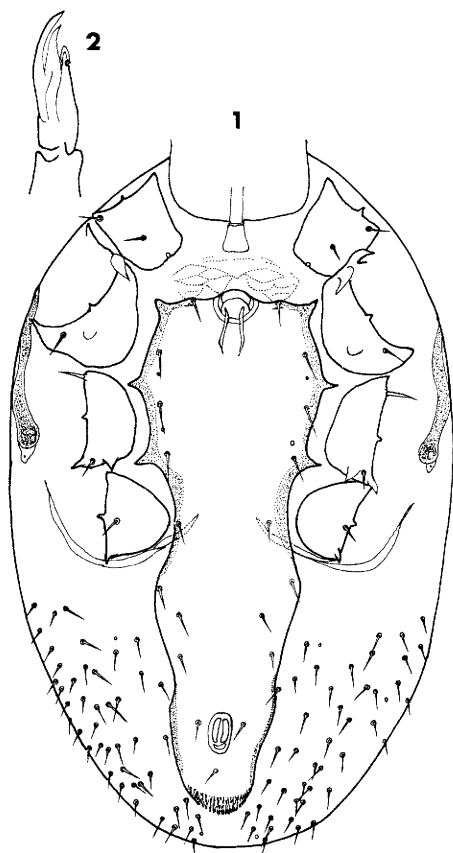


Fig. 4. *Hirstionyssus indochinensis* Bregetova et Grohovskaja, 1961, male.
1-venter ; 2-chelae.

ACKNOWLEDGEMENT

We wish to express our sincere appreciation to Prof. Chamlong HARINASUTA, dean of the Faculty of Tropical Medicine, Mahidol University, Dr. Suvajra VAJRAS-THIRA and Dr. Manoon BHAIBULAYA, Department of Helminthology, Faculty of Tropical Medicine, Mahidol University, for their kind support; to Prof. Masashi OH-BAYASHI, Dr. Masao KAMIYA and Dr. Haruo KAMIYA, Department of Parasitology, Faculty of Veterinary Medicine, Hokkaido University, for their support in the field survey, also to Dr. Hisashi ABE, Department of Applied Zoology, Faculty of Agriculture, Hokkaido University for identification and collection of host animals.

The identifications of Pygmenphoridae (Trombidiformes), Sarcoptiformes and Ori-batei have been made by Dr. K. Kurosa, Ikebukuro, Toshima-ku, Tokyo, Dr. A. Fain, Institute of Tropical Medicine, Prince Leopold, Antwerpen, Belgium, and Dr. J. Aoki, Yokohama National University, Yokohama, respectively. The type specimens of *Steatonyssus afer* Radovsky and Yunker were examined during the present study through the

courtesy of Dr. J. B. Kethley, Field Museum of Natural History, Chicago, U.S.A.

The authors' sincere thanks are due to all the above individuals.

This study was supported by the Overseas Scientific Research Grant No. 304105 (1978), Ministry of Education, Japan (Leader, Prof. Masashi OHBAYASHI).

REFERENCES

- Allred D. M. : Haemogamasid mites of eastern Asia and The Western Pacific with a key to the species. *J. Med. Ent.*, 6 : 103-119, 1969.
- Allred D. M. : Mites of the genus *Laelaps* from Viet Nam and Laos and a key to species of Indochina and Thailand. *Ibit.*, 7 : 247-250, 1970.
- Bregetova, N. G. and I. M. Grohovskaja : New genus and new species of gamasid mites from North Viet Nam and Southern China. *Entom. Oboz.*, 15 : 225-232, 1961. (In Russian with English summary.)
- Domrow, R. : Seven new species of *Laelaps* from Malaysia (Acarina, Laelaptidae). *Acarologia*, 4 : 503-519, 1962.
- Domrow, R. and E. W. Baker : The genus *Nihelia* (Acarina, Cheyletidae). *Ibid.*, 5 : 225-231, 1963.
- Domrow, R. and M. Nadchatram : Two field collections of Malayan mites and ticks. *Malayan Nat. J.*, 17 : 145-164, 1963.
- Drumond, R. O. and E. W. Baker : Mites of the genus *Longolaelaps* (Acarina : Laelaptidae). *Proc. Entom. Soc. Wash.*, 62 : 51-55, 1960.
- Fain, A. : Les acariens psoriques parasites des chauves-souris. VII.—Nouvelles observations sur le genre *Nycteridocoptes* Oudemans, 1898. *Acarologia*, 3 : 335-353, 1959.
- Fain, A. and K. Uchikawa : On two new species of Hypopi from Thai mammals (Acari : Glycyphagidae). *Annot. Zool.* 52 : 1980 (in press).
- Hadi, T. R., W. P. Carney, P. E. D. Van Peenen and W. B. Hull : Laelapid mites (Acari : Mesostigmata) from mammals of South Vietnam. *J. Med. Ent.*, 13 : 587-590, 1977.
- Hill, J. E. and J. A. McNeely : The bats and bat's parasites of Thailand. *CTNRC*, 87pp., 1975.
- Jameson, Jr., E. W. : Two new mites (Acarina : Laelapinae) from Oriental insectivores (Mammalia : Insectivora). *Pacific Sci.*, 20 : 195-197, 1966.
- Jameson, Jr., E. W. : Notes on some myobiid mites (Acarina : Myobiidae) from Old World insectivores (Mammalia : Soricidae and Talpidae). *J. Med. Ent.*, 7 : 79-84, 1970.
- Smiley, R. L. : A review of the family Cheyletiellidae (Acarina). *Ann. Ent. Soc. Amer.*, 64 : 1056-1078, 1970.
- Strandtmann, R. W. and C. J. Mitchell : The Laelaptine mites of the *Echinolaelaps* complex from the southwest Pacific area (Acarina : Mesostigmata). *Pacific Ins.*, 5 : 541-576, 1963.
- Tenorio, J. M. and F. J. Radovsky : Review of the subfamily Hirstionyssinae, synonymy of *Echinonyssus* Hirst and *Hirstionyssus* Fonseca, and descriptions of four new species of *Echinonyssus* (Acari : Laelapidae). *J. Med. Ent.*, 16 : 370-412, 1979.

タイ国の寄生虫相の研究

第3報 タイ国産小哺乳類の寄生ダニ

内川公人（信州大学医学部寄生虫学教室）

鈴木 博（長崎大学熱帯医学研究所ウイルス学部門）

主としてタイ国北部高地産のコウモリ類2種，食虫類1種，ネズミ類8種，ツバイ1種から，4亜目15科45種（マダニ類，ツツガムシ類を除く）を得た．本文では，寄生性の中気門亜目とツメダニ上科のダニ類を重点的に取扱った．これらのダニは，トゲダニ科6属16種，コウモリダニ科2属4種，ケモチダニ科2属2種，ツメダニ科1種からなっていた．

以上の23種は米国，ソ連の研究者によって限無く調べられており，含まれる1～2新種も匿名ですでに報告されている．得られた新知見は，*Longolaelaps* 属♂の形態が判ったこと，基産地の標本と形態を異にするヤチトゲダニの分布が確認されたこと，およびこの2種を含む少なくとも6種のタイ新記録種が見つかったことである．その外，北部高地の2－3のダニがヒマラヤや台湾高地産の種類と共通し，分布や宿生間関係の上から興味深いことである．

熱帯医学第22巻第1号，13－25頁，1980年3月