Pacific Insects 5 (1): 281–286 April 30, 1963

LAELAPTID MITES FROM THE NEW GUINEA BANDICOOT, PERORYCTES RAFFRAYANUS RAFFRAYANUS[1]

By Nixon Wilson and R. W. Strandtmann

B. P. Bishop Museum, Honolulu, Hawaii

Abstract: Four laelaptine mites, *Mesolaelaps pectinophorus* n. sp., *Mesolaelaps anomalus* Hirst, *Laelaps quatei* n. sp. and *Laelaps habrus* Domrow are recorded from the long-tailed bandicoot, *Peroryctes raffrayanus raffrayanus* collected in West New Guinea, Star Mts., Sibil Valley.

A collection of four bandicoots, *Peroryctes raffrayanus raffrayanus*, from West New Guinea, collected by Dr. and Mrs. L. W. Quate, harbored such a large and unusual aggregation of parasitic mites that a paper devoted to them seems desirable.

Peroryctes raffrayanus (long-tailed bandicoot) is a large marsupial apparently confined to New Guinea. As far as we are aware, there is only one previous record of a mesostigmatic mite from *Peroryctes* and that is *Mesolaelaps anomalus* Hirst reported by Domrow (1958). The present collection contains four species of Laelaptidae, two of Listrophoridae and several of larval Trombiculidae. Only the Laelaptidae are being reported upon here.

Genus **Mesolaelaps** Hirst, 1926

Domrow (1958) gave an excellent definition of *Mesolaelaps*, as follows: "Round, heavily sclerotized laelaptine species, about 1 mm in length. Dorsal shield rather small, with very strong but sparse setation; with four rather long, anteriorly directed vertical setae; marginal cuticle very broad with very numerous, much weaker setae. Genitoventral shield reduced and tapering, typically with three pairs of setae; widely separated from large, elongate anal shield. Ventral cuticle also with exceedingly numerous short setae. Coxal armature variable, and correlated with modification of certain body setae. Legs slender, with strong outstanding setae on apical segments, especially II to IV. Chelicerae slender, with weak dentition and very short pilus dentilus. On various native mammals in Australia and New Guinea. Genotype: *M. anomalus* Hirst, 1926." To this might be added that the tectum is roughly triangular with weakly and irregularly serrate margin (figs. 2, 4), that the lacinae of the tritosternum branch from very near the apex of the basal part and are clearly distinct in their origin (fig. 3c), that the terminal pair of dorsal setae are closer together than the subterminal pair (figs. 2, 4) and that some of the body and leg setae are branched or slightly plumose.

1. Supported by USPHS grant E-1723 from the National Institute of Allergy and Infectious Diseases, National Institutes of Health.

All members of the genus *Mesolaelaps* have sparse setation on the shields and dense setation off the shields. The genus seems therefore, to be intermediate between the subfamilies Laelaptinae and Haemogamasinae.

Mesolaelaps anomalus Hirst, 1926 Figs. 1 & 2.

Two ♀♀, taken in West New Guinea, Star Mts., Sibil Val., 1245 m, 18. X–8. XI. 1961; on *Peroryctes r. raffrayanus* (Host No. BM-NG 277). The figures here presented are based on these 2 specimens. They averaged 1100 μ long.

Also in the Bishop Museum collection are 2 ♀♀ taken from *Peroryctes raffrayanus* at Kassam, NE New Guinea by Van Deusen and Maa on 6. XI. 1959. The host no. is TMP-125.

This mite was originally reported from New Guinea and has since been reported from North Queensland, Australia. It has been recorded from 4 species of bandicoots (Peramelidae) (Domrow, 1958).

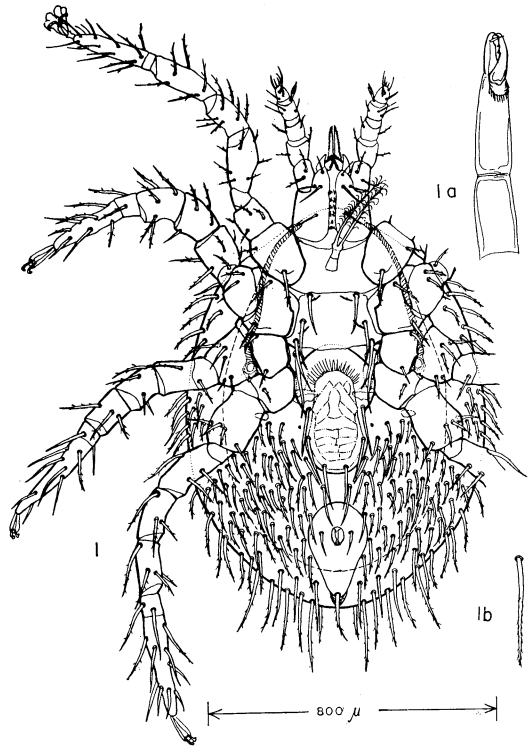

Fig. 1. *Mesolaelaps anomalus*, ♀, ventral view. 1a, chelicera, enlarged; 1b, one of the posterior setae, enlarged.

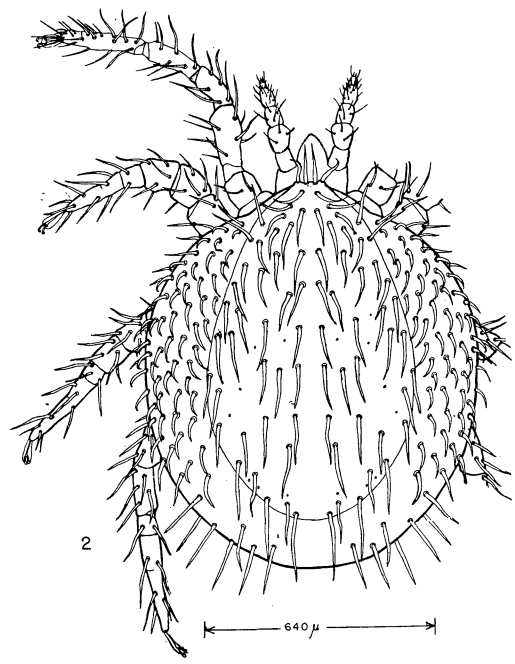

Fig. 2. *Mesolaelaps anomalus*, ♀, dorsal view.

Mesolaelaps pectinophorus Wilson and Strandtmann, n. sp. Figs. 3 & 4.

A large, heavily sclerotized, nearly circular, thick, bristly mite. The ventral setae are spiniform, very numerous, and many are contiguous in rows, like the teeth of a comb;

hence the specific name. Modified palpal claw apparently 3-tined.

Female. Ventral side: Sternal plate about as long as wide; anterior margin produced and deeply and sharply emarginate medially; sides convex and not conforming to coxae; posterior margin irregular and mildly concave; 3 pairs of setae and 2 pairs of pores well in from the margin; pores horizontal; setae smooth and long, the anterior pair surpassing posterior margin of plate. Metasternal seta originating from a small endopodal plate between coxae III and IV; very long, reaching nearly to end of ventral plate. Metasternal pore small and circular. Genitoventral plate small, rounded and very slightly expanded posteriorly; lateral margins irregular; genital setae smooth, long, surpassing posterior margin of genitoventral plate; 1st ventrals smooth and nearly as long as the genital setae; 2nd ventral smooth, spiniform, widely separated; about 1/2 as long as the 1st ventrals. Anal plate narrowly oval; about 2× as long as wide; anal pore in anterior 1/2; adanal setae smooth, in front of anal pore and only slightly longer than pore; postanal seta smooth, strong, and about as long as plate. Venter with about 125 pairs of stiff, spiniform setae which become progressively longer posteriorly, plus 3 pairs of slightly more slender, flexible setae around anal plate. Most of ventral setae arranged in rows on strips of sclerotized cuticle. The rows are quite regular and consist of an undivided row of 10–11 setae just posterior to the genitoventral plate and 6 medially divided, diverging rows, as illustrated. Posterior 2 rows always short and marginal, as shown; other rows may be variously broken

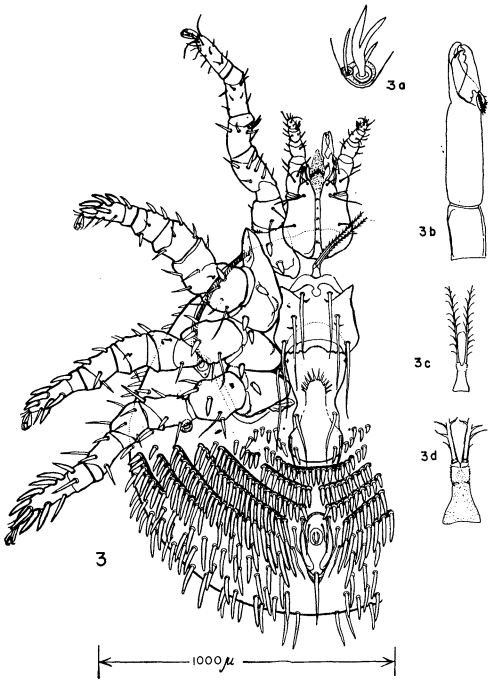

Fig. 3. *Mesolaelaps pectinophorus*, ♀, ventral view. 3a, modified palpal claw and nearby seta, enlarged; 3b, chelicera, enlarged; 3c, tritosternum; 3d, basal portion of tritosternum, enlarged.

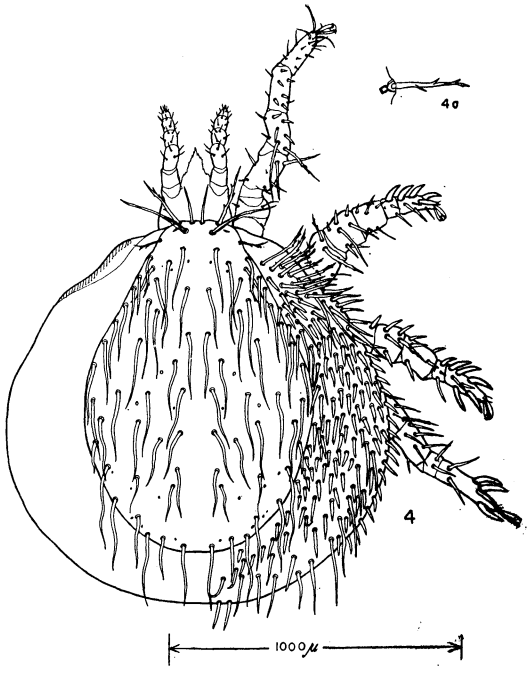

Fig. 4. *Mesolaelaps pectinophorus*, ♀, dorsal view. 4a, one of the anterior body setae, enlarged.

but generally continuous. The metapodal plate is a small ellipse at the end of the 3rd comb. A peculiar donut-shaped, subdermal structure may be found at the end of the 4th and 5th rows of combs. It appears that the center, or hole of this donut opens to the surface ventrally. Dorsal side: Dorsal plate undivided, obovate in outline and covering about 1/2 of dorsum; with 39 pairs of long, strong setae; inner anterior verticals smooth and about 2/3 as long as the outer verticals which are branched; 1st and 2nd marginals, or scapulars weakly branched; all other dorsal setae smooth. Posterior terminal setae about 1/3 longer and much closer together than subterminals. Nonsclerotized portion of dorsum thickly covered with setae which are long anteriorly, becoming progressively shorter toward middle of body, and again longer toward the posterior; about 10 pairs of the most anterior ones are bra nched, the rest smooth. Peritreme lateral, extends to coxa I, and lies in a narrow plate that continues forward nearly to apex of body. Substigmal plate small and bears a pore at its apex. Postcoxal lunular plate present and seems to connect with the genital apodeme. Legs: All coxal setae short, heavy spiniforms. Anterior marginal tooth of coxa II enormously developed, with apparently a concave inner face. Trochanters II–IV each with a ventral spiniform; tarsi II–IV each with 16 setae of which 10 are long, heavy spiniforms. Tarsus I with 30–35 setae (including sensitive setae at dorsal apex), all piliform. Tarsal claws and pulvillus not strongly developed. Gnathosoma: Typically laelaptine; corniculi short, stout and obvious; hypostomal and gnathosomal setae smooth and slender, piliform; deutosternal teeth in 5 rows of 1–5 denticles each; pedipalpal chaetotaxy moderate, smooth and piliform; tectum sharply triangular and weakly and irregularly serrated. Modified palp tarsal claw has a basal spur, making it appear 3-branched (see remarks below).

Average length of body, 1300 microns, varying from 1200–1500; average length of dorsal plate, 1100 microns.

Male and immature stages unknown.

Type host: *Peroryctes raffrayanus raffrayanus.*

Type locality: West New Guinea, Star Mts., Sibil Val., 1245 m, 18. X–8. XI. 1961.

Types: Holotype ♀ and 29 paratype ♀♀ all from the type host and locality. Collected by S. and L. Quate. Holotype and several paratypes in the Bishop Museum, Honolulu, Hawaii. Additional paratypes deposited with collaborating institutions. Numerous other specimens from the same host and locality as the type series are preserved in alcohol at the Bishop Museum.

Remarks: If the 3-tined palpal claw is to be considered an absolutely basic character, then this mite must be a Neoparasitidae. However, it is so unlike the known neoparasitids, both in habits and in particular and general facies, that one rebels at placing it there. Considering a new family seems equally abhorrent because there is really no other feature except the 3-tined palpal claw to separate it from Laelaptidae; unless of course one considers the comb-like arrangement of the ventral setae a family character, the likelihood of which seems remote. If the 3-tined palpal claw is given less emphasis, and the mite therefore not excluded from the Laelaptidae then it is so evidently a *Mesolaelaps* that no other conclusion is possible. It differs from other species of the genus only by the unusually heavy setation, the comb-like arrangement of the ventral setae, the produced anterior margin of the sternal plate, and the greatly enlarged tooth of coxa II. We do not believe any of these characters are of generic significance. What then of the palpal claw? It is possible

that the 3rd tine is merely a spur, secondarily developed, unique to this species, and therefore of no great significance. This seems to us to be the most logical solution of the phylogenetic placement of this unusual mite.

Genus **Laelaps** C. L. Koch, 1836

Tipton (1960) gives an excellent review of the genus *Laelaps*. He considers the genus in the strict sense and includes in it only those laelaptine mites which are less than 1 mm long, have 4 pairs of setae on the genitoventral plate, and in which the sternal plate is wider than long. Domrow (1958) takes the genus in the broad sense and includes in it all laelaptines with 4 pairs of genitoventral setae. He gives a key to the ♀♀ of the Australasian species of *Laelaps sensu latus*.

Laelaps habrus Domrow, 1958

Nine ♀♀, collected in West New Guinea, Star Mts., Sibil Val., 1245 m, 18. X–8. XI. 1961; on *Peroryctes r. raffrayanus* (Host No. BM-NG 236).

Remarks: The mites before us differ slightly from the original description. The peritreme reaches only the posterior margin of coxa I, or slightly beyond. As originally described it should reach beyond the middle of coxa I. Domrow (1958) gives the range in size of 4♀♀ to be 596–619 microns; the average length of our specimens is 620 microns. It should be noted that the 3rd ventrals, although generally closer together than the genital setae, may by equally as far apart. In all other respects there is agreement with the original description.

The species was originally described from Papua (SE New Guinea) off *Echymipera kalabu kalabu*, a bandicoot closely related to *Peroryctes*.

Laelaps quatei Wilson and Strandtmann, n. sp. Figs. 5 & 6.

A small, well sclerotized mite with moderately heavy, long chaetotaxy. Coxa I with a bifid, setigerous spur.

Female. Dorsal side: Dorsal plate covering almost the entire dorsum; shoulders not strongly pronounced; with 39 pairs of setae, the posterior subterminals about 1/2 as long as terminals; dorsal reticulations apparent but not unduly prominent. Ventral side: Sternal plate rectangular, less than 2× as wide as long, the anterior margin nearly straight, posterior margin slightly concave; 1st sternal setae reaching almost to posterior margin of plate; 2nd and 3rd sternal setae a bit longer than 1st. Genitoventral plate slightly expanded, genital setae longer than ventral setae; 3rd ventrals closer together than width of anal plate, about same distance apart as the genital setae; posterior margin truncate or essentially so. Anal plate broadly oval; adanal setae posterior to pore, about as long as postanal seta but not as heavy. Five to 8 pairs of setae on unsclerotized portion of venter, of the same size and length as ventrals. All setae of ventral side broader at base and more tapering than shown in figure (fig. 5). Legs: Chaetotaxy moderate in length and size. Distal seta of coxa I and posterior seta of coxa II and III, stout spiniform; proximal seta of coxa I piliform and arising from a bifid spur; marginal seta of coxa II and III and seta of coxa IV, piliform. Gnathosoma: Chaetotaxy slender piliform; gnathosomal and hypostomal setae subequal; deutosternal teeth in 5–6 rows of 1–2 teeth in each row. *Malae internae* paddle-like; corniculi distinct; salivary stylets distinct; pilus dentarius

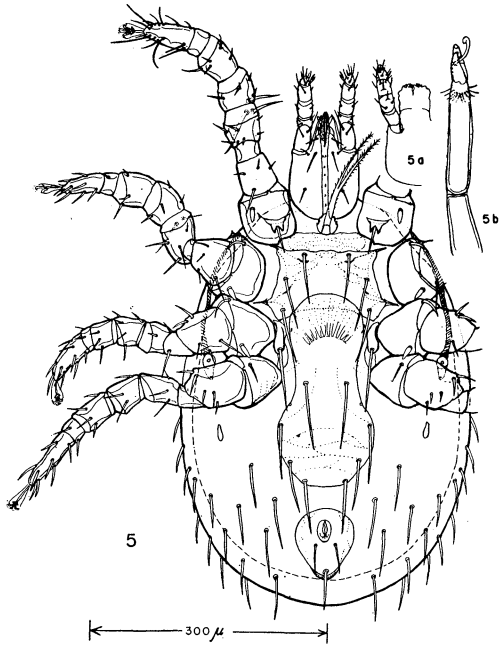

Fig. 5. *Laelaps quatei*, ♀, ventral view. 5a, left pedipalp and tectum, dorsal view; 5b, chelicera, enlarged.

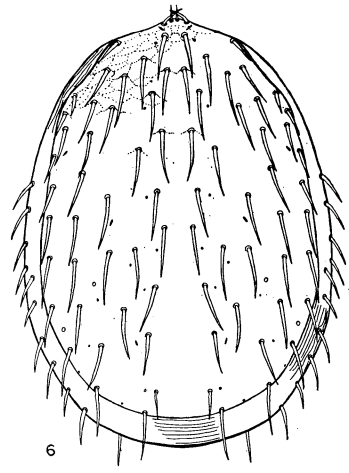

Fig. 6. *Laelaps quatei*, ♀, dorsal plate.

long, tubular, recurved. Tectum a membranous flap with an irregularly digitate anterior margin. Tritosternum with a weakly serrated, hyaline membrane each side of base; lacinae ciliated, the branches arising remote from base.

Average length of body, 530 microns, varying from 515–555; average length of dorsal plate, 500 microns.

Male and immature stages unknown.

Type host: *Peroryctes raffrayanus raffrayanus.*

Type locality: West New Guinea, Star Mts., Sibil Val., 1245 m, 18. X–8. XI. 1961.

Types: Holotype ♀ and 20 paratype ♀♀ all from the type host and locality. Collected by S. and L. Quate. Holotype and several paratypes in the Bishop Museum, Honolulu, Hawaii. Additional paratypes deposited with collaborating institutions.

Remarks: This mite is typically laelaptid in all its facies. It may be easily separated from all other species of *Laelaps* by the bifid spur of coxa I. The only other mite with bifid spurs remotely similar to this one is *Neoparalaelaps bispinosus*, but it has a narrow genitoventral plate bearing only the genital setae.

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