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FIVE NEW SPECIES OF ERIOPHYOID MITES
(ACARINA : ERIOPHYOIDEA)

BY

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ABSTRACT.

The following species are described for the first time — Phytopus rufensis from Luzula rufa var. rufa; Aceria healyi from Myoporum laetum; Acalitus tenuis from Coprosma tenuicaulis; Acalitus rubensis from Rubus schmidtiioides and Acalitus morrisoni from Nothofagus solandri. This is the first record of the genera Phytopus and Acalitus from New Zealand. The resultant damage caused by A. morrisoni and A. rubensis has been recognised previously, and its cause as being due to eriophyoid mites (MORRISON 1933, and LAMB 1960), but no descriptions of the mites have been published.

Type material and paratypes of all the species described here are deposited in the collection of the Department of Agriculture, Levin.

Keifer (1964) distinguishes three distinct families of eriophyoid mites, Phytoptidae, Eriophyidae and Rhyncaphytoptidae, and this classification is followed here.

Phytopidae Murray 1877.
Phytopidae (Sub fam. Acaridarum), Murray, Econ. Ent. Apt., p. 331.

Phytopus rufensis n. sp.
(fig. 1).

This is the first record of this family and genus from New Zealand. One of the main characteristics is the presence of four setae on the cephalothoracic shield. The species bears some resemblance to Phytopus montanus Keifer (1954), but can be distinguished chiefly by the rather long, backwardly directed posterior shield setae.

Female: 250 μ long, 66 μ wide, 61 μ thick, vermiform.
Rostrum 22 μ long, curved downwards.
Dorsal shield subsemicircular in outline, 33 μ long, 42 μ wide. Approximately 14 μ thick, longitudinal lines, some broken, present on the shield. Granular areas present anteriorly, and
antero-laterally. Anterior shield setae 23 µ apart, 9 µ long, projecting forwards. Dorsal tubercles 19 µ apart. Dorsal setae 15 µ long, directed posteriorly.

Forelegs 39 µ long, tibia 7 µ long, tarsus 6 µ long, claw 8µ long, feather claw 6 rayed. Tarsus with two setae, one of these twice as long as the other. Tibia with one short seta near apex and one thick claw like seta posteriorly. Patella and femur fused. Hindlegs 37 µ long, tibia 6.4 µ long, tarsus 6.4 µ long, claw 9 µ long. Tarsus with two setae, one about 1/3 as long as the other. Tibia without setae. Patella and femur fused. Sternum with a double, slightly curved, longitudinal line. Hind coxae lightly granular on inner side.

Abdomen with about 82 rings, microtuberculate, except for the last 11 rings, 5 being partly microtuberculate and the posterior 6 rings completely devoid of microtubercles. Microtubercles rounded or almost rectangular in shape, resting on body rings. Lateral seta 31 µ long, on about ring 11. First ventral seta 20 µ long, on about ring 27. Second ventral seta 17 µ long, on about ring 49. Third ventral seta 42 µ long on about 12th ring from the end. Accessory caudal seta
6-10 μ long. Genitalia 22 μ wide, 12 μ long. Coverflap, posteriorly, with two diagonal lines converging towards the centre. Genital seta 13 μ long.

**Type locality:** Dunstan Range, Central Otago, 2,800 feet altitude. Collected on 25-III-66 by B. P. J. Molloy.


Relation to host: Living in the flower bracts and causing abnormally deformed flower heads and shoot apices.

Type Material: a holotype slide, three paratype slides and dried material.

Eriophyidae Nalepa 1898.


*Acedia healyi* n. sp.

(fig. 2).

This species has few outstanding features by which it can be distinguished from allied forms. It is perhaps best differentiated by the almost complete lack of markings on the genital flap and the presence of a few peripheral lines, and a large irregularly outlined central area on the dorsal shield.

**Female:** 129 μ-164 μ long, 60 μ wide, 42 μ thick, fusiform.

Rostrum 24 μ long, curved downwards. Dorsal thoracic shield almost semi circular in outline, 25 μ long, 49 μ wide. Usually a few peripheral markings and a large central area outlined, as illustrated. In some specimens, dorsal shield markings are almost completely lacking. Dorsal tubercles prominent, arising from posterior shield margin, 27-31 μ apart. Dorsal setae 22 μ long, directed posteriorly.

Forelegs 30 μ long, tibia 4.0 μ long, tarsus 5.5 μ long, claw 6.6 μ long, feather claw 4-rayed. Hind leg 27 μ long, tibia 3.3 μ long, tarsus 5 μ long, claw 6.6 μ long.

Abdomen with about 50 rings, microtuberculate except for about the posterior 6 rings. Microtubercles rounded, fairly widely spaced, resting on or nearly on posterior ring margins. Lateral seta 17 μ long, on about ring 8. First ventral seta 35 μ long, on about ring 18. Second ventral seta 10 μ long, on about ring 28. Third ventral seta 11 μ long, on about 5th ring from the end. Accessory caudal seta just visible. Female genitalia 20 μ across, 13 μ long. Genital flap almost devoid of markings. Genital seta 10 μ long.

**Type locality:** Near Akaroa, Banks Peninsula. Collected on 15.1.68 by A. J. Healy.

Host: *Myoporum laetum* Forst. (Myoporaceae).

Relation to host: Forming numerous small brownish coloured pustule like galls on both leaf surfaces, although mainly on the under surface.

Type Material: a holotype slide, 5 paratype slides and dried material. Two of the slides have the same data as the holotype. The remaining three slides are as follows: ex leaf galls on *M. laetum* Forst, Dunlucce, CLARENCE R., Marlborough 8-V-66 A. J. Healy.

The species is named for Mr A. J. Healy who has collected a great deal of eriophyoid gall material.
Keifer (pers. comm.) states that some of the chief characters of this genus include the lack of the usual seta on the forefemur and foretibia, the granular nature of the coxae, and the advanced position of the first setiferous coxal tubercles. The genus is known to be world wide although some species have previously been described under different genera. As well as the three species described in this paper, *Vasates taurangensis* (Manson) and *Aceria blastofagi* Keifer should be included here.

**Acalitus tenuis** n. sp.

(fig. 3).

*Female:* 116–150 μ long, 48 μ wide, 39 μ thick, fusiform.

Rostrum 15 μ long, curved downwards. Dorsal thoracic shield almost semi-circular in outline, 21 μ long, 33 μ wide, with a small triangular shaped anterior shield lobe. Shield design not strongly demarcated. Admedian lines and one pair of submedian lines usually discernible. Lateral of these are two oval shaped areas, the inner one being largest. Granular areas above
coxae. Dorsal tubercles arising from posterior shield margin, prominent, 18 μ apart. Dorsal setae 20 μ-24 μ long, directed posteriorly.

Forelegs 22 μ long, tibia 2.8 μ long, tarsus 4 μ long, claw 5.8 μ long, feather claw 5-rayed. Hindleg 19 μ long, tibia 2 μ long, tarsus 3 μ long, claw 9.1 μ long. Coxae with granulations mainly on the inner sides. Double sternal line. Abdomen with about 36 rings, microtuberculate, except for about the last 6 rings which are almost devoid of microtubercles. Microtubercules, rounded, elongate, touching rear ring margins. Lateral seta 14 μ long, on about ring 8. First ventral seta 26 μ long, on about ring 19. Second ventral seta 22 μ long, on about ring 34. Third ventral seta on about 7th ring from the end, 12 μ long. Accessory caudal seta minute, about 1 μ long. Female genitalia 16 μ across, 12 μ long with about 8 longitudinal ribs. Genital seta 5 μ long.

**Type locality:** Patches of swampy scrub at sea level near Tauranga. Collected on 14-X-65 by Mr D. B. SMITH and forwarded to me by Mr M. HODGKINS.

**Host:** *Coprosma tenuicaulis* Hook. f. (Rubiaceae).

**Relation to host:** Forming roughened cladode galls up to 1 cm diameter.

**Type Material:** A holotype slide, 4 paratype slides and dried material.
Acalitus rubensis n. sp.
(fig. 4).

This species is very similar to Acalitus taurangensis (Manson) [= Vasates taurangensis] but can be chiefly differentiated in that it has 66-72 abdominal microtuberculate rings as compared with 50-55 in A. taurangensis. It is also similar to the Californian species Acalitus orthomera (K.) [= Aceria orthomera] but can be distinguished by its smaller size — 118-133 μ as compared with 180-200 μ, and also by its erineum forming habit. LAMB (1960, p. 132) lists a leaf erineum on Rubus schmiedelioiodes A. Cunn. caused by a gall mite, and an examination of this material (Trentham, 25-III-53, coll. A. J. HEALY) has shown the causal mite to be identical with A. rubensis.

**Female**: 118-133 μ long, 40 μ wide, 39 μ thick, fusiform.

Rostrum 17 μ long, curved downwards. Dorsal thoracic shield almost semi circular in outline, 21 μ long, 32 μ wide, with a small rounded anterior shield lobe. Dorsal shield design usually clearly visible: Median line slightly wavy; admedian lines, and usually two submedian lines, the outer line tending to fork or loop posteriorly. Some specimens may show more than two submedian lines, but the additional ones are usually much weaker. Granular areas present laterally, antero laterally and postero laterally. Dorsal tubercles arising from posterior shield margin, prominent, 20 μ apart. Dorsal setae 12-18 μ long, directed posteriorly.
Forelegs 29 μ long, tibia 3.5 μ long, tarsus 4.3 μ long, claw 5.5 μ long, feather claw 4-rayed. Hind leg 24 μ long, tibia 2.3 μ long, tarsus 3.0 μ long, claw 5.5 μ long. Sternal area, anterior coxae and inner side of posterior coxae lightly granulate. Longitudinal lines usually present in the sternal and anterior coxal region.

Abdomen with about 66-72 rings, completely microtuberculate except for about the last 5-6 rings. Microtubercles elongate, rounded, touching rear ring margins. Lateral seta 10 μ long, on about ring 8. First ventral seta 33 μ long, on about ring 23. Second ventral seta 10 μ long, on about ring 43. Third ventral seta on about 6th ring from the end, 16 μ long. Accessory caudal seta minute, about 1 μ long. Female genitalia 17 μ across, 14 μ long, with about 10 longitudinal ribs. Genital seta 7.5 μ long.

Type locality: Buller Road, Levin. Collected on 31.V.66 by D.C.M. Manson.

Host: Rubus schmideloides A. Cunn. (Rosaceae).

Relation to host: Forming a leaf erineum on the undersurface of the leaves.

Type material: A holotype slide and 4 paratype slides. Three of the slides with the same data as the holotype and the fourth as follows — ex Rubus schmideloides, Kimberley Reserve, Levin, 7.V.67. Miss A. Ward.

Acalitus morrisoni n. sp. (fig. 5).

This species can be distinguished by the 5-rayed feather claw, light crescentic scoring on the genital cover flap, and the extreme reduction of the first coxal setae, so that they are scarcely visible.

Morrison (1933) first recorded eriophyoid mites causing an enlarged and unhealthy condition of buds of Nothofagus solandri at Oxford, and it seems probable that this is the same species as described here.

Female: 140-153 μ long, 38 μ wide, 30 μ thick, vermiform. Rostrum 13 μ long directed forwards and downwards. Dorsal thoracic shield almost semi circular in shape, 18 μ long, 32 μ wide. Dorsal shield markings may be absent, or at the most with a few light longitudinal lines. Dorsal tubercles prominent, arising from posterior shield margin, 16 μ apart. Dorsal setae 24 μ long, directed posteriorly.

Fore legs 22.5 μ long, tibia 3.5 μ long, tarsus 4.5 μ long, claw 4.5 μ long, feather claw 5-rayed. Tarsus with one very long and one very short seta. Hind legs 21.5 μ long, tibia 2.6 μ long, tarsus 4 μ long, claw 5.2 μ long. Sternum with a central longitudinal line, forked posteriorly. Abdomen with about 74 rings, almost completely microtuberculate. Microtubercles rounded, resting on body rings. Lateral seta 12 μ long, on about ring 10. First ventral seta 37 μ long, on about ring 22. Second ventral seta 4 μ long, on about ring 41. Third ventral seta 20 μ long, on about 6th ring from the end. Accessory caudal seta minute, about 1 μ long. Genitalia 14 μ across, 8 μ long. Light, indistinct crescentic scoring on genital flap. Genital seta 2 μ long.

Type locality: Staveley, near Methven. Collected on 16-I-68 by A. D. Lowe.

Host: Nothofagus solandri (Hook. f.) Oerst. (Fagaceae).

Relation to host: Forming bud galls up to 2 cm diameter.

Type material: A holotype slide and two paratype slides, all with the same data.

This species is named in honour of the late Mr L. Morrison, who was the first person to place on record the distinctive damage caused by this mite.
Fig. 5: Acalitus morrisoni n. sp.

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1. — Cladode stem galls on Coprosma tenuicaulis, caused by Acalitus tenuis.
2. — Gall on Notofagus solandri, caused by Acalitus morrisoni.
3. — Flower heads of Luzula rufa Edgar var. rufa infested with Phytoptus rufensis.
4. — Leaf erineum on Rubus schmideloides caused by Acalitus rubensis.
5. — Leaf of Myoporum laetum damaged by Aceria healyi.