

NEW SPECIES AND NEW RECORDS OF ERIOPHYID MITES  
(ACARINA : ERIOPHYIDAE) FROM NEW ZEALAND AND THE PACIFIC AREA

BY

D. C. M. MANSON.

*Horticultural Research Centre Department of Agriculture, Levin, New Zealand.*

*Abstract.*

Four new species are described : *Aceria parvensis* from *Stellaria parviflora* ; *Eriophyes duguidae* from *Raoulia tenuicaulis* ; *Acalitus lowei* from *Nothofagus solandri* and *Phyllocoptes acuminatus* from leaves of *Codiaeum* sp. intercepted in quarantine from Western Samoa and Fiji. *Acalitus orthomera* (Keifer) and *Tegolophus australis* Keifer are recorded for the first time. Eriophyid leaf galls have previously been recognised from *Nothofagus solandri* by LAMB (1960) but the causal mite has never been described.

All holotype and paratype slides are deposited in the collection of the Department of Agriculture, Levin.

***Aceria parvensis* n. sp.**

(Fig. 1)

This is the first eriophyid mite to be described from *Stellaria parviflora*. It differs from most species of *Aceria* in the rather robust shape, the presence of a 7-rayed featherclaw and the differentiation between tergites and sternites, microtubercles being present on the sternites, but at the best, only faintly visible on the tergites.

Female : 145  $\mu$ -192  $\mu$  long, 68  $\mu$  wide, 63  $\mu$  thick, robust ; colour in life pale orange. Rostrum 21  $\mu$  long, curved downwards, antapical seta 9  $\mu$  long. Shield 39  $\mu$  long, 50  $\mu$  wide ; semi circular in outline with short, blunt, anterior median projection. Median line present on posterior 1/2 of shield. Admedian lines complete, forked posteriorly ; first submedian line extending about 2/3 length of dorsal shield and meeting or almost meeting lateral fork of admedian line ; second submedian line present, sometimes branched posteriorly ; a clearly demarcated lateral line lies outside these and beyond this some granulation. Occasional dashes scattered over basal part of shield. In some specimens lines outside the first submedian line may be missing, and dashes may be quite extensive. Dorsal tubercles on rear shield margin, 27  $\mu$  apart ; dorsal seta 51  $\mu$  long, directed caudad.

Foreleg 45  $\mu$  long, tibia 11  $\mu$  long with 8  $\mu$  seta from about 1/4 ; tarsus 7  $\mu$  long, claw 8  $\mu$  long, featherclaw 7-rayed. Hindleg 41  $\mu$  long ; tibia 10  $\mu$  long ; tarsus 7  $\mu$  long, claw 7.7  $\mu$  long. Coxae with dash type markings ; sternum with central dagger like marking. First setiferous tubercles further apart than second ; second tubercles slightly ahead of line through third tubercles. Abdomen with approx. 60 rings, sternites with rounded microtubercles ; tergites with microtubercles either absent or faintly demarcated in some specimens ; posterior 6 rings devoid of micro-

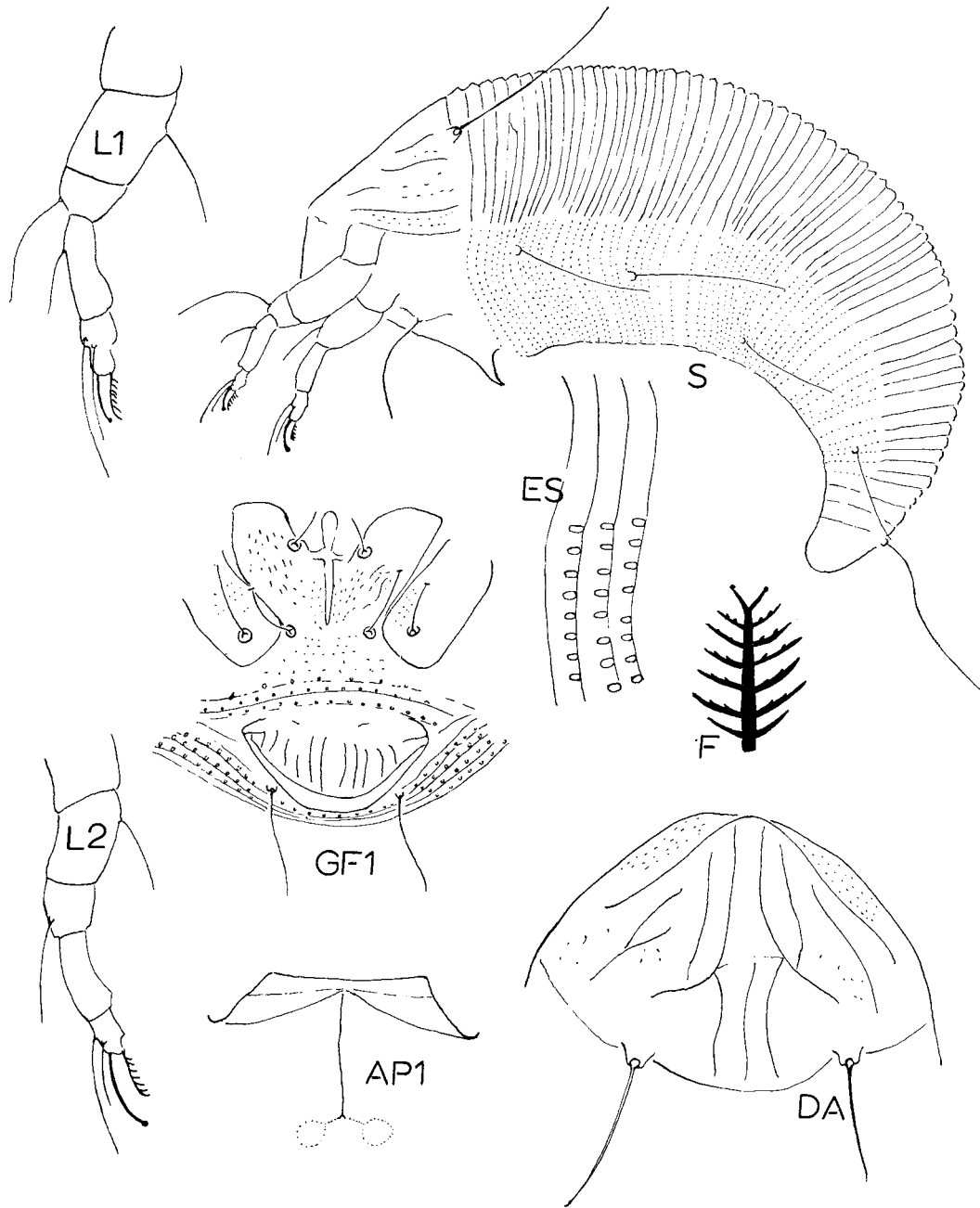


FIG. 1 : *Aceria parvensis* n. sp.

AP1 : Internal female genitalia. — DA : Dorsal view of shield. — ES : Side skin structure. — F : Feather claw.  
— GF1 : Female genitalia and coxae from below. — L1 : Foreleg. — L2 : Hindleg. — S : Side view of  
adult mite.

tubercles ; microtubercles resting on ring margins. Lateral seta on about ring 8, 44  $\mu$  long ; first ventral seta on about ring 21, 46  $\mu$  long ; second ventral seta on about ring 38, 15  $\mu$  long ; third ventral seta on 6th ring from end, 30  $\mu$  long. Accessory caudal seta 3.8  $\mu$  long. Female genitalia 25  $\mu$  across, 16  $\mu$  long ; coverflap with about 10-14 longitudinal ribs. Genital seta 15  $\mu$  long.

Type locality : Coppermine Creek, Maharahara West, north of Woodville (Eastern foothills of the Ruahine Range).

Collected : 12 January 1969 by Mrs F. C. DUGUID.

Host : *Stellaria parviflora* Banks et Sol. ex Hook f., Caryophyllaceae. A herb growing in the bush edge.

Relation to host : Causing bud deformation.

Type material : A holotype slide and three paratype slides. Also dry plant material.

### **Eriophyes duguidae n. sp.**

(Fig. 2)

This is the first eriophyid mite to be described from *Raoulia tenuicaulis*. The distinctive features separating it from other New Zealand species are the distinctive shape and design of the dorsal shield and the long, forwardly directed dorsal setae.

Female : 135  $\mu$ -192  $\mu$  long, 51  $\mu$  wide, 55  $\mu$  thick, fusiform, colour brownish. Rostrum 23  $\mu$  long, curved downwards, antapical seta 4.5  $\mu$  long. Shield 25  $\mu$  long, 35  $\mu$  wide, subsemicircular in outline, slightly emarginate anteriorly. Median line present on basal 1/4 of shield, faintly discernible anteriorly in some specimens ; admedian lines on basal 1/3 of shield, faintly discernible anteriorly in some specimens ; submedian line present on basal 1/3 of shield ; faint oval shaped area lateral of this, and irregular diagonal markings at sides of shield. Dorsal tubercles anterior of rear shield margin, 19  $\mu$  apart ; dorsal seta 42  $\mu$  long, projecting forwards.

Foreleg 30  $\mu$  long ; tibia 5.2  $\mu$  long with 3.3  $\mu$  seta at almost 1/2 ; tarsus 5  $\mu$  long, claw 8  $\mu$  long, featherclaw 4 or 5 rayed. Hindleg 28  $\mu$  long, tibia 5  $\mu$  long, tarsus 5.2  $\mu$  long, claw 8.4  $\mu$  long. Coxae with a few faint dashes. Sternum with central dagger shaped mark, forking posteriorly. Abdomen with approx. 70 microtuberculate rings, microtubercles rounded or elongate usually resting on rear ring margins. Lateral seta on about ring 11, 22  $\mu$  long ; first ventral seta on about ring 26, 25  $\mu$  long ; second ventral seta on about ring 41, 16  $\mu$  long ; third ventral seta on 6th ring from end, 25  $\mu$  long. Accessory caudal seta just perceptible, 0.6  $\mu$  long. Female genitalia 21  $\mu$  across, 9.5  $\mu$  long ; coverflap with 5 or 6 longitudinal ribs. Genital seta 9  $\mu$  long.

Type locality : Coppermine Creek, Maharahara West, north of Woodville (Eastern foothills of the Ruahine range). A mat plant growing in the creek bed on gravel.

Collected : 12 January 1969 by Mrs F. C. DUGUID.

Host : *Raoulia tenuicaulis* Hook. f., Compositae.

Relation to host : Causing swollen leaf buds.

Type material : Holotype slide and three paratype slides. Also dried plant material.

The species is named for Mrs DUGUID who collected both this and the previous species.

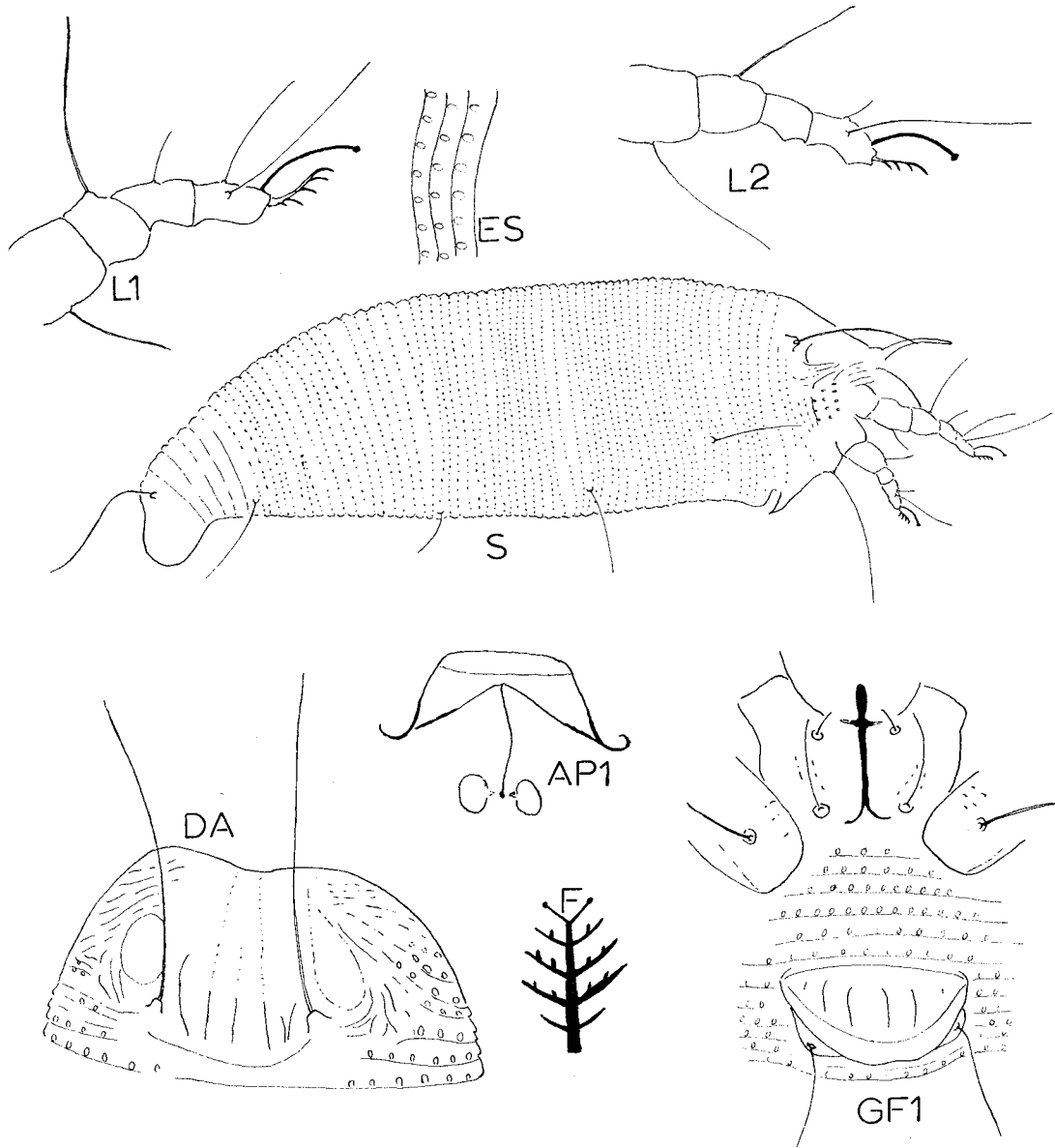


FIG. 2 : *Eriophyes duguidae* n. sp.

AP<sub>I</sub> : Internal female genitalia. — DA : Dorsal view of shield. — ES : Side skin structure. — F : Feather claw. — GF<sub>I</sub> : Female genitalia and coxae from below. — L<sub>I</sub> : Foreleg. — L<sub>2</sub> : Hindleg. — S : Side view of adult mite.

***Acalitus lowei* n. sp.**

(Fig. 3)

This mite causes leaf pouch galls on *Nothofagus solandri*, the galls having previously been recorded by LAMB (1960, p. 127), although the causal mite has not been described.

The only other gall mite described from *N. solandri* is *Acalitus morrisoni* Manson which causes a bud gall. *A. lowei* can be distinguished by having longitudinal scoring instead of crescentic scoring on the coverflap and by having a 4 rayed instead of 5 rayed featherclaw. Morphologically, *A. lowei* most closely resembles *Acalitus taurangensis* (Manson) (= *Vasates tau-*

*rangensis*) which causes purple papillate leaf galls on *Coprosma tenuicaulis*, but differs in the shorter lengths of the body setae, particularly, the dorsal and first ventral setae. Otherwise the main differences lie in the differing hosts and differing gall structures.

Female : 125-159  $\mu$  long, 50  $\mu$  wide, 39  $\mu$  thick, fusiform. Rostrum 16  $\mu$  long, curved downwards. Dorsal shield 23  $\mu$  long, 35  $\mu$  wide. Median shield line present on rear 1/3 of shield. Admedian lines complete, sub parallel, diverging slightly posteriorly. First submedian line

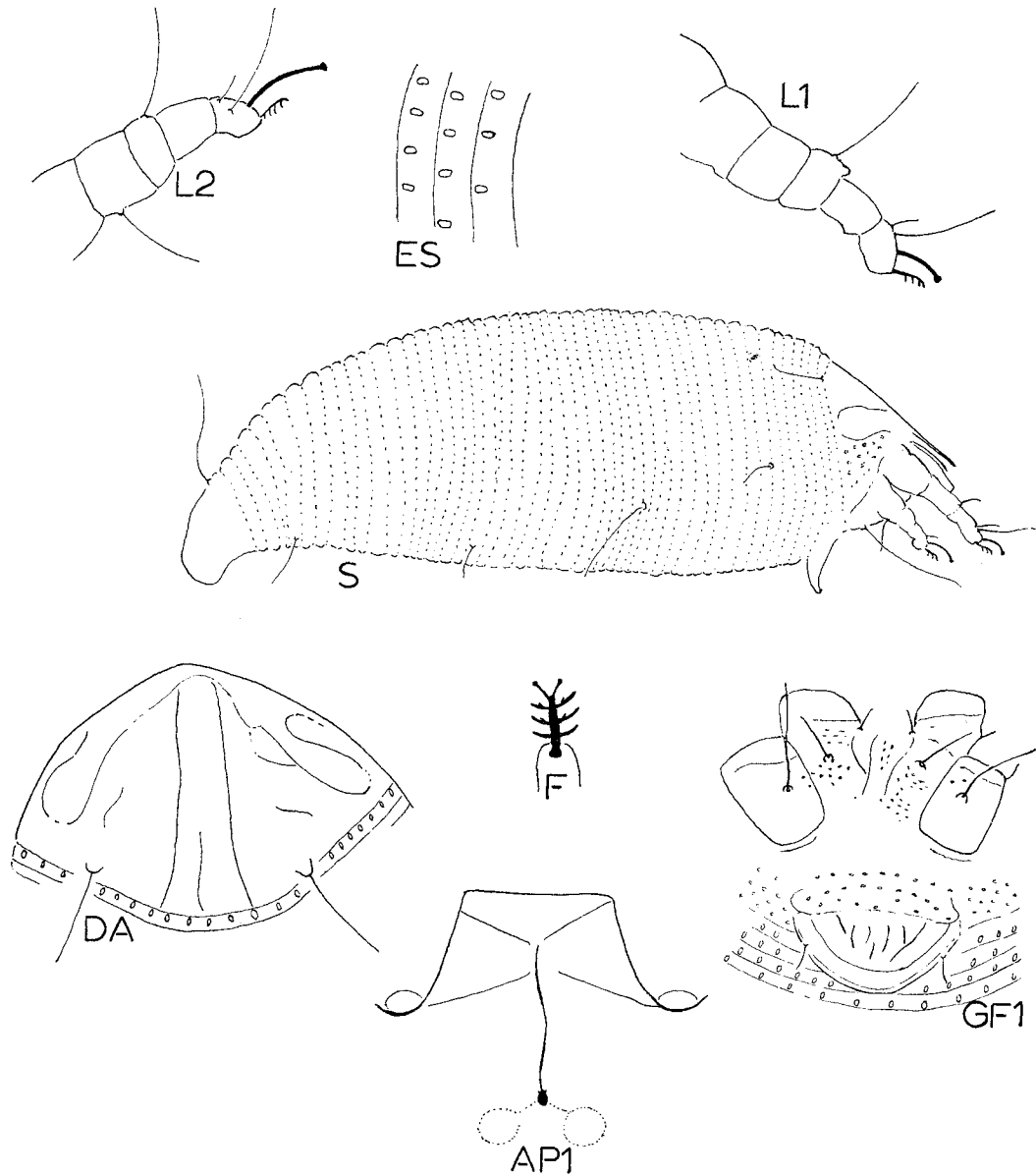


FIG. 3 : *Acalitus lowei*.

AP1 : Internal female genitalia. — DA : Dorsal view of shield. — ES : Side skin structure. — F : Feather claw. — GF1 : Female genitalia and coxae from below. — L1 : Foreleg. — L2 : Hindleg. S : Side view of adult mite.

short, diagonal, on posterior part of shield only. Second submedian line usually complete, branched or looped posteriorly. Dorsal tubercles arising from posterior shield margin, 20  $\mu$  apart, each dorsal seta 13  $\mu$  long, directed caudally, diverging.

Forelegs 22  $\mu$  long, tibia 3  $\mu$  long, tarsus 3.5  $\mu$  long, claw 4.5  $\mu$  long, feather claw four rayed. Hind legs 19  $\mu$  long, tibia 2  $\mu$  long, tarsus 4  $\mu$  long, claw 7.2  $\mu$  long. Anterior coxae with granules on inner side; posterior coxae almost devoid of granules. Sternum with several short longitudinal

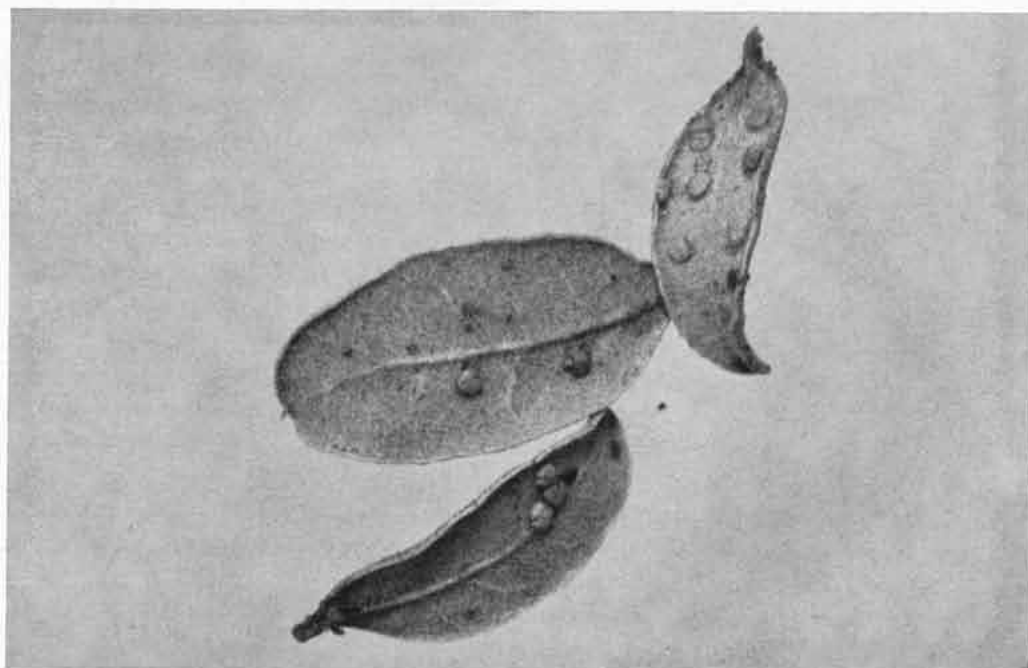


PLATE A : Leaf galls formed by *Acalitus lowei* n. sp. on *Nothofagus solandri*.

lines. First setiferous coxal tubercles closer together than second and pushed ahead to near anterior end of coxae. Abdomen with about 52 microtuberculate rings. Microtubercles rounded, elongate, usually resting on or slightly in advance of rear ring margins. Lateral seta 10  $\mu$  long, on about ring 8. First ventral seta 29  $\mu$  long, on about ring 19. Second ventral seta 6  $\mu$  long, on about ring 33. Third ventral seta 12  $\mu$  long, on about 6th ring from the end. Accessory caudal seta not apparent. Female genitalia 17  $\mu$  wide, 12  $\mu$  long, coverflap basally with large granules, remainder of cover flap with about 7 longitudinal markings, as illustrated. Genital seta 4  $\mu$  long.

Type locality : Staveley, near Methven.

Collected : 13.XII.68 by A. D. LOWE.

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

Relation to host : Forming small (approx. .6 mm diam.) pouch galls on undersurface of leaves.

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

Dried plant material with identical galls and mites was examined as follows : ex *Nothofagus solandri*, beech forest remnant, Animal Research Station, Wallaceville, Upper Hutt, 18-XII-52, coll. A. J. HEALY. Ex *Nothofagus cliffortoides* (Hook. f.) Oerst., National Park, March 1955,

coll. B. J. HOOTON. Ex *Nothofagus cliffortoides*, Sugar loaf bush, Cass, Canterbury, 21-V-59, coll. P. EVANS. The first two samples are those mentioned by LAMB (1960).

It is a pleasure to name this mite for Mr A. D. LOWE who has sent this and other interesting species of mites over recent years.



PLATE B : Enlarged view of leaf galls formed by *Acalitus lowei* n. sp. on *Nothofagus solandri*.

***Phyllocoptes acuminatus* n. sp.**

(Fig. 4)

This species has been intercepted on a number of occasions on plant material entering New Zealand, but is not believed to be established here. It is tentatively assigned to the genus *Phyllocoptes*. Mr H. H. KEIFER (pers. comm.) having pointed out the significance of the transverse interior apodemes, and the appressed genitalia with the ribs in two ranks, characters alluding it with members of the sub-family Cecidophyinae (KEIFER 1966). Other characteristic features distinguishing it from allied species are the acutely produced anterior shield lobe, long, forwardly directed shield setae and 5-rayed featherclaw.

Female : 117  $\mu$ -157  $\mu$  long, 44  $\mu$  wide, 41  $\mu$  thick, fusiform, white in colour. Rostrum 22  $\mu$  long curved downwards, antapical rostral seta absent. Shield 21  $\mu$  long, 31  $\mu$  wide, semicircular in outline with an anterior beak like projection, this, and the anterior part of the shield usually being of a more distinctive darker colouration than the remainder of the shield. Shield almost devoid of markings except for three short longitudinal lines on the basal area near each tubercle. Dorsal tubercles anterior of rear shield margin, 18  $\mu$  apart ; dorsal seta 19  $\mu$  long, projecting forwards.

Foreleg 25  $\mu$  long ; tibia 3  $\mu$  long with 3  $\mu$  seta at about 2/3 ; tarsus 4.5  $\mu$  long ; claw 4  $\mu$  long ; feather claw 5 rayed. Hindleg 19  $\mu$  long ; tibia 2.7  $\mu$  long ; tarsus 4.0  $\mu$  long ; claw 6.5  $\mu$  long. Coxae almost devoid of markings. Three or four indistinct longitudinal markings between 2nd coxal tubercles. Abdomen with about 52 rings, all microtuberculate except the last 10-12

which are devoid of microtubercles ; microtubercles elongate oval, resting on rear ring margins. Lateral seta on about ring 7,  $9\ \mu$  long ; first ventral seta on about ring 20,  $23\ \mu$  long ; second ventral seta on about ring 30,  $46\ \mu$  long ; third ventral seta on 6th ring from end,  $18\ \mu$  long. Accessory caudal seta absent. Female genitalia  $21\ \mu$  across,  $8\ \mu$  long ; coverflap with 10-12 longitudinal ribs. Genital seta  $2\ \mu$  long.

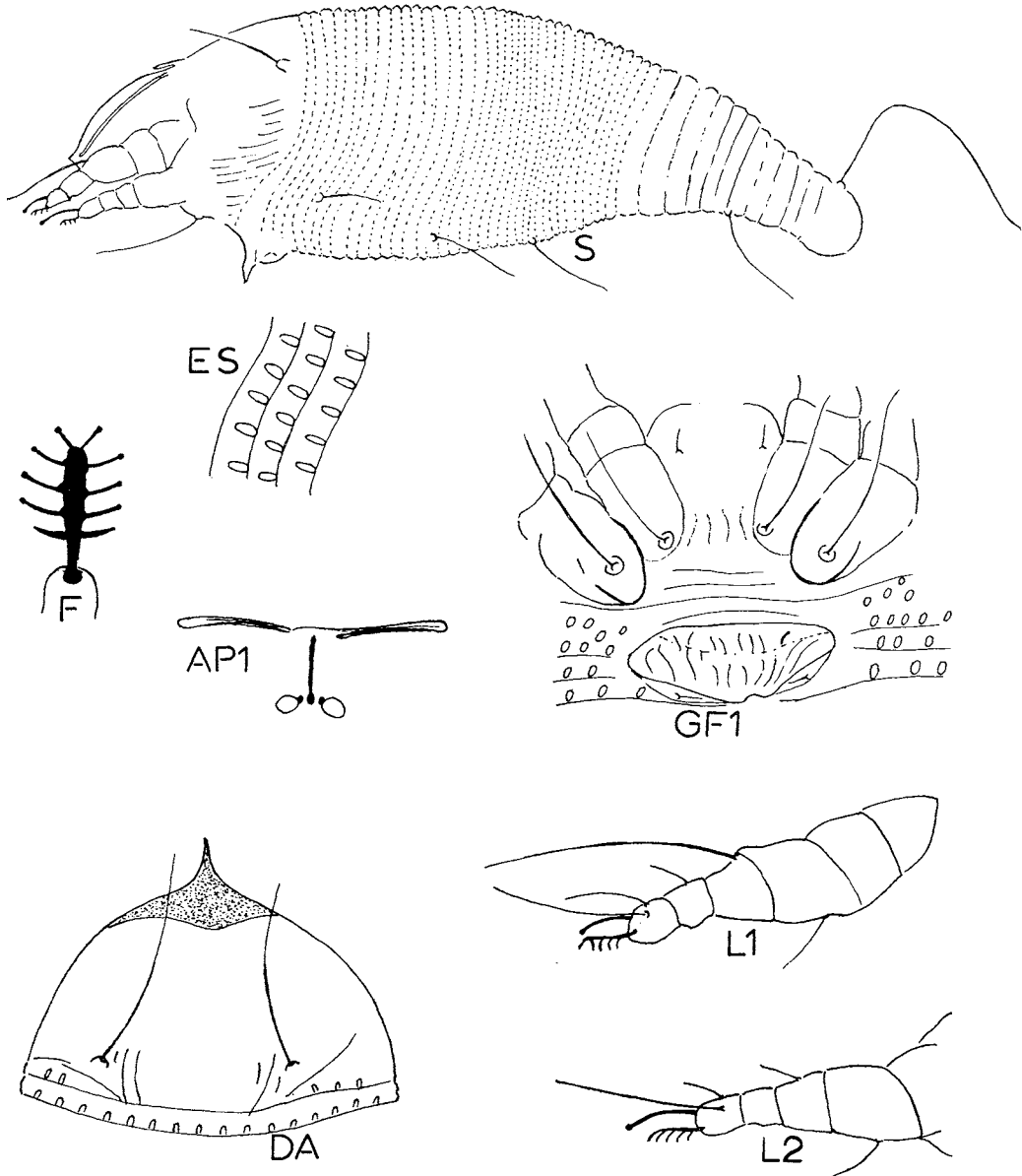


FIG. 4 : *Phyllocoptes acuminatus* n. sp.

AP<sub>1</sub> : Internal female genitalia. — DA : Dorsal view of shield. — ES : Side skin structure. — F : Feather claw. — GF<sub>1</sub> : Female genitalia and coxae from below. — L<sub>1</sub> : Foreleg. — L<sub>2</sub> : Hindleg. — S : Side view of adult mite.



Type locality : Western Samoa.

Collected : 17 September 1969 by D.C.M. MANSON from plant material intercepted in quarantine.

Host : *Codiaeum* sp. Euphorbiaceae.

Relation to host : Found on the leaves of the host plant under dead scale insects, *Parlatoria crotonis*.

Type material : Holotype slide and one other slide with same data as above. Other slides, all from the same host are as follows : Fiji, 25-VII-63, 30-VIII-64, Samoa 9-VI-64 ; Fiji, 19-VII-66, under dead scale insects and whitefly pupae (*Orchamoplatus mammaeferus*). All specimens collected by D. C. M. MANSON from material intercepted in quarantine.

The following species of eriophyid mites are recorded in New Zealand for the first time :

*Acalitus orthomera* (Keifer).

*Aceria orthomera* Keifer, 1951. Bull. Calif. Dept. Agr., XL : 3 : 94-95.

*Acalitus orthomera* (Keifer), 1965. Eriophyid Studies B-16, p. 15. Bur. ent. Cal. Dept. Agr.

Specimens of this species were found in association with *Acalitus essigi* (Hassan) on boysenberry fruit (*Rubus* hybrid cv Boysen) from Hastings on 7-II-69 (Coll. Mr J. C. TODD). Mr TODD stated that the fruit had come from several properties in Hastings and showed typical "redberry" effect, approximately 5 %-10 % of the fruit being affected, mostly later maturing fruit. The bottom half of each fruit was red and the top half properly ripe on specimens examined. Cutting open the fruit revealed live mites, all stages being present. KEIFER (1952) recorded this species on native blackberry, *Rubus vitifolius* C. & S. from California where it was found inhabiting the buds. It was also found on boysenberry, attacking the buds and causing warty outgrowths at the base of drupelets in the berries. It is commonly known as the «Boysenberry bud mite».

*Tegolophus australis* Keifer.

*Tegolophus australis* Keifer, 1964. Eriophyid Studies B-12, pp. 1-2 Bur. ent. Cal. Dept. Agr.

Specimens of this mite were collected on *Citrus* sp. at Whangarei on 28-X-66 and 8-XII-66 by Mr W. STACEY, and forwarded to me by Mrs Brenda M. MAY. They were wandering over the leaf surface, being found in association with the citrus bud mite, *Aceria sheldoni*. KEIFER originally described the species from *Citrus sinensis* Osb. at Somersby, New South Wales, Australia. They are known as the "brown rust mite".

ACKNOWLEDGEMENTS.

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