

New records of plant pests in New Zealand

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ABSTRACT

Three insect pests (*Coccus elongatus* (Signoret), *Aleyrodes proletella* (L.) and *Prays nephelomima* Meyr.) and two mites, (*Tarsonemus waitei* Banks and *Phyllocoptruta oleivora* (Ashmead)) are recorded from New Zealand for the first time. In addition pests are recorded from 12 new host plants. A mealworm (*Alphitobius diaperinus* (Panz.)) is recorded as attacking polystyrene insulation, and the range of known occurrence of Australian Soldierfly (*Inopus rubriceps* (Macq.)) is extended northward to Kaikohe.

INTRODUCTION

The following items are drawn from the records of the Plant Health Diagnostic Station at Auckland, out of approximately 4000 entomological enquiries dealt with between 1970 and 1975.

Specimens of the new pests listed are held in the collection of Entomology Division, DSIR, Auckland. Specimens representing new host records only are held in the Plant Health Diagnostic Station collection and can be referred to by the accession number given in parentheses after each record.

New pests

1. *Aleyrodes proletella* (L.) (Homoptera: Aleyrodidae) the cabbage whitefly, was observed on cabbages at Auckland by B. B. Given in January 1975. Identified P.S.D.; confirmed L. A. Mound.

A. proletella (Fig. 1) differs from the common greenhouse whitefly (*Trialeurodes vaporariorum* (Westw.)) in having the wings faintly marked with smokey areas on the distal halves, in being more rounded and less acutely triangular in its general outline, and in its habit of frequenting brassicas. The nymphs of *A. proletella* are more flattened and shiny than those of *T. vaporariorum* and they have a rather more distinct white waxy fringe.

The cabbage whitefly occurs in South America, Africa, and the Middle East, and is regarded as a

minor pest of brassicas in Britain. Its adults remain active through the British winter. It has been recorded overseas from *Vicia* sp., *Cichorium* sp., and *Sonchus* sp. as well as brassicas (Mound 1966), and in Auckland it has been found on dandelion (*Taraxacum officinale*) as well as cabbage, brocolli, and Brussels sprouts. E. W. Valentine (pers. comm.) has observed parasitised specimens at Auckland.

2. *Coccus elongatus* (Signoret) syn. *Lecanium longulum* Douglas (Homoptera: Coccidae) the long brown scale, was found on papyrus leaves (*Cyperus papyrus*) at Auckland in 1973. Identified P.S.D.; confirmed J. W. Beardsley. The adult scale is at first flattened, elongate (4 to 6 mm), and transparent with greyish reticulate markings and conspicuous eyes. It becomes brown and convex as it matures. It is widespread in the tropics and subtropics and has been recorded from many hosts including *Acacia*,



Fig. 1—Cabbage whitefly (*Aleyrodes proletella*) and eggs.

[B. B. Given, photo

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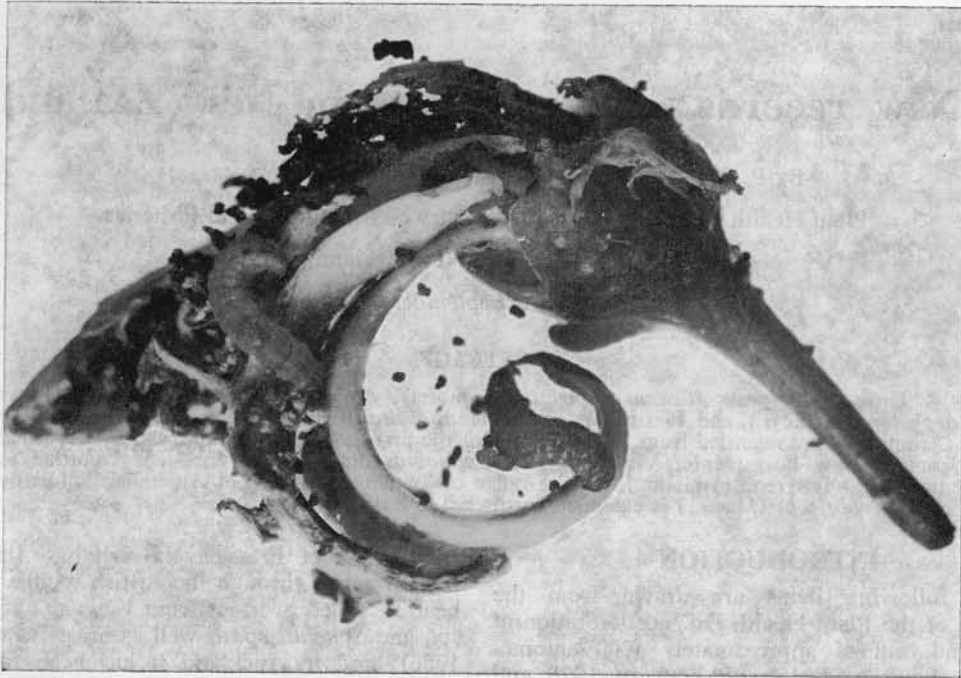


Fig. 2—Citrus flower moth (*Prays nephelomima*) caterpillar damaging lemon flower.
[Entomology Division DSIR, photo]

Bambusa, *Citrus*, and *Metrosideros*. It is not regarded as a serious pest (Zimmerman 1948).

3. *Prays nephelomima* Meyr. (Lepidoptera: Yponomeutidae), one of the citrus flower moths, was found by P. R. Sale on lemon flowers at Tauranga in March 1975. Identified J. S. Dugdale on the basis of Australian material determined and compared with type by I. F. Common, CSIRO.

P. nephelomima is a small (4 mm long) grey and paler grey banded moth which rests with the wings wrapped close to the body, giving it a subcylindrical form. Its larvae bore into the petals or receptacle of citrus flower buds causing premature flower drop or fruit distortion (Fig. 2). The caterpillar is pale greenish with pink transverse bands and is sluggish (in contrast to leaf-roller caterpillars). It produces fine webbing in which particles of frass become suspended. The cocoon, generally on the foliage, is a flimsy network enclosing the rather stumpy, square-shouldered pupa.

The citrus flower moth is known to occur at Kerikeri, Auckland, Gisborne, and in the Bay of Plenty. Overseas, *Prays citri* (which Liotta & Mineo (1963) regard as synonymous with *P. nephelomima*) occurs on many varieties of citrus throughout the Mediterranean region. In

Sicily it may achieve as many as 11 generations per year. *P. nephelomima* is known from New South Wales and Southern Queensland. DDT, dimethoate, and diazinon have been used for control.

4. *Phyllocoptruta oleivora* (Ashmead) (Acarina: Eriophyidae), the citrus rust mite was found on grapefruit in Auckland in May 1975. Identified D. C. M. Manson; confirmed G. W. Ramsay.

This mite, regarded in other citrus growing areas of the world as the most important of the several eriophyid mites which attack citrus, causes dark brown russetting of the fruit where it is exposed to sunlight (Fig. 3). It also causes minor distortion of the foliage. A survey has shown the mite to be widely distributed in unsprayed gardens in the Auckland area. Russetting of a similar kind was observed on grapefruit at Epsom (Auckland) in 1961, but *P. oleivora* was not identified on that occasion.

P. oleivora is known from most citrus growing areas of the world, including Australia, Fiji, and the Cook Islands. The russetting was a common, indeed a characteristic, feature of "island" oranges imported into New Zealand during and after World War II, and it may be presumed that this was the source of the present infestation. Probably, *P. oleivora* has been present at low

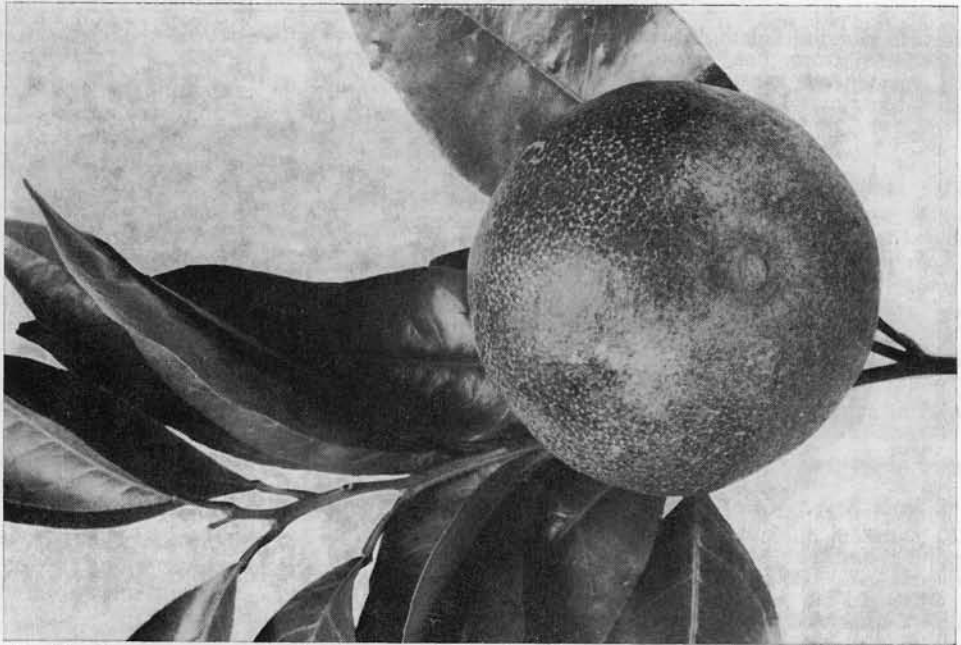


Fig. 3—Russet on grapefruit after attack by the citrus rust mite *Phyllocoptruta oleivora*. [Entomology Division DSIR, photo]

levels for many years and the marginal climate here, combined with the susceptibility of the mite to chemical sprays, has prevented its becoming a problem. Last year's mild winter may have given rise to the current noticeable levels of infestation.

Metcalf *et al.* (1962) recommend lime sulphur or zineb for control. Endosulfan may also be effective.

5. *Tarsonemus waitei* Banks (Acarina: Tarsonemidae) the peach bud mite was found on glasshouse tomatoes at Whangarei by R. F. Barber in January 1974. Identified E. E. Lindquist.

The mite was associated with premature flower drop, and darkening and distortion of fruit and leaves of affected tomatoes. Whether it was directly responsible for the damage or was in some way acting in conjunction with fungal infection has not been determined.

The same mite has since been identified from feijoa (*Acca sellowiana*) showing fruit distortion at Tauranga, but again its precise significance has not been established.

In the United States *T. waitei* attacks the growing terminal twigs of peach trees inducing galls, blackening, and the production of many small lateral twigs (Banks 1915).

Endosulfan is recommended for control.

New host plants

1. *Calocoris norvegicus* Gmel. (Heteroptera: Miridae) potato capsid, on asparagus (*Asparagus officinalis*) Dannevirke 15.11.73 R.M.F. (2219), causing withering and bursting of spears.

2. *Delia platura* (Meig.) syn. *Hylemya cana* (Macq.) (Diptera: Anthomyiidae), in rotting anemone corms (*Anemone coronaria*) Wellington City Council 1.5.73. M. J. A. (1897).

3. *Eumerus strigatus* Fall. (Diptera: Syrphidae) the lesser bulb fly, in stems of potato (*Solanum tuberosum*) causing minor but widespread damage in the crop. Chapman, Pukekawa 10.3.75. R.J.W. (3548). This species has been recorded previously in association with cooked potato chips at Kawakawa 25.5.71 (1101).

4. *Heliothrips haemorrhoidalis* Bouché (Thysanoptera: Thripidae) greenhouse thrips, on rewarewa (*Knightia excelsa*) Auckland 18.1.74. M.J.A. (2366).

5. *Hemitarsonemus latus* (Banks) *sensu* Beer (Acarina: Tarsonemidae) the broad mite, on *Macadamia*. Endt, Titirangi, Auckland 8.3.74. M.J.A. (2492). *H. latus* is an occasional pest of glasshouse ornamentals and nursery plants, causing bud and leaf distortion. Its presence on macadamia seedlings in the field may have originated from the nursery.

6. *Pemphigus bursarius* (L.) (Homoptera: Pemphigidae), on lucerne roots (*Medicago sativa*)

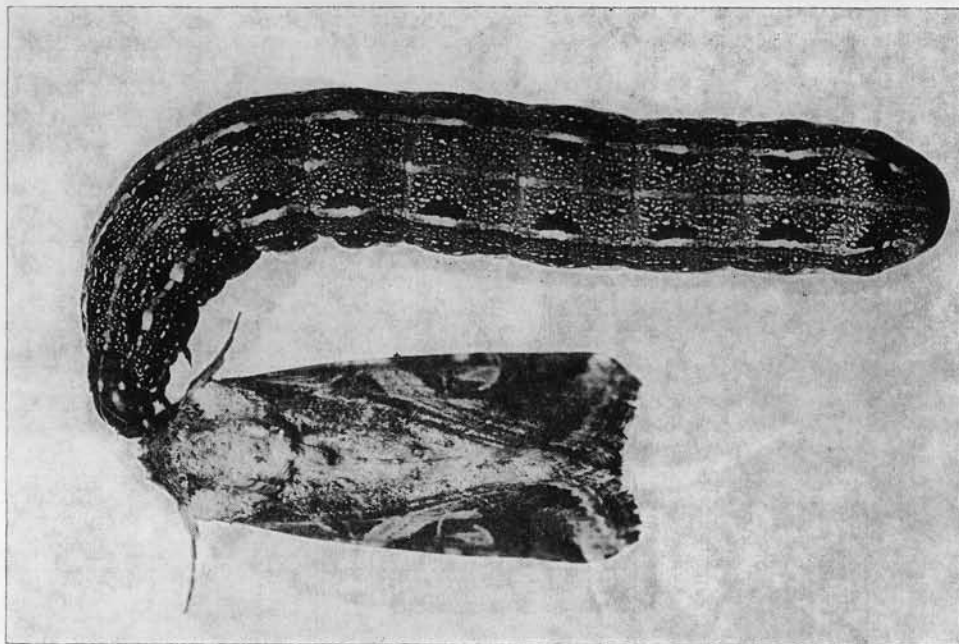


Fig. 4 — Caterpillar and moth of the tropical armyworm *Spodoptera litura*.
[Entomology Division DSIR, photo]

McCreadie, Taupo 31.5.74. C. F. H. (2724).

7. *Rhizoecus falcifer* Kunckel d'Herculais (Homoptera: Pseudococcidae), on *Hibiscus* sp. Auckland 25.9.74. M.J.A. (2892); and on tomato (*Lycopersicon esculentum*) causing serious debility of outdoor tomatoes. Bigby, 3 Cotter Ave, Remuera, Auckland 21.11.74. (3026)

8. *Rhizoecus perprocerus* De Lotto (Homoptera: Pseudococcidae), on Mercury Bay weed (*Dichondra repens*) Hall, Wilson Ave, Whangarei 1.10.74. K.C.G. (2904).

9. *Rhizoecus plantaginis* Hambleton (Homoptera: Pseudococcidae), on strawberry (*Fragaria* sp.) Neems, Ranui, Auckland 24.9.74. A.D.C. (2887); and on Mercury Bay weed (*Dichondra repens*) Hall, Wilson Ave, Whangarei 1.10.74. K.C.G. (2904).

10. *Rhopalosiphum maidis* (Fitch) (Homoptera: Aphididae), on sorghum (*Sorghum vulgare*) Lands and Survey, Cape View, Kaitaia 31.1.74. A.F.R. (2386).

11. *Spodoptera litura* (F.) syn. *Prodenia litura* (F.) (Lepidoptera: Noctuidae) tropical armyworm, on: broom corn (*Andropogon sorghum*) Gardiner, Glorit, 10.1.75. R.K.W. (3229); silver-beet (*Beta vulgaris*) and cabbage (*Brassica oleracea*) Jelcich, 12 Turakina St, Grey Lynn 24.3.75. (3373); clover (*Trifolium repens*) Malcolm, Hikurangi 25.3.75. D.D.H. (3383);

celery (*Apium graveolens*) Clark, 17 Garden Tce, Pukekohe R.J.W. (3556); *Dahlia* sp., beans (*Phaseolus vulgaris*), inkweed (*Phytolacca octandra*) Roberts, Omaha 18.3.75. P.S.D.; kumara (*Ipomoea batatas*) (in stored tubers), Evans, Naumai 10.6.75 (3681); *Gladiolus* sp. (damaging stored corms). Sliker, Riverhead 28.4.75. W.C.P. (3577).

S. litura (Fig. 4) has been reported in New Zealand (under the name of *Prodenia litura*) as a migrant species on many occasions (Fox, 1970, 1971, 1972, 1973, 1975). Specimens in Entomology Division DSIR collection include adults and larvae from tobacco at Riwaka (Nelson) as early as 1955, and an adult taken at Nelson in 1963. In July 1973 B. B. Given obtained a larva from pasture at Te Kao (Northland), and this was the first indication of the larva over-wintering in New Zealand. Fox (1975) remarked that this species was "becoming increasingly common, and adults were observed by the author abundantly in Helensville at the end of May" [? 1974]. In the following spring and summer egg masses of *S. litura* were sent in from various localities throughout Northland and as far south as Tauranga. In the autumn of 1975 there was serious damage to pastures and crops near Kaikohe, Whangarei, Wellsford, Warkworth, and Auckland, and minor damage occurred at Taranaki and

Levin. It has been a minor pest in glasshouses at Mt. Albert Research Centre during the winters of 1974 and 1975.

12. *Trioza* sp. (Homoptera: Psyllidae), on feijoa (*Acca sellowiana*) F. R. Allen, Oratia 17.12.70. (799), causing leaf distortion and heavy growth of sooty moulds.

MISCELLANEOUS

1. *Alphitobius diaperinus* (Panz.) the lesser mealworm or darkling beetle, a common inhabitant of deep litter poultry houses, has several times been observed destroying the polystyrene wall insulation in broiler houses. The larvae tunnel the insulation when constructing a pupation site. Destruction can be severe. Almost a third of the insulation was disintegrated in one 3-year-old house at Patumahoe 16.4.73. B.J.R. (1881). Construction technique which excludes the larvae is the preferred method of control, but maldison around floor margins is recommended as an interim measure.

2. *Inopus rubriceps* (Macq.) the Australian soldierfly, was recorded from Kaikohe 24.3.75. D.B.G. (3374). This is its most northerly occurrence.

Acknowledgments

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