

NEW ZEALAND NOCTUIDAE (LEPIDOPTERA) : SUMMARY OF KNOWN HOST PLANTS AND A BIBLIOGRAPHY RELEVANT TO THE BIOLOGY OF THE GROUP

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INTRODUCTION

Approximately 160 species of Noctuidae have been described for the New Zealand sub-region, but information on life histories and food plants is available for only 51 of these. Only a handful have been noted as economically important pests, and even fewer attain epidemic proportions. Notable among the latter are **Persec-tania aversa** Guenee, the New Zealand Armyworm; **Pseudaletia separata** Walker, the Common Armyworm; and **Agrotis ypsilon aneituma** Walker, the Greasy Cutworm.

In addition to these some species of the genus **Leucania** Ochsenheimer have been noted as probably destructive in high country grassland (Dick, 1940). Other species of Noctuidae have been recorded attacking vegetables and fruit crops. For example **Helicov-**

erpa armigera conferta (Walker) damages tomatoes (Miller, 1923, 1944); **Plusia chalcites** Esper sometimes develops as a major local pest of bean and tomato crops (Cottier, 1956); and **Melanchra mutans** Walker can cause extensive damage to a range of vegetables and fruits (Muggeridge, 1931).

Some species could even conceivably be beneficial. The Dingy Cutworm **Melanchra homoscia** Meyrick occurs in such numbers in the Wellington district that it might be exerting some marginal degree of control on stands of Tauhinu, **Cassinia leptophylla** (Forst. f.) R.Br., which cover the Karori hills in many places.

Although the Noctuidae probably do not merit as a group the pest status of say, the New Zealand Hepialidae, the losses of grass and other graminaceous crops, fruit, vegetables and ornamental flowers though the combined action of many species must be significant in almost every part of the country. Other species are undoubtedly a factor of some importance in forests of both native and exotic trees.

SUMMARY OF KNOWN HOST PLANTS IN NEW ZEALAND

1. **Agrotis munda** Walker (= **Euxoa radians** Hampson)

Known as the Brown Cutworm in Australia, where it causes considerable damage to a variety of field and vegetable crops grown on light soils (Common, 1958). Larva terrestrial. PEST STATUS: Probably none in New Zealand.

2. **Agrotis ypsilon aneituma** Walker

The Greasy Cutworm. Larva subterranean, feeding on roots. On upland grassland at the Rakaia (Dick, 1940); on maize, **Zea mays** Linn.; tomato, **Lycopersicon esculentum** Miller; legumes, **Pisum sativum** L. and **Phaseolus vulgaris** L.; brassicas—cabbage, **Brassica oleracea** L. and cauliflower, **B. oleracea** var **botrytis** L. (Miller, 1944; Cottier, 1956). Also on rape, **Brassica rapa** L. and swede **Brassica napus** L. (pers. obs.); carrot, **Daucus carota** L.; beetroot, **Beta vulgaris** L.; and potato tubers, **Solanum tuberosum** L. (Wise, 1958). PEST STATUS: A garden nuisance, with local epidemics.

3. **Aletia griseipennis** Felder

Larva feeding on "native grasses" (Hudson, 1928). PEST STATUS: Not known, possibly locally significant in high country grassland.

4. **Aletia moderata** Walker

Larva terrestrial, feeding on **Raoulia** sp. (Hudson, 1951) and white clover, **Trifolium repens** L., (pers. obs.), but in latter cases all larvae died in 3rd instar from unknown causes. PEST STATUS: Not known, but this moth is locally abundant in the Wellington area.

5. **Aletia mullifera** Walker

Larva terrestrial, on **Aciphylla squarrosa** J.R. et G. Forst. (Howes, 1914). PEST STATUS: Probably none.

6. **Aletia temenaula** Meyrick
Larva terrestrial on **Poa caespitosa** Forst. (Lindsay, 1930).
PEST STATUS: Not known.
7. **Ariathisa comma** Walker
One of the most abundant cutworms in New Zealand (Miller, 1955). (But rare around Palmerston North, author, pers. obs.). Larva terrestrial on **Plantago** spp. (pers. obs.) and other low plants (Hudson, 1928). Also known on **Pinus** spp. seedlings (J. S. Dugdale, pers. comm.), and celery **Apium graveolens** L. (pers. obs.). PEST STATUS: Occasionally significant in **Pinus** nurseries, and probably on vegetables and ornamentals.
8. **Austramathes pupurea** Butler
Larva arboreal on **Melicytus ramiflorus** J.R. et G. Forst. (Hudson, 1928). PEST STATUS: None.
9. **Bityla defigurata** Walker
Larva terrestrial on **Muehlenbeckia australis** (Forst. f.), (Chappell, 1930). Ova described by Watt (1914). PEST STATUS: Probably none.
10. **Cosmodes elegans** Donovan
Larva terrestrial on Lobelia (Hudson, 1928); and Sweet Pea, **Lathyrus odoratus** L., (pers. obs.). PEST STATUS: Attacks ornamentals, but is probably insignificant.
11. **Dasypodia selenophora** Guenee
Larva feeding on **Acacia** sp. (Colenso, 1879). PEST STATUS: Not known. This species is very abundant in North Auckland.
12. **Dipaustica epiastrea** Meyrick
Larva terrestrial on **Cortaderia** spp. Forst., (Sunley, 1911).
PEST STATUS: Not known.
13. **Erana graminosa** Walker
Larva arboreal on **Melicytus ramiflorus** J.R. et G. Forst. (Hudson, 1928). PEST STATUS: Not known. This species is very abundant in Wellington and Palmerston North.
14. **Graphiphora compta** Walker
Larva terrestrial on **Urtica** spp. (Hudson, 1928). PEST STATUS: Probably mildly beneficial for control of nettle.
15. **Helicoverpa armigera conferta** (Walker)
Larva feeding on pumpkin, marrow, **Cucurbita pepo** L.; Linen flax, **Linum usitatissimum** L.; tomato, **Lycopersicon esulentum** Miller; maize, **Zea mays** L. (Cottier, 1956; Miller, 1923, 1944); lucerne, **Medicago sativa** L. and clover **Trifolium pratense** L. (Myers, 1921); cultivated Geraniaceae (pers. obs.); peanuts, **Asachis hypogaea** L., and **Eucalyptus** spp. (Wise, 1958). PEST STATUS: Often locally reaches epidemic level populations among field and vegetable crops.

16. **Hypenodes costrigalis** Stephens
Larva feeding on **Thymus serpyllum** L. (Hudson, 1928).
PEST STATUS: None.
17. **Leucania blenheimensis** Fereday
Larva feeding on **Phormium tenax** Forst., and **Bromus unioloides** H.B.K. (Chappell, 1930). PEST STATUS: Not known.
18. **Leucania phaula** Merick
Larva feeding on **Poa caespitosa** Forst. (Hudson, 1928).
PEST STATUS: Not known.
19. **Leucania purdii** Fereday
Larva feeding on **Astelia grandis** Hook. f., and **Cordyline australis** Hook. f. (Chappell, 1929; Howes, 1914). PEST STATUS: None.
20. **Leucania semivittata** Walker
Larva terrestrial on "native grasses" (Hudson, 1928).
PEST STATUS: Not known. Could be significant in South Island grasslands.
21. **Leucania sulcana** Fereday
Larva terrestrial on **Microlaena avenacea** Hook. f. (Hudson, 1928) and **Gahnia setifolia** Hook. f. (Hudson, 1939).
PEST STATUS: Not known. Could be significant in South Island grasslands.
22. **Melanchra alcyone** Hudson
Larva feeding on **Muehlenbeckia** spp. (Hudson, 1939).
PEST STATUS: Probably none.
23. **Melanchra coctilis** Meyrick
Larva arboreal on **Nothofagus menziesii** (Hook. f.) (Hudson, 1939). Further description of larva in Hudson (1951).
PEST STATUS: Not known.
24. **Melanchra coeleno** Hudson
Larva feeding on **Muehlenbeckia** spp. (Hudson, 1939).
PEST STATUS: Not known.
25. **Melanchra diameta** Hudson
Larva feeding on **Rubus australis** Forst. f. (Hudson, 1951), and probably on **Muehlenbeckia** sp. (Hudson, 1939). PEST STATUS: Probably none.
26. **Melanchra furtiva** Philpott
Larva terrestrial on **Plantago** spp. (Hudson, 1951). Ova described by Watt (1914) under section on **Melanchra mutans**.
PEST STATUS: Not known, could be a horticultural pest.
27. **Melanchra homoscia** Meyrick
Larva feeding on **Cassinia leptophylla** (Forst. f.) R.Br., active at night (pers.obs.). PEST STATUS: Probaly mildly beneficial for control of **Cassinia** in areas such as Karori, Wellington, where it made up 9½% of the total Lepidoptera catch by light trapping during 1963 (Gaskin, 1964), and was the commonest cutworm moth.

28. **Melanchra infensa** Walker
Larva terrestrial on **Carex solandri** Boot. (Hudson, 1939), **Bromus unioloides** H.B.K. (Chappell, 1930), and probably other grasses and sedges (Hudson, *ibid.*). PEST STATUS: Not known, probably none.
29. **Melanchra insignis** Walker
Larva terrestrial on red clover, **Trifolium pratense** L. (pers. obs.), and a "variety of low plants" (Hudson, 1928). None of these were listed in the appendix produced by Stella Hudson (1928). Ova described by Watt (1914). PEST STATUS: A very common cutworm, possibly significant on a range of ornamentals.
30. **Melanchra merope** Hudson
Larva feeding on **Hoheria lyalli** A.Cunn. (Howes, 1914). PEST STATUS: None.
31. **Melanchra mutans** Walker
Larva terrestrial on grasses (Quail, 1901); **Plantago triandra** Bergg. (Hudson, 1928); other "low plants (Hudson, *ibid.*); larva arboreal on apple, **Pyrus malus** L. (Muggeridge, 1931), attacking foliage and young fruit. PEST STATUS: This very common cutworm is probably responsible for significant local damage to fruit, vegetables and ornamentals.
32. **Melanchra ochthistis** Meyrick
Larva arboreal on **Carpodetus serratus** J.R. et G. Forst., and **Rubus australis** Forst. f. (Hudson), 1928. PEST STATUS: None.
33. **Melanchra omoplaca** Meyrick
Larva terrestrial on narrow-leaved plantain, **Plantago** L. (Hudson, 1939). PEST STATUS: Probably none.
34. **Melanchra paracausta** Meyrick
Larva described by Hudson (1928) *ex* Philpott (pers. comm.?) with no food plant given. PEST STATUS: Not known.
35. **Melanchra plena** Walker
Larva arboreal on **Fuchsia** spp. (Hudson, 1928). PEST STATUS: Probably slight, and on other ornamental plants besides Fuchsias, as this is a very common cutworm.
36. **Melanchra rhodopleura** Meyrick
Larva feeding on **Pimelea prostrata** J.R. et G. Forst. (Sunley, 1910). PEST STATUS: None.
37. **Melanchra saeva** Meyrick
Larva feeding on **Nothofagus** sp. Blume (Hudson, 1928; Meyrick, 1929). PEST STATUS: None.
38. **Melanchra scutata** Hudson
Larva terrestrial on **Plantago** spp. (Hudson, 1951). PEST STATUS: Not known.

39. **Melanchra stipata** Walker
Larva feeding on **Muehlenbeckia** spp. (Hudson, 1939).
PEST STATUS: Probably none.
40. **Melanchra tartarea** Butler
Larva (1st instar), described by Hudson (1928), with no mention of a food plant. PEST STATUS: Not known.
41. **Melanchra ustistriga** Walker
Larva terrestrial on white clover, **Trifolium repens** L., 211 reared (pers. obs.), this may be an unusual food plant. Larva also arboreal on **Dahlia** spp. (pers. obs.), attacking blossoms; on apple, **Pyrus malus** L. (Wise, 1956); on speedwell, **Veronica persica** L. (J. S. Dugdale, pers. comm.); on honeysuckle, **Lonicera japonica** L. (Hudson, 1928, and **Muehlenbeckia** spp. (Hudson, *ibid.*). PEST STATUS: Probably responsible for significant damage to ornamentals and fruit.
42. **Melanchra vitosa** Butler
Larva arboreal on **Nothopanax anomalum** (Hook.) (Hudson, 1939), also on **Coprosma rotundifolia** A.Cunn., (Hudson, 1939, p. 476 addendum). PEST STATUS: Probably none.
43. **Melanchra exanthogramma** Meyrick
Larva terrestrial on **Muehlenbeckia** spp. (Hudson, 1928).
PEST STATUS: Not known.
44. **Persectania arotis** Meyrick
Larva terrestrial on **Phormium tenax** Forst. (Hudson, 1951). PEST STATUS: Not known.
45. **Persectania atristriga** Walker
No published life history. Author has bred out a small series of larvae feeding on grasses, **Bromus** and **Festuca** spp. PEST STATUS: Dick (1940), suggested this may be causing damage in high country grassland in the South Island. It may also be important in the North Island, and was the commonest Noctuid at Waiouru and Ohakune in Feb., 1966 (pers. obs.).
46. **Persectania aversa** Guenee
Larva terrestrial on **Poa annua** L. (pers. obs.), **Festuca novaezealandiae** Cockayne (Dick, 1940) and most graminaceous crops (Kirk, 1895; Miller, 1919; Muggeridge, 1934; Dick, 1940; Cottier, 1956). Ova described by Watt (1914), other details of life history given by Hudson (1928) and Cottier (1956). PEST STATUS: The native armyworm. A locally serious pest of Gramineae.
47. **Persectania propria** Walker
Life history not published, but probably similar to that of **P. atristriga**. PEST STATUS: Not known. May be responsible for damage in South Island high country grassland.

48. **Persectania steropastis** Meyrick
Larva feeding on native flax, **Phomium tenax** Forst. (Hudson, 1928) and **Festuca** sp. (pers. obs.). Life history details by Hudson (ibid.). PEST STATUS: The flax-notcher. A local pest of flax, sometimes serious (Miller, 1917a, b, c, 1930, 1955).
49. **Plusia chalcites** Esper
Larva feeding on tomato, **Lycopersicum esculentum** Mill.; legumes, **Pisum sativum** L., **Phaseolus vulgaris** L.; **Solanum aviculare** Forst. f.; **Solanum nigrum** L.; **Dahlia** spp.; **Salvia** spp. **Mentha** spp.; **Cirsium vulgare** Ten. (Cottier, 1956; Watt, 1915). Also on ornamental Geraniaceae (Cottier, ibid.); **Tecomanthe speciosa** Oliver (Edwards, 1948); **Acacia** sp. and hollyhock, **Althaea rosea** Cav. (pers. obs.). Detailed life history by Watt (1915). PEST STATUS: A local pest of field and vegetable crops and ornamentals.
50. **Pseudaletia separata** Walker
Larva feeding on maize, **Zea mays** L. (Cottier, 1956); oats, **Avena sativa** L.; wheat, **Triticum aestivum** L.; barley, **Hordeum sativum** Jess. (Cumber, 1962), and other grasses (Hudson, 1928). Detailed life history by Cottier (1962). PEST STATUS: The "introduced" or non-native armyworm. Sometimes reaches epidemic population levels in Gramineaceous crops.
51. **Rhaphsa scotosialis** Walker
Larva terrestrial on dead leaves and other debris (Hudson, 1928). Ova described by Watt (1914). PEST STATUS: None.

ACKNOWLEDGMENTS

I would like to thank Mr. J. S. Dugdale of the Forestry Research Institute, Rotorua, for criticising the first draft and giving helpful information on nomenclature; and Mr. A. E. Esler of the Agronomy Department, Massey University, for considerable assistance in checking the botanical nomenclature.

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