ANALYSIS OF LIGHT TRAP CATCHES OF LEPIDOPTERA FROM PALMERSTON NORTH, NEW ZEALAND IN 1966–68

By D. E. GASKIN, Department of Zoology,
University of Guelph, Guelph, Ontario, Canada

(*Received for publication, 17 February 1970*)

Summary

A total of 130,655 specimens of Lepidoptera were taken using a 125 watt MV bulb trap at Palmerston North between 1 October 1966 and 30 September 1968. These were identified as belonging to a total of 222 species; 1 each of Pieridae, Lycaenidae, Hypsidae, Sphingidae, Psychidae, Thyrididae, Elachistidae, Glyphipterygidae, and Coleophoridae, 43 Noctuidae, 61 Geometridae, 52 Pyralidae, 18 Tortricidae, 16 Oecophoridae, 4 Stathmopodidae, 3 Yponomeutidae, 3 Lyonetidae, 2 Tineidae and 6 Hepialidae. While 190 species were taken in 1966–67, only 144 were taken in 1967–68. The fall in catches is largely attributed to additional extraneous illumination reducing trap efficiency in the second season. Factors affecting light trap efficiency are briefly discussed.

Melanchra grandiosa Philp. and *Melanchra inchoata* Philp. are recorded for the first time from the North Island.

INTRODUCTION

A light trap was operated continuously at night for Lepidoptera at Massey University Biology Building just south of Palmerston North, New Zealand, from 1 October 1966 to 30 September 1968. The trap was switched on about 1 hour before sunset and off again 1 to 3 hours after dawn. The bulb was a 125 watt mercury vapour, replaced every 4 months.

The trap was situated 4½ ft above ground level, with a 170° field of visibility from northeast southeast. The trap was cleared by the author or one of his assistants from 1 to 3 hours after dawn, but no significant escape of insects from the trap was noted during daylight hours, other than of *Pseudaletia separata*. On the four occasions the author stayed with the trap until about midnight no insects were seen to escape. After an hour or so of operation the base of the bulb holder and the steel cone around the bulb became very hot; this was seen to deter insects trying to crawl up to the bulb again after flying into the body of the trap.

The trap faced one of the university orchards, but was separated from it at a distance of about 100 yards by two rows of trees at right angles, mostly *Eucalyptus and Cupressus macrocarpa.* At a distance of 10 miles the bush-covered crest of the northern Tararua Range was visible between and above these trees. The Tiritea Stream, a small tributary of the Manawatu River, passed the trap out of sight and about ½ mile to the northeast. To the north, on the other side of the stream, and out of line of sight, was the native bush of Bledisloe Park. A number of small patches of waste ground within about 100 yards of the trap totalled perhaps $\frac{1}{2}$ acre in extent. To the southwest the view from the trap was dominated by a series of fallow or pasture fields rising to a ridge about $\frac{1}{2}$ mile away, with a few rows of conifers, mostly *Pinus* species, standing between the fields. An experimental plot of rough grasses, including a stand of *Cortaderia*, was also just visible from the trap.

Much of the lepidopterous fauna of New Zealand remains unrevised, but revisions have been incorporated where possible. The New Zealand tomato fruit worm should now be refered to as *Helicoverpa armigera conferta* (Walker, (Hardwick, 1965). Wise (1965) gave some corrections to the names of New Zealand butterflies, one of which is relevant here. Mr J. S. Dugdale is revising the tortricine fauna, and part of this work has been published (Dugdale, 1966a, 1966b). However, valid names are not yet available for the "*Cnephasia*" species *incessana* Walker and *jactatana* Walker. The re-definition of tribal characters of the Cnephasiini by Obraztsov (1955) excludes these species (Dugdale, 1966b).

Dumbleton (1966) revised the New Zealand Hepialidae; with one exception his names are used. However I do not recognise here *Wiseana despecta* (Walker), as in my own unpublished work on *Wiseana cervinata* (Walker) and *W. despecta* I found no significant morphological differences between spring flight *cervinata* and late summer specimens traditionally attributed to *despecta* (Helson, 1966). Helson figured data showing separate flight peaks for *cervinata* and *despecta* at a number of localities in both main islands; however I think these figures are open to different interpretation, and certainly the trapping results from Palmerston North (species 220) show no trace of two peaks, even though the period in which hepialids of this species were taken completely overlaps the time scale shown by Helson for North Island localities.

I have recently revised the New Zealand Crambinae, but it is not possible to incorporate new names and combinations in this paper, since this would result in prepublication difficulties. However it is worth mentioning that *Crambus* Fabricius is a Holarctic genus not found in Australia or New Zealand, and that *Diptychophora* Zeller is restricted to Central and South America.

Where I was in doubt of the correct identification of a species during this study I either checked the specimens against the Dominion Museum collection, or referred them to Mr J. S. Dugdale for an opinion. I am very grateful to him for his help, and to Mr R. G. Ordish for allowing me to make use of the museum collection. Much assistance with day to day servicing of the trap was given by Messrs D. J. Greenwood, M. Mannering,

P. Campbell and P. J. Wigley all formerly of the Department of Zoology, Massey University. Special thanks are due to Mr G. E. Gale of the University of Guelph, Ontario, for his work in converting many of the data from day cards to condensed tabular form.

Collections were actually made by weeks, but it is not possible to publish results in this form. Workers interested in detailed breakdowns of catches for any species are invited to write direct to the author.

DISCUSSION

To the best of my knowledge the records of *Melanchra grandiosa* Philp. and *Melanchra inchoata* Philp. are the first-published records for the North Island. *M. inchoata* was described from Stephens Island specimens (Hudson, 1928), and *M. grandiosa* does not seem previously to have been recorded north of a line from Milford Sound to Timaru.

There are obvious qualitative and quantitative differences between the catch results for the two seasons; however the significance of these is very questionable. Tables 2–4 show that a total of 190 species were collected in 1966–67, and only 144 species in 1967–68. No less than 161 species were either not taken in the second season, or were recorded in smaller numbers than in 1966–67. The totals in Tables 2 and 3 include a small number of abberrant records; a few specimens of three diurnal species were recorded, although these are not formally included in Table 1; one specimen of *Pieris rapae* Linn. (Pieridae) in March 1968; two specimen of *Zizeeria otis labradus* (Godt.) (Lycaenidae) in March 1967 and March 1968; and two specimens of *Nyctemera annulata* (Boisd.) (Hypsidae) in December 1966 and March 1968. Variation cut across families, sub-families, and groups from the major ecological divisions to be found in the area. For example; great catch reductions were noted for the grassland *Crambus cyclopicus*, the arboreal *Selidosema suavis*, the herb-feeders *Melanchra mutans* and *Melanchra insignis*, the grass/herb feeder *Witlesia sabulosella* and the aquatic-semiaquatic *Nymphula nitens*. Conversely the catch of the moss-feeding *Scoparia diphtheralis* increased by over 100% in 1967–68, and there were also increases in the 1967–68 catches of the horticultural-agricultural pests *Plusia chalcites*, *Helicoverpa armigera conferta* and *Wiseana cervinata*. Within broad limits catches of the arboreal *Selidosema leucelaea* and the grass-feeding *Crambus flexuosellus* and *Crambus vittellus* remained roughly constant in the two seasons.

In this study it can probably be assumed fairly safely that the sampling effort of the trap was very similar over the two seasons; bulb intensity was not changed, nor the position of the trap. Thus factors such as moth escape after daybreak (Belton & Kempster, 1963), are likely to be equal in both seasons, if acting upon the catch. The question must be asked if

RESULTS

TABLE 1—Light trap records of Lepidoptera taken at Massey University, 1966–67 and 1967–68

SPECIES	Season	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Family SPHINGIDAE														
1. *Herse convolvuli* (Linn.)	67–68	—	—	—	—	—	1	—	—	—	—	—	—	1
Family SATURNIIDAE														
2. *Antheraea eucalypti* (Scd.)	66–67	2	5	2	13	1	—	—	—	—	—	—	—	23
	67–68	1	2	52	13	1	1	—	—	—	—	—	—	70
Family PSYCHIDAE														
3. *Oeceticus omnivorus* (Fer.)	66–67	2	1	3	—	—	—	—	—	—	—	—	—	6
	67–68	7	2	—	—	—	1	—	—	—	—	—	—	10
Family NOCTUIDAE														
4. *Agrotis innominata* Huds.	66–67	—	—	—	—	—	—	—	2	—	—	—	—	2
5. *Agrotis munda* (Walk.)	66–67	1	—	—	—	—	—	—	—	—	—	—	—	1
6. *Agrotis ypsilon* (Rott.)	66–67	7	—	1	11	13	42	87	89	2	—	—	2	254
	67–68	4	1	5	45	32	57	9	—	—	—	—	2	155
7. *Aletia moderata* (Walk.)	66–67	2	1	1	2	2	2	1	—	—	—	—	2	13
	67–68	—	—	—	—	3	—	—	—	—	—	—	—	3
8. *Ariathisa comma* (Walk.)	66–67	—	—	—	3	—	—	—	—	—	—	—	—	1
	67–68	—	—	—	1	—	—	—	—	—	—	—	—	1
9. *Austramathes purpurea* (Butl.)	66–67	—	—	—	1	—	—	—	—	—	—	—	—	1
10. *Bityla defigurata* (Walk.)	66–67	—	1	—	—	1	1	—	—	—	—	—	—	3
	67–68	—	—	—	—	—	—	1	—	—	—	—	—	1
11. *Cosmodes elegans* (Don.)	66–67	—	—	—	—	—	—	1	—	—	—	—	—	1
12. *Dasypodia selenophora* Gn.	67–68	—	—	—	—	1	—	—	—	—	—	—	—	1
13. *Erana graminosa* Walk.	66–67	4	6	1	5	6	55	13	—	2	—	3	2	97
	67–68	—	3	—	—	1	1	—	1	—	—	—	—	6
14. *Graphiphora compta* Walk.	66–67	2	4	—	1	4	5	2	14	—	—	1	1	34
	67–68	1	—	—	1	—	—	—	7	—	—	—	—	9
15. *Helicoverpa armigera conferta* (Walk.)	66–67	—	4	1	17	24	19	5	—	—	—	—	—	70
	67–68	1	—	—	1	64	64	19	—	—	—	—	—	149

TABLE 1—*continued*

SPECIES	Season	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
16. *Hypenodes costistrigalis* Steph.	66–67	4	—	1	2	1	11	1	—	1	—	—	—	21
	67–68	—	—	—	4	3	—	—	—	—	—	—	—	7
17. *Leucania purdii* Fer.	66–67	—	—	—	—	—	1	—	—	—	—	—	—	1
	67–68	—	—	—	—	—	1	—	—	—	—	—	—	1
18. *Leucania semivittata* Walk.	66–67	—	3	—	—	3	—	—	—	—	—	—	—	6
	67–68	1	1	1	1	2	3	—	—	—	—	—	—	9
19. *Leucania sulcana* Fer.	66–67	—	—	—	—	—	1	—	—	—	—	—	—	1
20. *Melanchra alcyone* Huds.	66–67	9	—	2	1	—	—	—	—	2	3	2	3	22
	67–68	11	—	—	—	—	—	—	—	1	—	—	—	12
21. *Melanchra coeleno* Huds.	66–67	4	—	—	—	—	—	—	—	—	—	—	—	4
	67–68	4	—	—	—	—	—	—	—	—	—	—	1	5
22. *Melanchra decorata* Philp.	66–67	3	—	—	—	—	—	—	1	—	—	—	—	4
23. *Melanchra diatmeta* Huds.	66–67	1	—	1	—	—	—	—	—	—	—	—	—	2
24. *Melanchra exquisita* Philp.	66–67	—	—	—	1	—	—	—	—	—	—	—	—	1
25. *Melanchra grandiosa* Philp.	66–67	—	—	—	—	—	—	—	—	1	—	—	—	1
	67–68	—	—	—	—	—	—	—	—	1	—	—	—	1
26. *Melanchra inchoata* Philp.	67–68	—	—	1	3	3	—	—	—	—	—	—	—	7
27. *Melanchra infensa* (Walk.)	66–67	—	1	1	2	—	—	—	—	—	—	—	—	4
	67–68	1	4	—	—	—	—	—	—	—	—	—	—	5
28. *Melanchra insignis* (Walk.)	66–67	119	30	12	14	17	15	5	1	7	14	17	14	265
	67–68	33	1	—	—	18	8	—	1	1	—	3	—	63
29. *Melanchra lignana* (Walk.)	66–67	32	62	1	1	3	39	15	4	1	1	3	—	162
	67–68	7	1	3	—	3	7	—	—	—	—	—	—	21
30. *Melanchra morosa* (Butl.)	66–67	—	—	—	—	—	2	—	—	—	—	—	—	2
31. *Melanchra mutans* (Walk.)	66–67	1134	199	119	252	549	421	452	474	100	97	162	125	084
	67–68	213	73	25	93	233	69	102	8	8	2	50	74	4950
32. *Melanchra ochthistis* Meyr.	66–67	1	—	2	1	—	—	2	—	—	1	1	—	8
	67–68	—	—	—	—	—	—	—	—	—	1	—	—	1
33. *Melanchra omoplaca* (Meyr.)	66–67	—	2	9	5	—	—	—	—	—	—	—	—	16
	67–68	—	3	2	—	—	—	—	—	—	—	—	—	5
34. *Melanchra paracausta* (Meyr.)	66–67	2	11	—	—	—	—	—	—	—	—	—	—	13
	67–68	—	2	—	—	—	—	—	—	—	—	—	—	2
35. *Melanchra plena* (Walk.)	66–67	3	—	—	1	—	—	1	1	1	4	1	2	14
	67–68	3	—	—	—	—	1	—	—	—	—	—	—	4
36. *Melanchra praesignis* (Howes)	66–67	—	—	1	—	—	—	—	—	—	—	1	—	2

37. *Melanchra prionistis* (Meyr.)	66–67	2	—	—	—	—	—	1	—	—	—	—	—	3
	67–68	—	2	—	—	—	—	—	—	—	—	—	—	2
38. *Melanchra stipata* (Walk.)	66–67	1	—	1	—	—	1	1	—	—	—	—	—	4
	67–68	—	—	—	—	1	—	—	—	—	—	—	—	1
39. *Melanchra ustistriga* (Walk.)	66–67	118	22	30	40	31	19	27	17	11	28	67	28	438
	67–68	34	13	15	15	28	15	7	5	10	5	6	9	162
40. *Persectania arotis* (Meyr.)	66–67	16	6	—	—	—	1	—	—	—	—	—	—	23
	67–68	6	—	—	—	2	—	—	—	—	—	—	—	8
41. *Persectania atristriga* (Walk.)	66–67	—	—	—	1	10	9	2	—	—	—	—	—	22
	67–68	—	—	—	3	54	11	—	—	—	—	—	—	68
42. *Persectania aversa* (Walk.)	66–67	318	82	10	31	134	357	86	159	12	15	18	84	1306
	67–68	149	50	20	47	193	107	49	7	8	7	8	12	657
43. *Persectania steropastis* (Meyr.)	66–67	4	—	2	3	1	2	—	—	—	—	1	—	12
44. *Plusia chalcites* Esp.	66–67	—	—	—	4	16	24	40	30	4	—	—	—	118
	67–68	—	1	—	—	39	111	101	9	—	—	—	—	261
45. *Pseudaletia separata* Walk.	66–67	7	—	—	6	16	70	98	159	38	1	—	1	396
	67–68	—	—	—	—	4	26	57	10	2	3	—	—	102
46. *Rhapsa scotosialis* Walk.	66–67	1	1	1	2	—	—	—	—	1	—	—	—	6
	67–68	—	—	—	—	—	—	—	—	1	—	—	—	1
Family GEOMETRIDAE														
Subfamily LAURENTIINAE														
47. *Asaphodes megaspilata* (Walk.)	66–67	11	7	4	2	1	1	1	1	—	—	—	1	39
	67–68	2	2	1	—	—	—	—	—	—	1	—	—	6
48. *Asthena pulchraria* (Dbld.)	66–67	4	2	3	2	3	1	1	—	—	—	1	—	17
	67–68	1	1	1	1	2	—	—	—	1	—	—	—	7
49. *Asthena subpurpureata* (Walk.)	66–67	14	1	10	14	4	41	2	—	—	—	—	—	96
	67–68	4	1	1	1	1	—	—	1	—	—	—	—	9
50. *Chloroclystis aristias* Meyr.	66–67	—	—	—	1	—	—	—	—	—	—	—	—	1
51. *Chloroclystis dryas* (Meyr.)	66–67	—	—	—	—	—	—	—	—	—	—	1	—	1
52. *Chloroclystis lichenodes* (Purd.)	66–67	—	—	2	—	—	—	—	—	—	—	—	—	2
	67–68	—	—	—	—	—	1	—	—	—	—	—	—	1
53. *Chloroclystis lunata* Philp.	66–67	—	—	1	—	—	—	—	—	1	—	—	—	2
54. *Chloroclystis muscosata* (Walk.)	66–67	—	—	1	—	—	—	—	—	—	—	—	—	1
55. *Chloroclystis paralodes* Meyr.	66–67	1	—	—	—	1	1	2	—	1	—	—	—	6
	67–68	—	—	—	—	2	1	—	—	—	—	—	—	3
56. *Chloroclystis sandycias* Meyr.	67–68	—	—	—	—	1	—	—	—	1	—	—	—	2
57. *Chloroclystis semialbata* (Walk.)	66–67	3	—	—	—	—	—	—	—	—	—	—	—	3
58. *Chloroclystis sphragitis* (Meyr.)	66–67	—	—	—	—	1	—	—	—	—	—	—	—	1

TABLE 1—*continued*

SPECIES	Season	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
59. *Elvia glaucata* Walk.	66–67	—	—	1	—	—	3	1	—	—	1	1	—	7
60. *Epiphryne undosata* (Feld.)	66–67	2	1	—	1	1	—	—	—	—	—	—	—	5
61. *Epiphryne verriculata* (Feld.)	66–67	2	—	4	2	—	—	1	1	—	—	1	1	12
	67–68	1	—	1	—	1	—	—	—	—	—	2	—	5
62. *Euchoeca rubropunctaria* (Dbld.)	66–67	—	—	—	—	—	—	2	—	—	—	—	—	2
63. *Eucymatoge anguligera* (Butl.)	66–67	—	—	—	—	—	1	—	—	—	—	—	—	1
64. *Eucymatoge gobiata* (Feld.)	66–67	—	—	1	—	—	2	—	—	—	—	—	—	3
65. *Hydriomena deltoidata* (Walk.)	67–68	—	1	—	—	—	—	—	—	—	—	—	—	1
66. *Hydriomena rixata* (Feld.)	66–67	—	—	—	—	—	1	—	—	—	—	—	—	1
67. *Hydriomena similata* (Walk.)	66–67	—	—	—	1	1	1	—	—	—	—	—	1	4
	67–68	—	—	—	—	—	2	1	—	—	1	1	—	5
68. *Hydriomena subochraria* (Dbld.)	66–67	—	—	—	1	—	—	—	—	—	—	—	—	1
69. *Microdes epicryptis* Meyr.	66–67	—	—	—	—	3	—	—	—	—	—	—	—	3
	67–68	—	—	—	—	2	—	—	—	—	—	—	—	2
70. *Orthoclydon praefectata* (Walk.)	67–68	—	1	—	—	—	—	—	—	—	—	—	—	1
71. *Phrissogonus laticostatus* (Walk.)	66–67	—	—	—	—	—	1	3	2	1	1	—	—	8
	67–68	—	—	—	—	3	14	18	—	—	—	—	—	35
72. *Phrissogonus testulatus* (Gn.)	66–67	17	2	3	9	13	20	17	7	1	5	1	2	97
	67–68	2	1	1	2	10	3	—	—	1	—	—	1	21
73. *Tatosoma lestevata* (Walk.)	67–68	—	1	—	—	—	—	—	—	—	—	—	—	1
74. *Tatosoma tipulata* (Walk.)	67–68	—	1	1	—	—	—	—	—	—	—	—	—	2
75. *Tatosoma topia* Philp.	66–67	1	—	1	—	—	—	—	—	—	—	—	1	3
	67–68	—	—	—	—	—	1	—	—	—	—	—	—	1
76. *Xanthorhoe aegrota* (Butl.)	66–67	1	2	3	1	3	—	1	—	—	1	—	—	12
	67–68	—	1	—	—	—	—	—	—	—	—	2	1	4
77. *Xanthorhoe cinerearid* (Dbld.)	66–67	8	—	3	10	2	4	5	1	1	1	—	2	37
	67–68	11	—	—	—	1	—	—	—	—	—	—	—	12
78. *Xanthorhoe chlamydota* (Meyr.)	66–67	1	—	1	2	—	—	—	—	—	—	—	—	4
79. *Xanthorhoe lucidata* (Walk.)	66–67	—	—	2	—	1	1	3	1	—	—	—	—	8
	67–68	—	—	—	—	1	—	—	—	—	—	—	1	2
80. *Xanthorhoe rosearia* (Dbld.)	66–67	60	22	84	47	42	72	43	13	10	10	5	4	412
	67–68	3	8	5	3	13	11	5	4	1	3	1	1	58
81. *Xanthorhoe semisignata* (Walk.)	66–67	38	6	6	7	23	83	31	—	1	—	—	6	201
	67–68	31	1	4	16	55	14	5	—	—	—	—	1	143
82. *Xanthorhoe venipunctata* (Walk.)	66–67	1	2	5	3	—	16	7	1	1	—	3	1	40
	67–68	—	1	1	1	1	8	1	1	—	—	3	1	18

Subfamily STERRHINAE														
83. *Leptomeris rubraria* (Dbld.)	66–67	—	—	—	2	5	13	7	1	—	—	—	—	28
	67–68	—	—	—	3	24	114	68	—	—	—	—	—	209
Subfamily OENOCHROMATINAE														
84. *Epirrhanthis alectoraria* (Walk.)	66–67	1	—	1	—	—	—	—	—	—	—	—	—	2
	66–67	—	2	—	10	3	1	10	—	—	—	—	1	27
85. *Epirrhanthis ustaria* (Walk.)	67–68	—	1	2	1	2	—	—	—	—	—	—	—	6
86. *Epirrhanthis veronicae* Prout	66–67	2	—	3	1	1	1	1	—	2	—	—	—	11
	67–68	—	—	1	—	—	—	—	—	—	—	1	—	2
Subfamily BOARMIINAE														
87. *Azelina fortinata* (Gn.)	66–67	—	—	1	—	—	—	—	—	—	—	—	—	1
88. *Azelina galleria* (Walk.)	66–67	—	—	—	—	1	—	—	—	—	—	—	—	1
89. *Azelina variabilis* (Warr.)	66–67	—	—	—	—	—	2	—	—	—	—	—	—	2
90. *Declana atronivea* (Walk.)	67–68	—	—	—	—	2	—	—	—	—	—	—	—	2
91. *Declana floccosa* Walk.	66–67	69	12	11	12	4	8	8	15	6	17	28	21	211
	67–68	27	4	4	7	30	22	7	—	—	1	1	2	105
92. *Declana leptomera* (Walk.)	66–67	3	—	—	1	—	—	—	—	—	1	3	—	8
93. *Declana niveata* Butl.	66–67	—	—	—	2	—	—	—	—	—	—	—	—	2
	67–68	—	2	1	—	—	—	—	—	—	—	—	—	3
94. *Gargaphia muriferata* Walk.	67–68	—	—	2	—	—	—	—	—	—	—	—	—	2
95. ‘*Selidosema*’ *dejectaria* (Walk.)	66–67	—	—	—	1	1	1	3	—	1	2	1	1	11
	67–68	—	1	—	—	4	3	—	—	—	—	—	—	8
96. *Selidosema fenerata* (Feld.)	66–67	30	1	8	14	2	15	27	19	10	2	16	14	158
	67–68	21	1	1	—	28	10	13	—	—	—	—	4	78
97. *Selidosema indistincta* (Butl.)	66–67	—	—	1	1	—	3	15	1	—	—	—	—	21
	67–68	—	—	—	—	—	—	—	1	3	—	—	—	4
98. *Selidosema lactiflua* Meyr.	66–67	—	2	—	—	1	—	—	—	—	—	—	—	3
99. *Selidosema leucelaea* Meyr.	66–67	59	6	9	19	5	28	23	19	32	5	36	40	281
	67–68	53	7	7	11	62	34	10	6	1	2	3	12	208
100. *Selidosema panagrata* (Walk.)	66–67	3	1	1	—	—	2	2	1	—	—	—	—	10
	67–68	—	—	—	—	—	2	—	—	—	—	2	—	4
101. ‘*Selidosema*’ *pannularia* Gn.	66–67	—	1	—	—	—	—	1	—	—	—	—	—	2
102. *Selidosema pelurgata* (Walk.)	66–67	—	—	—	—	—	—	—	—	—	—	1	—	1
103. *Selidosema productata* (Walk.)	66–67	—	—	1	—	—	—	—	—	—	—	—	—	1
104. *Selidosema rudiata* (Walk.)	66–67	—	—	—	—	—	1	—	—	—	—	—	—	1
	67–68	—	1	1	7	—	—	—	—	—	1	—	—	10

TABLE 1—*continued*

SPECIES	Season	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
105. *Selidosema suavis* (Butl.)	66–67	62	13	26	8	8	29	27	6	10	7	3	14	213
	67–68	3	3	4	2	5	1	1	3	1	1	3	7	34
106. *Sestra flexata* (Walk.)	66–67	—	—	—	—	—	1	—	—	—	—	—	—	1
107. *Sestra humararia* (Walk.)	66–67	—	—	—	—	1	—	—	—	—	—	—	—	1
Family PYRALIDAE														
Subfamily CRAMBINAE														
108. '*Crambus*' *angustipennis* (Zell.)	66–67	—	—	—	1	1	—	—	—	—	—	—	—	2
	67–68	—	—	1	—	—	1	—	—	—	—	—	—	2
109. '*Crambus*' *apicellus* Zell.	66–67	3	7	5	4	2	7	1	—	—	—	—	—	29
	67–68	2	5	3	1	4	4	—	—	—	—	—	—	19
110. '*Crambus*' *cyclopicus* Meyr.	66–67	—	—	—	—	2	101	190	12	—	—	—	—	305
	67–68	—	—	—	—	—	12	64	14	—	—	—	—	90
111. '*Crambus*' *enchophorus* Meyr.	66–67	—	—	—	—	1	23	20	2	—	—	—	—	46
	67–68	—	—	—	—	—	16	13	3	—	—	—	—	32
112. '*Crambus*' *flexuosellus* Dbld.	66–67	710	5220	7625	1578	2609	20502	9329	669	15	2	—	—	48259
	67–68	1696	5614	2590	294	9196	28400	4350	581	31	—	—	—	52752
113. '*Crambas*' *ramosellus* Dbld.	66–67	10	26	72	20	—	31	33	3	1	1	—	—	197
	67–68	14	31	18	18	2	47	42	3	3	1	—	—	179
114. '*Crambus*' *vittellus* Dbld.	66–67	—	—	18	227	620	134	2	—	—	—	—	—	1001
	67–68	—	2	5	197	733	86	3	—	—	—	—	—	1026
115. '*Crambus*' *vulgaris* Butl.	66–67	—	—	—	—	—	12	—	—	—	—	—	—	12
	67–68	—	—	—	—	—	4	—	—	—	—	—	—	4
116. '*Diptychophora*' *auriscriptella* (Walk.)	67–68	—	1	1	—	—	—	—	—	—	—	—	—	2
117. '*Diptychophora*' *elaina* Meyr.	66–67	3	2	3	—	—	1	—	—	—	—	—	—	9
	67–68	6	3	1	—	—	—	—	—	—	—	—	—	10
118. '*Diptychophora*' *harmonica* Meyr.	66–67	—	—	1	—	—	—	—	—	—	—	—	—	1
119. '*Diptychophora*' *pyrsophanes* Meyr.	67–68	—	1	—	—	—	—	—	—	—	—	—	—	1
120. *Gadira acerella* Walk.	66–67	—	—	—	1	—	—	—	—	—	—	—	—	1
	67–68	—	1	—	—	—	—	—	—	—	—	—	—	1
121. '*Velasquez*' *pentadactyla* Zell.	66–67	—	—	—	—	—	2	—	—	—	—	—	—	2
	67–68	—	—	—	—	—	1	—	—	—	—	—	—	1
Subfamily SCOPARIINAE														
122. *Scoparia aspidota* (Meyr.)	66–67	—	—	—	2	—	—	—	—	—	—	—	—	2
	67–68	—	1	1	—	—	—	—	—	—	—	—	—	2

123. *Scoparia cataxesta* Meyr.	66–67	—	—	—	—	1	3	—	—	—	—	—	—	4
	67–68	—	2	—	2	1	—	—	—	—	—	—	—	5
124. *Scoparia chimeria* Meyr.	66–67	1	—	—	—	—	—	—	—	—	—	—	—	1
125. *Scoparia colpota* Meyr.	66–67	—	—	1	—	—	—	—	—	—	—	—	—	1
126. *Scoparia crypsinoa* Meyr.	66–67	3	23	3	—	8	1	1	—	—	—	—	—	39
	67–68	9	—	—	—	—	6	—	—	—	—	—	—	15
127. *Scoparia dinodes* Meyr.	66–67	—	1	—	—	—	—	—	—	—	—	—	—	1
128. *Scoparia diphtheralis* Walk.	66–67	—	—	13	50	87	43	7	2	—	—	—	—	202
	67–68	—	4	19	53	235	110	—	—	—	—	—	—	421
129. *Scoparia feredayi* Knaggs	66–67	—	1	1	—	—	2	2	—	—	—	—	1	7
	67–68	—	—	1	—	—	1	—	—	—	—	—	—	2
130. *Scoparia indistinctalis* (Walk.)	66–67	—	—	—	—	9	4	13	18	—	—	—	—	44
	67–68	—	—	—	—	2	—	3	3	—	—	—	—	8
131. *Scoparia meliturga* Meyr.	67–68	1	—	—	—	—	—	—	—	—	—	—	—	1
132. *Scoparia minualis* Meyr.	66–67	—	1	—	1	—	—	—	—	—	—	—	—	2
133. *Scoparia minusculalis* Walk.	66–67	—	1	—	—	—	—	1	3	—	—	—	—	5
	67–68	—	1	—	1	1	—	—	—	—	—	—	—	3
134. *Scoparia octophora* Meyr.	66–67	—	—	1	2	2	—	—	—	—	—	—	—	5
	67–68	—	1	1	—	—	—	—	—	—	—	—	—	2
135. *Scoparia periphanes* Meyr.	67–68	—	1	1	—	—	—	—	—	—	—	—	—	2
136. *Scoparia petrina* (Meyr.)	66–67	8	2	2	3	—	1	8	3	6	4	3	1	41
	67–68	6	4	1	—	—	—	3	—	—	—	—	—	14
137. *Scoparia phalerias* Meyr.	66–67	1	—	—	—	—	—	—	—	—	—	—	—	1
138. *Scoparia philerga* Meyr.	66–67	16	14	8	4	4	3	3	2	—	—	—	—	54
	67–68	24	11	1	—	1	—	—	—	—	—	—	—	37
139. *Scoparia rotuella* (Feld.)	67–68	—	1	—	—	—	—	—	—	—	—	—	—	1
140. *Scoparia steropaea* Meyr.	66–67	1	2	—	—	—	—	—	—	—	—	—	—	3
	67–68	—	2	—	—	—	—	—	—	—	—	—	—	2
141. *Scoparia submarginalis* (Walk.)	66–67	—	—	2	1	—	—	—	—	—	—	—	—	3
142. *Scoparia trivirgata* (Feld.)	67–68	—	—	—	1	—	—	—	—	—	—	—	—	1
143. *Scoparia ustimacula* Feld.	66–67	—	1	—	3	—	—	—	—	—	—	—	—	4
144. *Scoparia ustiramis* Huds.	66–67	4	—	—	1	—	4	2	—	—	—	—	—	11
	67–68	1	—	1	—	—	—	—	—	—	—	—	—	2
145. *Witlesia sabulosella* (Walk.)	66–67	3	2	48	62	14	3	1	—	—	—	—	—	133
	67–68	6	1	12	8	4	—	—	—	—	—	—	—	31
Subfamily NYMPHULINAE														
146. *Nymphula nitens* (Butl.)	66–67	1	3	795	167	47	54	12	—	—	—	—	—	1079
	67–68	7	205	119	74	23	10	—	—	—	—	—	—	438

TABLE 1—*continued*

SPECIES	Season	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Subfamily PYRAUSTINAE														
147. *Diasemia grammalis* Dbld.	66–67	—	—	—	5	5	—	—	—	—	—	—	—	10
148. *Mecyna diaclealis* (Walk.)	66–67	—	—	—	—	—	1	1	—	—	—	—	—	2
149. *Mecyna flavidalis* (Dbld.)	66–67	34	2	7	14	3	24	24	2	1	1	4	4	120
	67–68	6	5	3	5	19	7	4	1	2	1	1	4	58
150. *Mecyna maorialis* (Feld.)	66–67	3	2	1	1	8	2	1	—	—	—	—	—	18
	67–68	2	1	1	2	24	10	1	—	—	—	—	—	41
151. *Musotima nitidalis* (Walk.)	66–67	—	—	—	—	1	—	—	—	—	—	—	1	2
152. *Nesarcha hybrealis* (Walk.)	66–67	—	—	1	2	1	1	1	—	—	—	2	5	13
	67–68	1	1	1	1	3	—	—	—	—	—	—	—	7
153. *Proternia philocapna* Meyr.	66–67	—	—	—	1	2	—	—	—	—	—	—	—	3
154. *Sceliodes cordalis* (Dbld.)	66–67	—	1	2	4	1	—	—	—	—	—	—	—	8
	67–68	—	1	1	1	1	—	—	—	—	—	—	—	4
Subfamily PYRALINAE														
155. *Fauna aegalis* (Walk.)	66–67	2	4	5	1	—	—	—	—	—	—	—	—	12
	67–68	7	7	1	1	1	—	—	—	—	—	—	—	17
156. *Pyralis farinalis* Linn.	67–68	—	—	—	1	—	—	1	—	—	—	—	—	2
Subfamily PHYCITINAE														
157. *Crocydophora cinigerella* (Walk.)	66–67	19	1	23	5	3	25	3	1	1	1	4	2	88
	67–68	52	4	3	2	21	8	2	—	—	—	3	1	96
158. *Ephestia kuehniella* Zell.	66–67	—	—	—	—	—	—	—	—	—	—	3	—	3
159. *Homoeosoma farinaria* Turn.	66–67	101	7	7	31	—	—	—	—	—	—	—	4	150
	67–68	30	1	—	6	3	—	—	—	—	—	—	—	40
Family PTEROPHORIDAE														
160. *Alucita monospilalis* (Walk.)	66–67	—	1	1	1	2	3	1	—	—	—	—	—	9
161. *Platyptilia aeolodes* Meyr.	66–67	1	—	—	2	—	—	4	—	—	—	—	—	7
162. *Platyptilia falcatalis* Walk.	66–67	—	—	—	1	—	2	—	3	—	—	1	—	7
163. *Platyptilia furcatalis* (Walk.)	66–67	—	—	—	—	2	—	—	—	—	—	—	—	2
	67–68	—	—	—	—	1	1	—	—	—	—	—	—	2
Family THYRIDIDAE														
164. *Morova subfasciata* Walk.	66–67	—	—	2	2	—	—	—	—	—	—	—	—	4
	67–68	—	—	—	2	1	—	—	—	—	—	—	—	3

Family TORTRICIDAE														
Subfamily EUCOSMINAE														
165. *Cydia pomonella* (Linn.)	66–67	—	—	—	1	—	—	—	—	—	—	—	—	1
166. *Spilonota ejactana* (Walk.)	66–67	—	—	—	—	2	1	—	—	1	—	—	—	4
167. *Spilonota* sp. (n.sp.?)	66–67	16	4	5	—	5	27	28	6	—	—	—	—	91
	67–68	—	2	—	—	32	19	3	7	—	—	—	—	63
Subfamily TORTRICINAE														
168. '*Capua*' *semiferana* (Walk.)	66–67	12	2	10	5	11	8	15	4	1	2	1	1	72
	67–68	2	4	9	3	7	8	7	1	1	3	1	4	50
169. '*Catamacta*' *gavisana* Walk.	66–67	—	—	—	1	—	—	—	—	—	—	—	—	1
	67–68	—	2	—	1	—	—	—	—	—	—	—	—	3
170. '*Cnephasia*' *incessana* (Walk.)	67–68	—	2	—	—	—	—	—	—	—	—	—	—	2
171. '*Cnephasia*' *jactatana* (Walk.)	66–67	1	—	—	—	—	—	—	—	—	—	—	1	2
172. *Ctenopseutis obliquana* (Walk.)	66–67	35	18	11	33	129	55	61	38	9	4	1	—	394
	67–68	30	4	7	16	58	13	11	1	3	1	1	—	145
173. *Dipterina imbriferana* Meyr.	66–67	1	—	—	—	4	—	—	—	—	1	—	—	6
174. *Epiphyas postvittana* (Walk.)	66–67	1	10	1	16	6	5	13	5	6	3	1	1	68
	67–68	8	2	1	7	2	2	7	1	1	—	—	—	31
175. *Merophyas leucaniana* (Walk.)	66–67	6	2	1	1	2	1	7	—	—	—	—	—	20
	67–68	3	—	—	—	—	—	—	—	—	—	—	2	5
176. *Planotortrix charactana* (Meyr.)	66–67	—	—	—	—	—	—	—	—	—	1	1	—	2
	67–68	—	—	1	—	—	—	—	—	—	1	—	—	2
177. *Planotortrix conditana* (Walk.)	66–67	—	—	—	—	—	—	—	—	—	—	2	—	2
178. *Planotortrix excessana* (Walk.)	66–67	—	1	—	1	2	—	1	—	—	—	—	—	5
179. *Planotortrix notophaea* Turner	66–67	—	—	4	4	4	2	1	1	—	—	1	—	17
	67–68	—	—	2	1	1	—	—	—	—	—	1	—	5
180. *Pyrgotis eudorana* Meyr.	66–67	—	—	2	2	1	3	1	1	—	—	—	—	10
	67–68	—	—	3	—	—	—	—	—	—	—	—	—	3
181. *Pyrgotis plinthoglypta* Meyr.	66–67	—	—	1	—	—	—	—	—	—	—	—	—	1
182. '*Tortrix*' *flavescens* (Butl.)	66–67	—	—	—	1	—	—	—	—	—	—	—	—	1
Family Oecophoridae														
183. *Barea confusella* Walk.	66–67	—	—	1	2	5	—	—	—	—	—	—	—	8
	67–68	—	—	—	—	2	—	—	—	—	—	—	—	2
184. *Borkhausenia chlorodelpha* Meyr.	66a67	—	1	19	1	—	—	—	—	—	—	—	—	21
	67–68	1	31	7	—	—	—	—	—	—	—	—	—	39
185. *Borkhausenia pseudospretella* (Stt.)	66–67	—	—	—	1	2	—	—	—	—	—	—	—	3

TABLE 1—*continued*

SPECIES	Season	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
186. *Cryptolechia liochroa* (Meyr.)	66–67	—	—	—	2	—	—	—	—	—	—	—	—	2
	67–68	—	1	1	1	—	—	—	—	—	—	—	—	3
187. *Gymnobathra flavidella* (Walk.)	66–67	—	—	—	1	—	—	—	—	—	—	—	—	1
188. *Gymnobathra hyetodes* Meyr.	66–67	1	—	1	1	—	—	—	—	—	—	—	—	3
189. *Gymnobathra parca* (Butl.)	66–67	—	2	1	8	1	—	—	—	—	—	—	—	12
	67–68	—	3	1	1	—	—	—	—	—	—	—	—	5
190. *Izatha attactella* Walk.	66–67	—	1	—	—	—	—	—	—	—	—	—	—	1
191. *Izatha balanophora* (Meyr.)	66–67	—	—	1	2	1	—	—	—	—	—	—	—	4
	67–68	—	—	1	8	1	—	—	—	—	—	—	—	10
192. *Izatha epiphanes* (Meyr.)	66–67	—	—	—	1	—	1	—	—	—	—	—	—	2
	67–68	—	—	—	—	1	1	—	—	—	—	—	—	2
193. *Izatha peroneanella* (Walk.)	66–67	—	—	—	2	1	—	—	—	—	—	—	—	3
	67–68	—	1	1	—	—	—	—	—	—	—	—	—	2
194. *Leptocroca scholaea* (Meyr.)	66–67	—	1	—	—	—	—	—	—	—	—	—	—	1
195. *Nymphostola galactina* (Feld.)	66–67	—	—	1	—	—	—	—	—	—	—	—	—	1
	67–68	—	1	—	1	—	3	—	—	—	—	—	—	5
196. *Paracystola acroxantha* (Meyr.)	66–67	2	1	2	2	1	2	—	—	—	—	—	—	10
197. *Proteodes profunda* Meyr.	67–68	—	1	1	—	—	—	—	—	—	—	—	—	2
198. *Trachypepla festiva* Philp.	66–67	1	1	1	—	—	—	—	—	—	—	—	—	3
Family STATHMOPODIDAE														
199. *Batrachedra arenosella* (Walk.)	66–67	—	—	1	1	5	3	1	—	—	—	—	—	11
200. *Stathmopoda phlegyra* Meyr.	66–67	—	1	1	4	—	—	—	—	—	—	—	—	6
201. *Stathmopoda skelloni* (Butl.)	66–67	—	—	—	1	2	—	—	—	—	—	—	—	3
202. *Vanicela disjunctella* Walk.	67–68	—	1	2	—	—	—	—	—	—	—	—	—	3
Family ELACHISTIDAE														
203. *Elachista archaeonoma* Meyr.	66–67	—	3	2	—	—	—	—	—	—	—	—	—	5
Family YPONOMEUTIDAE														
204. *Orthenches virgata* Philp.	66–67	—	1	7	2	1	2	17	22	1	2	—	—	55
	67–68	—	6	1	4	2	1	9	10	—	—	—	—	33
205. *Plutella maculipennis* Curt.	66–67	1	—	—	1	—	1	—	—	1	1	3	—	8
206. *Protosynaema steropucha* Meyr.	66–67	—	3	2	1	—	—	—	—	—	—	—	—	6

Family GLYPHIPTERYGIDAE														
207. *Porpe bjerkandrella* Thun.	66–67	—	—	—	—	—	1	1	—	—	—	—	—	2
Family COLEOPHORIDAE														
208. *Coleophora spissicornis* Haw.	66–67	—	—	—	14	44	42	5	—	—	—	—	—	105
& *Coleophora frischella* L. (not distinguished)	67–68	—	4	6	75	1069	47	—	—	—	—	—	—	1201
209. *Hectacma stilbella* (Dbld.)	66–67	—	—	—	1	—	—	—	—	—	—	—	—	1
210. *Opogona comptella* Walk.	66–67	—	—	—	—	—	4	—	—	—	—	—	—	4
211. *Opogona omoscopa* (Meyr.)	66–67	—	9	34	193	47	52	3	1	—	—	—	—	339
	67–68	4	14	28	74	15	6	12	7	—	—	—	—	160
Family TINEIDAE														
212. *Monopis ethelella* (New.)	66–67	—	—	—	—	—	1	3	2	1	—	—	—	7
213. *Sagephora phortegella* Meyr.	66–67	—	—	—	1	—	2	1	—	—	—	1	—	5
Monotrysia-Family HEPIALIDAE														
Subfamily HEPIALINAE														
214. *Aenetus virescens* (Dbld.)	66–67	1	—	—	—	—	—	—	—	—	—	—	1	2
	67–68	2	—	—	—	3	—	—	—	—	—	—	2	7
Subfamily OXYCANINAE														
215. *Cladoxycanus minos* (Huds.)	66–67	—	—	—	—	—	—	—	—	6	—	—	—	6
	67–68	—	—	—	—	—	—	—	—	1	—	—	—	1
216. *Trioxycanus enysii* (Butl.)	67–68	—	—	1	—	—	—	—	—	—	—	—	—	1
217. *Wiseana cervinata* (Walk.)	66–67	1304	1152	287	66	56	10	—	—	—	—	—	43	2918
	67–68	3008	600	180	3	—	—	—	—	—	—	—	2	3793
218. *Wiseana signata* (Walk.)	66–67	—	—	1	4	7	2	—	—	—	—	—	—	14
	67–68	—	—	2	7	18	3	—	—	—	—	—	—	30
219. *Wiseana umbraculata* (Gn.)	66–67	22	76	11	3	—	—	—	—	—	—	—	—	112
	67–68	2	43	10	—	—	—	—	—	—	—	—	—	55

TABLE 2—Summary of Numbers of Species taken in Seasons 1966–67, 1967–68

	Pieridae	Lycaenidae	Hypsidae	Sphingidae	Saturnidae	Psychidae	Noctuidae	Geometridae	Pyralidae	Pterophoridae	Thyrididae	Tortricidae	Oecophoridae etc. (spp. 183–213)	Hepialidae	Total
Taken in both seasons	—	1	1	—	1	1	30	29	32	1	1	9	11	5	122
Taken in 1966-1967 only	—	—	—	—	—	—	11	25	13	3	—	8	18	—	78
Taken in 1967-1968 only	1	—	—	1	—	—	2	7	7	—	—	1	2	1	22
Total	1	1	1	1	1	1	43	61	52	4	1	18	31	6	222

TABLE 3—Summary of Numbers of Specimens (all species) taken in Seasons 1966–67, 1967–68

Family	1966–67	1967–68
Pieridae	—	1
Lycaenidae	1	1
Hypsidae	1	1
Sphingidae	—	1
Saturnidae	23	70
Psychidae	6	10
Noctuidae	7,440	2,680
Geometridae	2,027	1,014
Pyralidae	51,933	55,371
Pterophoridae	25	2
Thyrididae	4	3
Tortricidae	697	309
Oecophoridae etc. (spp. 183–213)	632	1,465
Hepialidae	3,052	3,886
Total	65,841	64,814

TABLE 4—Comparative Abundance of Species in the Light Trap Catches; 1966–67 relative to 1967–68

	Sphingidae	Saturnidae	Psychidae	Noctuidae	Geometridae	Pyralidae	Pterophoridae	Thyrididae	Tortricidae	Oecophoridae etc. (spp. 183–213)	Hepialidae	Total
No. of species in which same no. of specimens of specimens were recorded in both seasons	—	—	—	2	—	3	1	—	1	1	—	8
Species more frequently recorded in 1966–67	—	—	—	33	49	34	3	1	15	23	2	160
Species more frequently recorded in 1967–68	1	1	1	8	12	15	—	—	2	7	4	51
Total	1	1	1	43	61	52	4	1	18	31	6	219

changes in climatic conditions between the two seasons made animals less vulnerable to trapping by this method in the second season, or even if conditions in the winter of 1967 could have resulted in smaller populations flying in the second season. An analysis of detailed weather records is currently being carried out, but at this stage it seems unlikely that any significant factors will be unearthed.

There is a possibility, which cannot be confirmed, that the trap itself made a significant contribution to mortality. However since the use of light traps for insect control appears to have been very largely unsuccessful (Stanley & Dominick 1957; Williams *et al.*, 1955), this can probably be discounted. In this particular case it is possible to point to certain ecological disturbances in the campus area which could have resulted in lower catches in the second season. The nearest field to the trap was ploughed in in the autumn of 1967; weeds and herbage were cleared from the orchard perimeter in the winter of 1967, and progress on the university ring road resulted in a sizeable part of the mixed exotic and native bush along the Tiritea being felled.

In my opinion the most important single change in the environment in the vicinity of the trap that could act to reduce catches was the addition of street lighting on the road past the Biology Building to the orchards. The detailed study by Verheijen (1960) on the factors influencing light trap operation indicated that any change in the contrast between the trap and the area around it was certain to result in reduced efficiency. One lamp standard stood only 50 yards from the trap to one side, and from any point in the vicinity that the trap light was visible, the standard would be too.

The results underline the serious drawbacks which are inherent in light trapping as a means of making estimates of even relative population numbers. My examination of crambine catches from the Department of Agriculture trap at Winchmore (unpublished) showed that *Crambus* "*simplex*" (actually an undescribed species) was taken commonly by the black light trap, but not by the mercury vapour trap. Studies by Glick *et al.* (1956) indicated that slow-flying species of Lepidoptera such as pyralids and geometrids frequently approached a trap and were then repelled by the high intensity bulb when they came within a certain range of it. Thus these groups may be consistently under-represented in the catch. There is no doubt, from the abundance of larvae in the area of the campus, and the results of netting along stands of conifers after dusk, that *Oeceticus omnivorous* is also much more common than the trapping results would suggest. I noted a tendency of many tortricids and geometrids of the genus *Xanthorhoe* to come to ground several yards from the trap rather than flying right up to it.

Despite all these valid reservations which must be considered when light trapping results are examined, it is interesting to compare the Palmerston North results with other published whole-year trapping records from the southern part of the North Island (Cumber, 1951; Gaskin 1964a, 1964b).

NOCTUIDAE: *Melanchra homoscia* (Meyr.) was the dominant noctuid in the Wellington catch (Gaskin, 1964a, 1964b), because the Karori hills around the trap were thickly covered with *Cassinia leptophylla* (Forst.f.) the foodplant of the species (Gaskin, 1967). This species was not recorded at Palmerston North, nor at Paiaka by Cumber. *Melanchra mutans* was noted as a common species at all three localities. Cumber recorded 250 *Persectania steropastis*, a species of negligible occurrence at Wellington and Palmerston North. However Paiaka is a flax growing district, and the other two localities are not.

PYRALIDAE: This family accounted for 24% of the Wellington catch (Gaskin, 1964c) and a much greater percentage of the catches at Paiaka and Palmerston North. This difference is the result of the use of tungsten filament bulbs at Wellington, and mercury vapour bulbs having much greater "pulling power" for Lepidoptera at Paiaka and Palmerston North. At all three localities *Crambus flexuosellus* was the most abundant species of all Lepidoptera in the trap catches.

OTHER FAMILIES: Relatively few other species were caught in significantly large numbers at Wellington or Palmerston North, but Cumber recorded very large numbers of the clover case bearer *Coleophora frischella* (Coleophoridae), and *Opogona omoscopa* and *Erechthias hemiclistra* (Lyonetidae). The latter is known to feed on dead, dry monocotyledenous tissue; for example the flower stalks of *Phormium* and *Cortaderia.* The great prominence of *Leptomeris rubraria* and *Xanthorhoe venipunctata* in the Paiaka catches relative to the other localities is not explicable without more information on the vegetation of the area at the time catches were made.

REFERENCES

BELTON, P.; KEMPSTER, R. H. 1963: Some Factors Affecting the Catches of Lepidoptera in Light Traps. *Canad. ent. 95:* 832–7.

CUMBER, R. A. 1951: Flight Records of Lepidoptera taken with a Modified Rothamsted Light Trap operated at Paiaka. *N.Z. Jl Sci. Technol. B33:* 1–8.

DUGDALE, J. S. 1966a: A New Genus for the New Zealand "Elusive Tortrix" (Lepideptera: Tortricidae: Tortricinae). *N.Z. Jl Sci. 9:* 391–8.

—— 1966b: A Revision of New Zealand Schoenotenini and Cnephasiini (Lepidoptera: Tortricidae: Tortricinae). *N.Z. Jl Sc.. 9:* 731–75.

DUMBLETON, L. J. 1966: Genitalia, Classification and Zoogeography of the New Zealand Hepialidae (Lepidoptera). *N.Z. Jl Sci. 9:* 920–81.

GASKIN, D. E. 1964a: Notes on the Species of Lepidoptera taken by Light-trapping at Wellington between November, 1962, and November, 1963. *Rec. Dom. Mus. Wellington, 4:* 305–9.

—— 1964b: The Species of Lepidoptera taken by Light-trapping at Wellington between December, 1963, and May, 1964. *Rec. Dom. Mus. Wellington, 5:* 39–43.

—— 1964c: Light-trapping for Lepidoptera in Wellington during Two Summer Seasons; 1962–63 and 1963–64. *N.Z. Ent. 3(3):* 28–32.

—— 1967: New Zealand Noctuidae (Lepidoptera): Summary of known Host Plants and a bibliography relevant to the biology of the group. *N.Z. Ent. 3 (5):* 19–27.

GLICK, P. A.; HOLLINGWORTH, J. P.; EITEL, W. J. 1956: Further Studies on the Attraction of Pink Bollworm Moths to Ultra-violet and Visible Radiation. *J. econ. Ent. 49:* 158–61.

HARDWICK, D. F. 1965: The Corn Earworm Complex. *Mem. ent. Soc. Canada 40:* 1–246.

HELSON, G. A. H. 1966: Adult Periodicity of *Wiseana* spp. (Fam. Hepialidae in New Zealand as Revealed by Light Traps. *Sect. V. Eleventh Pacif. Sci. Congr., 1966.* Tokyo. Mimeo. 14 pp.

HUDSON, G. V. 1928: "The Butterflies and Moths of New Zealand". Ferguson and Osborn, Wellington.

OBRAZTOV, N. S. 1955: Die Gättungen der Palaearktischen Tortricidae, I. Allgemeine Aufteilung der Familie und die Unterfamilien Tortricinae und Sparganothinae. *Tijdschr. Ent. 98:* 147–228.

STANLEY, J. M. DOMINICK, C. B. 1957: Response of Tobacco and Tomato Horn Worm Moths to Black Light. *J. econ. Ent. 51:* 78–80.

VERHEIJEN, F. J. 1960: The Mechanisms of the Trapping Effects of Artificial Light Sources upon Animals. *Arch. Neerland. Zool. 13:* 1–107.

WILLIAMS, C. B.; FRENCH, R. A.; HOSNI, M. M. 1955: A Second Experiment on Testing the Relative Efficiency of Insect Traps. *Bull. ent. Res. 46:* 193–204.

WISE, K. A. J. 1965: Nomenclature of Some Butterfly Species. *N.Z. Ent. 3(4):* 18–20.