ADULT PERIODICITY OF PORINA IN THE MARLBOROUGH SOUNDS

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Summary

Data from six years of nightly light trapping, in the Marlborough Sounds area showed that a peak flight of porina (*Wiseana* spp) moths occurred in late February - early March each year. Some moths were trapped most evenings from October to late May. An averaged peak flight week calculated to be February 19-25 can be used to determine the best time to control the surface dwelling and subterranean larval stages, viz. mid April and early June respectively.

INTRODUCTION

Porina is a major pest of improved pasture in New Zealand. After hatching from eggs laid on the soil surface the small larvae remain on the surface for about 6 weeks before forming deep tunnels. The nocturnal larvae emerge from these tunnels and feed on plant green matter on most nights during the winter months. The adult moths can be observed flying and laying eggs (French 1973a) during most evenings from September until April. Sometime during the flight period the number of moths flying reaches a peak. The timing of these peaks in various districts throughout New Zealand has a direct influence on when the period of pasture damage occurs. For example Allen (1968) and French and Pottinger (1975) reported damage to pasture in late winter and spring in some South Canterbury and West Coast districts, caused by larvae originating from peak moth flights in the previous late summer. On the other hand, larvae from peak moth flights during spring cause autumn damage in pastures in most areas in mid and North Canterbury (Waller 1968).

Because methods of control such as mobstocking (French 1973b) and the application of short-lived organophosphate insecticides (Waller 1968) require critical timing to be most effective, knowledge of the seasonal and geographical variation of peak moth flights would assist timing of controls. The use of strategically placed light traps around New Zealand (Helson 1966) is one way to gather this knowledge.

This paper describes porina moth flight periodicity to date from one light trap sited at Manaroa in the Marlborough Sounds.

METHOD

A light trap of the type described by Helson (1966) was sited on Mr A. O. Richardson's property at Manaroa, Pelorus Sound.

Every evening the 125 W Mercury vapour lamp was switched on at 6.30 p.m. and off at 10 p.m. The light trap was operated continuously from 10.10.73 except for short inoperative periods due to mechanical failures and servicing. The collecting tray was emptied early every morning, the

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Pasture Pests

different species of porina moths identified as accurately as possible and counted. Many other insect species were also categorised and counted. This and other information on each porina species is not reported but is available on request.

Because of the difficulty of accurate identification of porina species, only the total daily number of moths were used in the calculations. The majority of moths trapped were considered to be of the *Wiseana cervinata* complex.

RESULTS AND DISCUSSION

The data in Table 1 show in three seasons a clearly defined peak flight in mid February to early March each year. In the 1974-75, 1977-78 and 1978-79 seasons the peaks were not well defined, nor were the total number of moths trapped very high compared with other seasons. Interestingly, very little pasture damage was reported in the district during the spring of 1975 and 1978. On the other hand, serious and widespread damage was reported in the spring of 1977 following the trapping of a large number of moths over the 1976-77 season and the recording of a large peak flight in late February.

TABLE 1: Counts of Porina moths caught in light trap 1973-79.

DATE	NUMBER					
	1973-74	1974-75	1975-76	1976-77	1977-78	1978-79
*Oct. 1 - Jan. 6 (14 weeks)	326	397	117	286	549	352
Jan. 7 - 13	34	24	36	34	32	17
14 - 20	36	28	40	92	121	25
21 - 27	65	43	52	98	75	25
28 - Feb. 3	119	34	26	139	254	25
Feb. 4 - 10	352	54	73	252	368	37
11 - 17	980	99	89	385	494	132
18 - 24	711	70	182	2508	306	209
25 - Mar. 3	214	41	183	2025	327	170
Mar. 4 - 10	154	81	412	959	445	315
11 - 17	375	50	201	680	425	203
18 - 24	5	21	259	363	132	183
25 - 31	28	17	78	101	-	194
Apr. 1 - June 2**	163	24	101	131	1	69

* Earliest date when moths trapped over the six year period = 20.9.78

** Latest date when moths trapped over the six year period = 22.6.74

Although the peak flight periods were spread over a number of weeks, there was usually one week when an extremely high moth number was trapped. This was considered to be the week for the peak flight. The average of dates over the 6 years was calculated to be February 19-25th. From this figure and other data (French 1973a) the approximate dates of important life stages can be estimated. For example, peak numbers of the surface dwelling stage are likely to be present in the district in early April. Thirty-five - 42 days later (mid May) a large number of the surviving surface-dwelling larvae should begin constructing deep vertical tunnels.

Pasture Pests

This marks the beginning of the period of actual pasture damage. Damage should become obvious in another 35-36 days (about mid-late June) depending upon the density of the larval population, pasture growth and grazing pressure.

If mob-stocking is to be used as a control measure against the surface dwelling stage (French 1973b) this should be carried out some time between mid and late April. Likewise, if the application of insecticide is contemplated against the subterranean stage the best time should be early June, i.e., before significant pasture damage occurs.

Another point to consider is the length of the flight season. Every year a few moths are trapped as early as the first or second week in October and as late as May, which may mean some extension in time of the main damage period. This situation could be further confounded by an extended peak flight period caused by a large number of moths emerging and flying over more than the normal 1-2 weeks, e.g., 1977-78 season. The timing for the control measures mentioned above should therefore be regarded as a guide until further light trapping and systematic sampling of infested paddocks enable the significance of the extended flight period to be evaluated.

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