

Thank you for using eradoc, a platform to publish electronic copies of the Rothamsted Documents. Your requested document has been scanned from original documents. If you find this document is not readable, or you suspect there are some problems, please let us know and we will correct that.



ROTHAMSTED
RESEARCH

Rothamsted Experimental Station Report for 1980 Part 2



[Full Table of Content](#)

Synoptic Monitoring for Migrant Insect Pests in Great Britain and Western Europe. I Establishing Expected Values for Species Content, Population Stability and Phenology of Aphids and Moths

L. R. Taylor, R. A. French, I. P . Woiwod, Maureen J. Dupuch and Joan Nicklen

L. R. Taylor, R. A. French, I. P . Woiwod, Maureen J. Dupuch and Joan Nicklen (1981) *Synoptic Monitoring for Migrant Insect Pests in Great Britain and Western Europe. I Establishing Expected Values for Species Content, Population Stability and Phenology of Aphids and Moths* ; Rothamsted Experimental Station Report For 1980 Part 2, pp 41 - 104 - DOI:

<https://doi.org/10.23637/ERADOC-1-34238>

Synoptic Monitoring for Migrant Insect Pests in Great Britain and Western Europe I. Establishing expected values for species content, population stability and phenology of aphids and moths

L. R. TAYLOR, R. A. FRENCH, I. P. WOIWOD, MAUREEN J. DUPUCH and
JOAN NICKLEN

Abstract

Data from the first decade of monitoring aerial populations of aphids and moths are tabulated. The 42 suction trap stations in Western Europe and 286 light trap stations in Great Britain are listed, the 317 aphid and 616 moth species sampled, changes in weekly *Aphid Bulletins* over 10 years; the stabilisation of first flight dates for 30 aphid species are tabulated; the mean annual population density for 30 aphid and 20 moth species are given as progressive annual means for 2–10 years in three regions; the 10-year mean seasonal cycle of migration for 30 aphids and 20 moths and the 10-year daily means for total aphids and total moths for three regions are given graphically.

Introduction

A major hazard of agricultural entomology is the erratic appearance of many pests. During an epidemic, great attention is attracted and new projects started; but during the ensuing endemic stage, concern for that particular species rapidly wanes because attention is distracted by more immediate problems. Observations of its abundance, distribution and phenology and the search for any potential indirect measure of its population fluctuations, decline. At the critical period during the initiation of a new epidemic, current information is then found to be wanting and adequate preparation for control is delayed. Unless insect populations are monitored systematically during periods of scarcity as well as abundance, the first warning signs of impending population increase and the associated increase in risk, are never discovered. Each outbreak is tackled *de novo* and no lessons are learned except through subjective individual experience. Valuable as it is, this experience is not easily quantified and, as a result, it is lost to succeeding generations.

Short-term treatment warnings made on the basis of experience (qualitative models) or simple quantitative models (e.g. accumulative temperature thresholds) are adequate for some purposes some of the time. Crucial factors initiating epidemics may be missing and, because they occur infrequently, remain unrecognised. Unless such models are continuously confirmed and updated against systematic population measurements of known efficiency, no progressive improvement of monitoring, risk assessment, or of subsequent control proposals, can be made. It may be decades before a vital missing component in a forecasting model is identified, so that progressive advancement in agricultural entomology is only possible with continuous long-term monitoring (Taylor, 1977a, 1979).

Systematic information about the basic ecological factors concerned in insect pest outbreaks is not common and, when available, it usually relates to a single pest only. Many projects are concerned with one species or, at most, one crop. Closely related

ROTHAMSTED REPORT FOR 1980, PART 2

non-pest species are rarely investigated, although there may be much to learn from the comparison of the population dynamics of pests and non-pests. It is conceivable that such vital seasonal features of life cycles as the times of migration that result in crop infestation, may be anticipated by the earlier flights of non-pest congeners. In other words, non-pests may provide clues for the observant agricultural entomologist that yield information on subsequent pest behaviour. In its most obvious form, the general earliness of a season is often indicated by activities of organisms of no special agricultural interest except as incipient analogues for pest dynamics.

Conventional population dynamics theory has so far been of little value in the control of insect pests, especially for such mobile pests as aphids, because it is mainly concerned with temporal, not spatial, change. Once a crop is infested, the growth of pest populations can be modelled with varying degrees of initial success but with good prospects of improvement, given time. Our knowledge of the initiation of infestation, usually by immigration, is currently dependent on systematic monitoring. Until this becomes established practice, the prospects for forecasting infestation are slight and for confirmation of forecasts are negligible.

For all these reasons the Insect Survey was devised and the first trap was re-started in January 1960 at Rothamsted on a site sampled earlier (Taylor, 1973, 1974), with the objective of providing this essential long-term background data for the improvement of pest forecasting techniques. Because sampling was intended to be spread widely in space, time and taxonomy, only flying adults were sampled to minimise the labour in a labour-intensive project. By replacing subjective judgement of population levels with objective measurement, an expectation of mean levels of population occurrence, timing and species content would be established against which current populations could later be assessed for prospective risk.

The first traps to operate were light traps sampling moths at a height of 1.2 m. This approach was adopted, not because moths are such serious pests in Great Britain but because their ease of identification minimised the cost of the experiment. Agricultural interest centres mainly on the aphids, sampled with suction traps at 12.2 m above ground level, the first samples of which were taken in 1963. Because the exercise was exploratory and initial concern was to assess the feasibility of sampling on this scale, the network of sampling stations developed only as results appeared to justify further extension; it took a decade to establish the sampling network to the level where insect distributions could be effectively mapped. As a result we are here concerned mainly with the second decade, from 1969 to 1978 for moths and 1970 to 1979 for aphids, during which an effective sampling system has operated. Weekly *Bulletins* of pest aphid numbers have been issued during this period and *Annual Summaries* for pest species of aphids and moths. This paper summarises the results over that decade to record the species to be expected in future samples, the seasonal cycles of population and the spatial and temporal mean densities and the degree of stability reached in the expected mean densities and times of migration. These long-term means form the basic picture against which current densities will be considered during the next decade in order that the deviations may be used to measure the prospective agricultural risk. The data are obviously extensive, dealing with 317 species of aphids and 616 species of moths of which sample data for 30 species of aphids at 12 sites for 10 years and for 20 moth species at 15 sites for the same period are further considered. Lack of space prevents the tabulation of similar data for potential indicators amongst non-pest species. We therefore establish the species content and the levels of stability of the background means to make them available for specialists in particular crops or pests, for confirmation of models and for subsequent analysis and discussion.

The potential of these aerial samples for specific advisory forecasts requires an under-

SYNOPTIC MONITORING FOR MIGRANT INSECT PESTS. I

standing of the ecology of the pest species concerned, its enemies and the crop; each species/crop problem is unique and in most instances the crop data and economic damage thresholds are not yet available. Subsequent papers will attempt to assess this forecasting potential where the pest problem is sufficiently well defined. In the meantime a companion paper by Bardner *et al.* (1981) assesses the economic value of the aerial sampling approach to forecasting, the target to which the whole agricultural concept is directed, and another by Heie *et al.* (1981) lists the aphid species found in Denmark by the same sampling method, for comparison with the species found in different parts of Britain. The speed with which pests can be identified, and upon which the value of forecasting depends, is determined by a foreknowledge of which species to expect and how frequently they are likely to occur. Similar species' lists should eventually become available for Holland, France, and Belgium where similar traps now operate.

The data are presented in tables and figures for easy access by applied entomologists. They are discussed briefly to facilitate interpretation and a few general conclusions are drawn. More detailed consideration will be given to separate species as the ancillary data required to place the dynamics in their agricultural context, become available.

We first list the dates of operation of sampling stations and their changes up to 1979 (Tables 1 and 2) and show their geographical distribution (Figs. 1 and 2); then the aphid and moth species currently identified are numbered and listed (Tables 3 and 4); changes in the aphids recorded in *Bulletins* between 1968 and 1980 indicate how sample size, entomological interest and change in taxonomic standards affect the definition of pest populations (Table 5); Table 6 gives the week numbers used in analysis and in the figures (3–14) which show mean seasonal cycles of aphid and moth populations in different regions of Great Britain for species listed in *Bulletins* and *Annual Summaries* (Taylor & French, 1970, 1980); Figs. 15 and 16 show the mean seasonal cycle of daily total numbers of aphids and moths sampled over the period 1968–78 as a measure of the sampling effort required.

Suction trap sampling stations

Table 1 lists the 43 stations where the 'forty-foot' suction traps, designed and first built at Rothamsted in 1963 (Taylor & Palmer, 1972), have operated. Slight modifications to construction and materials, including the extractor fan unit, have occurred but the volumetric sample remains essentially the same and is collected at 12.2 m.

The first trap was tested in 1963 and began permanent operation at the Rothamsted Tower station (901) on 29 April 1964. The station has operated continuously, interrupted only by power failures. The original trap was replaced in 1970 and its replacement is still in operation. Life expectancy of traps is 10–15 years with annual servicing. Traps have operated at other stations on Rothamsted Farm, and at Garston nearby for limited periods to investigate the effect of distance on sample content. Rothamsted Farm I (station 902) and Farm II (920) were 12.2 m apart at a distance of 1.4 km from station 901, which was 11.7 km from Garston (station 915).

The first transect of Great Britain, from Dundee (907) through Newcastle (906), High Mowthorpe (905), Broom's Barn (904) to Wye in Kent (903) was established by 1966 and extended to Elgin (916) by 1970, including Edinburgh (912), set up independently by the Department of Agriculture and Fisheries for Scotland (DAFS). Sampling began independently by the Welsh Plant Breeding Station (911) at Aberystwyth in 1969.

The second transect, from Broom's Barn (904) through Silwood Park (908), Long Ashton (914), Starcross (913) to Rosewarne (910) was also completed by 1970.

The transects intersected at Rothamsted Tower (901) and were used to assess the effectiveness of the sampling method and, in conjunction with the short-distance sites

ROTHAMSTED REPORT FOR 1980, PART 2

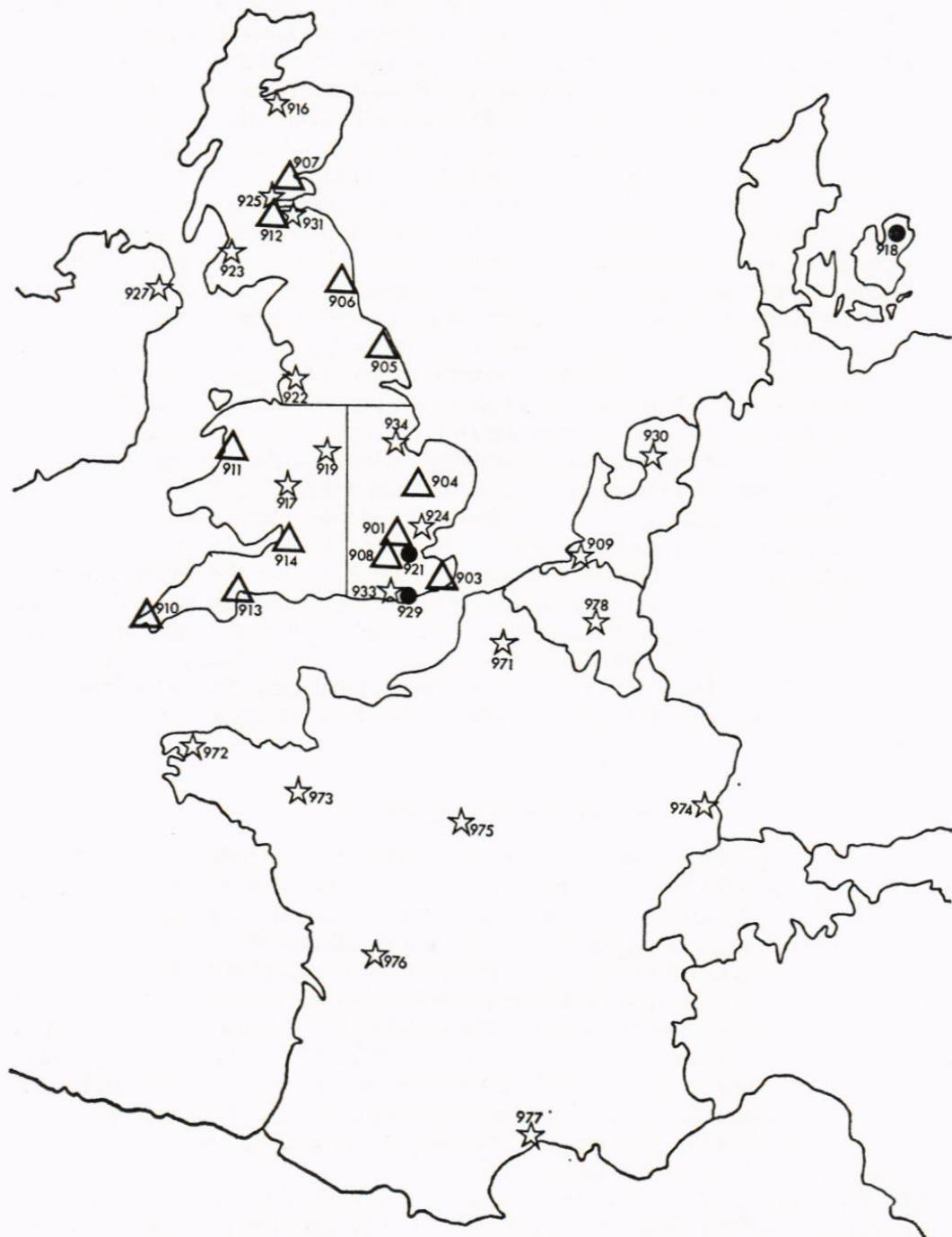


FIG. 1. Suction trap stations operated between 1964 and 1980 in Western Europe. Δ , stations currently operating and used for the 10-year means; $\star$, stations currently operating but not so used; $\bullet$, stations not currently in operation. The island of Great Britain is divided into (1) South-eastern England (2), Wales with South-western England and (3) North England with Scotland for Tables 7 and 8. See legends for regions used in Figs. 3–9 and 15.

SYNOPTIC MONITORING FOR MIGRANT INSECT PESTS. I

near Rothamsted, to assess the grid spacing for different degrees of mapping detail. Once this had been done (Taylor, 1974), interpolation of sites at Hereford (917), Shardlow (919), Preston (922) and Auchincruive (923) was achieved by 1974. Reorganisation made possible a station at Kirton (934) in 1980 and a projected station in Cumbria. DAFS increased the coverage in Central and SE Scotland (sites 925, 926 and 931) by 1979.

Sampling across the English Channel at Goes in Holland (909) began in 1968 and Copenhagen (918), across the North Sea, was operating by 1971. The site across the Irish Sea, Belfast (927), began independently in 1976. The major expansion abroad came after the initiative of M. Y. Bouchery at Colmar (974) in 1977 when the Association de Coordination Technique Agricole established a network of six more stations in France at Arras (971), Landerneau (972), Rennes (973), Orleans (975), Aigre (976) and Montpellier (977) in 1978. Additional stations now operate in Holland, NE Polder (930), and in Belgium, Gembloux (978) (Fig. 1).

Special projects have been mounted at Rainham (921, transferred to 928), at North Farm (929, transferred to Littlehampton, 933) and independently at Cranfield Institute of Technology (932).

Annual servicing includes replacing the net, 16 mesh per cm (40 mesh per in.) to retain aphids whilst permitting most thrips to pass through, and damaged rigging. The structure has been effective in surviving gales without loss. The design has not been changed, except to use more resistant materials and to include an inlet cage to prevent birds being sampled.

The volumetric air sample *c.* $3.5 \times 10^4 \text{ m}^3$ per 12-h day has been found a satisfactory compromise for most days. It could usefully be larger at the beginning of the season and the sample volume is halved in mid-summer. Subsampling is also necessary in high season, by subdividing the aphid catch after initial sorting.

Light trap sampling sites

Table 2 lists the 286 light trap stations in Great Britain, Channel Islands and Eire that have completed at least 1 year's trapping, with the year of starting and number of completed years to the end of 1979. The exact location of nearly all the stations is given by a grid reference with an indication of the predominant vegetation surrounding the trap and the name of the operator(s) and their appropriate organisations, where applicable. The Channel Islands and Eirean stations are located by latitude and longitude as they do not fall within the British National Grid system.

The environmental site categories are:

1. urban (including suburban)—a trapping station surrounded by buildings and roads with small areas of intensity cultivated ground such as gardens;
2. parkland—sites with areas of short permanent grass, tended shrubberies, flower borders, occasional standard trees and small experimental plots;
3. farmland—cultivated land with field crops, including grass;
4. scrubland—sites with gorse, scrub and rough grazing, usually on sandy soil;
5. woodland—sites where trees predominate;
6. moorland—high altitude permanent grassland with some heather and bracken;
7. coastal—sites of any environmental category near the sea;
8. mixed—any area which cannot be categorised as above.

ROTHAMSTED REPORT FOR 1980, PART 2



FIG. 2. Light trap stations in Great Britain and the Channel Isles between 1960 and 1980. ▲, stations currently operating and used for the 10-year means and figures; ○, stations currently operating but not so used; ●, stations not currently operating. The island is divided into regions (1) Southern England, (2) Wales, Central and Northern England, (3) Scotland (see legend to Figs. 10–14 and 16).

SYNOPTIC MONITORING FOR MIGRANT INSECT PESTS. I

Abbreviations for organisations operating light traps are:

ADAS—Ministry of Agriculture Development Advisory Service;
Exp. Farm—Ministry of Agriculture Experimental Farm;
Exp. Hort. Stn—Ministry of Agriculture Experimental Horticulture Station;
FC—Forestry Commission;
FC(RB)—Forestry Commission Research Branch;
FSC—Field Studies Council;
ITE—Institute of Terrestrial Ecology;
NCC—Nature Conservancy Council;
RSPB—Royal Society for the Protection of Birds.

In some organisations, the staff have changed regularly and it is not possible to list all helpers. In these instances, only the name of the organisation is given.

Because many light trap stations are operated by voluntary workers, they are less permanent than suction trap stations but the number in operation had stabilised at about 120 by the middle 1970s (Fig. 2). No change has been made to the original trap designed by Williams (1948) using a 200 W clear tungsten lamp.

Aphids from the suction traps in Great Britain

Table 3 lists the aphids caught between 1964 and 1979 at the sites in Great Britain listed in Table 1. Nomenclature is based on Kloet and Hincks (1964), numbered for use in the Survey.

Numbers 1–533 are species arranged sequentially as in the check list.

Numbers 700–999 are additions or alterations to species in the check list, inserted to conform with Eastop and Hille Ris Lambers (1976), as far as possible.

Numbers 1000–2499 are either part genera, or whole genera; these categories are used for damaged specimens unidentifiable to species, or for species groups not separable by available techniques.

Numbers 1–3, 6–21, 729, 730, 734–736 were identified by Mr C. I. Carter, Forestry Commission. Some rare or difficult species were identified by Dr H. L. G. Stroyan, Ministry of Agriculture, Fisheries and Food, and Dr V. F. Eastop, British Museum (Natural History).

The identification by Dr O. E. Heie of the Skive Seminarium, Denmark, of some species from the Copenhagen station (918) questions the earlier determinations of 287, *Pentatrichopus fragaefolii*, and 468, *Amphorophora rubi* (see under *The Aphid Bulletin* (p. 49) and Heie *et al.*, 1981).

Identification is by visual recognition of morphological characters at low power magnification with frequent cross-reference to ensure the maintenance of a common level of separation by different individuals. Because of the speed of recognition required for release of *Bulletin* information, training takes 2 years to reach the level of proficiency demanded.

Samples from most stations in Great Britain and Denmark have been sent twice weekly to Rothamsted for aphid identification. Samples from other stations were identified elsewhere as follows: 904, Dr G. D. Heathcote; 909, 930, Dr D. Hille Ris Lambers and Dr A. van Harten; 911, Mr J. A'Brook and Dr A. M. Dewar; 912, 925, 926, 931, Dr L. A. D. Turl; 927, Dr A. C. Bell.

Macrolepidoptera from light traps in Great Britain

Table 4 lists all the species of Macrolepidoptera caught by the light traps of the Insect Survey since the first trap started operating in 1933. The species are listed in numerical

ROTHAMSTED REPORT FOR 1980, PART 2

order from Heslop's (1964) check list. This system was adopted when a numerical list was first required to transfer records on to computer file. The Latin nomenclature has been frequently revised and the old English names, which remain unaltered, are often used in practice; they are taken from South (1961). The Latin names from South (1961) have also been adopted for common use in the Survey; the last column gives the current Latin names from Kloet and Hincks (1972).

Identification is based on visual recognition of wing shapes and patterns. A few groups, difficult to separate by this method, require dissection of the genitalia. Not all identifiers can do this nor can so much of this detailed work be done at Rothamsted; some species are therefore recorded in groups, allocated numbers following the main list of species, which are also used when moths are too damaged for rapid identification by eye (nos. 2500–2529).

Since Heslop (1964) and South (1961) were published, *Amphipyra pyramidea* (502) and *Plusia festucae* (627) have each been split into two species. The 'new' species 2507 and 2510, are separated at some stations since 1970; prior to that date any records under numbers 502 and 627 include records for 2507 and 2510 respectively. All four species occur rarely in samples and no group number was allocated for recording.

Since 1974, melanic forms of nine species have been recorded throughout the Survey, each under its specific number and separately under new numbers for typical and melanic specimens (nos. 2530–2548).

The Aphid Bulletin

The *Bulletin* reflects the interests of the aphid entomologists who receive it. Most are concerned with agricultural pest species but some with forest pests or with aphids used for experimental work. As these interests have changed, so have the *Bulletin* species. Also some species initially requested, have ultimately been found to occur too rarely for practical purposes, at the current sampling rate, and have been excluded.

Experience has shown that the validity of identification, at the rapid rate required, depends upon the relative frequency of occurrence of morphologically similar species in samples from different places and times. For practical agricultural purposes the occasional intruder in samples of an abundant pest is not relevant. If the pest itself occurs only in small numbers such misidentifications are important and only after long experience can the potential intruders be anticipated. This was one reason for making the initial decision to identify all aphids. Experience of the aphid aerofauna will now be used to identify these areas of taxonomic risk. In the list of aphids from the station at Tåstrup near Copenhagen in Denmark (Heie *et al.*, 1981) a few such high risk species have been identified because different, but closely related, species were known to occur in Denmark and Great Britain.

Changes made in the *Bulletin* species list between 1968 and 1980 were made for the following reasons (see Table 5).

E. tiliae (70) and *N. circumflexum* (378) were omitted from 1969 onwards because very few were caught and interest in them was small. *D. plantaginea* (234), *E. ulmi* (500) and *P. fagi* (78) were added because they were requested and numbers caught were sufficiently large. *A. frangulae* grp replaced *Aphis gossypii* (181) because it was not found possible to distinguish between *A. gossypii* and some other *Aphis* spp. *Pemphigus/Prociphilus* replaced *P. bursarius* (514) because it was not possible to separate *P. bursarius* from other pemphigine spp.

In 1970 it was found that samples contained small numbers of sibling species to *A. fabae* (132) which were not being separated, so *A. fabae* (132) was replaced by *A. fabae* grp. *Aphis* spp., which includes all *Aphis* spp. except those in *A. fabae* grp replaced *A. frangulae* grp.

SYNOPTIC MONITORING FOR MIGRANT INSECT PESTS. I

In 1973 *A. rubi* (468) replaced *Amphorophora* spp. as most *Amphorophora* caught in our traps were *A. rubi*. After checking it was found that *M. persicae* (322) included *M. certus* and *M. ajugae*, so it was replaced by *M. persicae* grp. Also in 1973 *Pemphigus* spp. (1506) replaced *Pemphigus/Prociphilus*, as *Pemphigus* could now be distinguished from the genus *Prociphilus*, which is not very common.

By 1976 it was possible to separate *M. certus* (319) from *M. persicae*, so *M. certus* was added. *M. persicae* grp still includes any *M. ajugae* which may be caught, but this is a rare species.

During 1980 a number of *Metopolophium* spp. were caught which resembled *M. festucae* (397) but were, as yet, undescribed; to cover this, *M. festucae* was replaced by *Metopolophium* spp. (1008).

The standard calendar

Table 6 lists the standard weeks used by the Insect Survey with their equivalent period in terms of day and month. By omitting 29 February and 31 December the year can be exactly divided into 52 weeks. As very few moths or aphids will be flying at the end of December or February the exclusion of these two days should have a minimal effect on subsequent analysis. It should be noted that these standard weeks are not used for the weekly *Aphid Bulletin* which runs from Monday to Sunday and this will only correspond to standard weeks in certain years.

The standard weeks are also grouped into standard 4-week periods indicated by the spacing in Table 6. These are the 13 periods used in the *Annual Summaries* (Taylor & French, 1970, 1980).

Phenology of flight of aphids and moths

An indication of the phenology of 28 of the 33 species of aphids recorded in *Bulletins* is given in Figs. 3–9 which are plots of weekly means over a 27-week period for three different areas of Great Britain and combined for all areas. The means use all the available data in a region from 1968 to 1979 (see Fig. 1 and legends to figures).

As far as possible species have been grouped together to demonstrate the main phenological patterns within the data. Thus Fig. 3a, b and c and Fig. 4a and b show species in which the first migration predominates, with later migrations being very small or non-existent. Fig. 5a and b are species with two well-defined migrations but with the first one larger than the second. Figs. 7c and d and 8a, b, c, and d are species which appear to have three distinct migrations, the middle one being the largest. Fig. 9a, c and d show another distinct pattern with three peaks in the year, each progressively larger. The remaining figures are either less clear-cut examples of one of the above patterns, or species where low numbers or the overlapping of migration cycles makes such categorisation difficult.

Enough is known of some species for these observed patterns of migration to be explicable in terms of the particular species' biology or ecology. Fig. 3a shows the typical single migration flight of the green spruce aphid (*Elatobium abietinum*) (Carter & Cole, 1977) and Fig. 5b the two migrations of the hop aphid (*Phorodon humuli*) where the second migration from the summer crop host hops (*Humulus lupulus*) to overwinter on *Prunus* can only be detected clearly in the two regions containing the main hop growing areas (Taylor *et al.*, 1979). The three migration cycles of some species such as *Aphis fabae* (Fig. 8a) (Way *et al.*, 1981) are now well-documented whilst that of *Myzus persicae* (Fig. 7a) (Taylor, 1977b) is regionally more complex. For many species, particularly those of less economic importance, this biological information is still lacking. These figures illustrate the phenological variability between species and, within some species, between regions. The use of calendar dates for obtaining means obscures much

ROTHAMSTED REPORT FOR 1980, PART 2

biological information, however, and this raises analytical problems that can only be resolved on a biological time scale that requires detailed knowledge of the components for individual species/host combinations not always yet available.

The seasonal cycle of flight activity for 20 moth species, included in the *Annual Summaries* as being of economic interest, are shown in Figs. 10–14 for the whole of Great Britain and separately for Southern England, Wales, Central and Northern England, and Scotland (Fig. 2). The figures represent weekly means from five sites in each region for 10 years. Moth phenology is generally simpler than for aphids (Figs. 3–9) there being usually only one generation per year and a single peak of activity. Unlike aphids, some species fly during the winter (Fig. 14) and others are confined to certain regions (e.g. Figs. 10c and 13b). All 30 aphid species occurred in all regions and this reflects their greater scale of redistribution.

Some moths appear to differ more in median flight date between regions; *Hepialus lupulina* and *Agrotis exclamationis* (Fig. 12c, d) fly later in Scotland whilst *Erannis aurantiaria*, *Operophtera brumata* and *Erannis defoliaria* (Fig. 14a, c, d) are earlier. Fig. 11 shows species with more than one generation per year, or extended flight period. *Plusia gamma* (Fig. 11b) is a migrant with several generations supplemented by periodic immigrations.

Stabilisation of mean aphid phenology with time

Table 7 presents information on another aspect of phenology, the rate at which the mean date of first flight stabilises for the 30 species of aphids shown in Figs. 3–9.

Three regions are separated, South-east, Wales and South-west, North and Scotland. In each region four sites are included for the analysis, those for which we have a complete run of 10 years records from 1970 to 1979 so that all regions' means are based on the same number of samples. A combined figure for all 12 sites is also given. The sites and areas used are indicated in Fig. 1. The values in the table show the effect on the mean date of first flight of adding years successively. In most cases the mean date stabilises after very few years, perhaps surprisingly so, considering the inherent uncertainty of recording individual aphids. Other measures such as first five aphids or median migration dates would probably provide even more stable means from which to judge yearly or regional deviations. As might be expected the mean date for the North and Scottish region is later than those for the other two regions in nearly all species. There is no clear relationship between the SW and SE regions, any differences being due to the particular life cycles and ecology of individual species. *Drepanosiphum platanoidis* seems to be unusual in that it has virtually identical dates of first flight in all regions as well as having very consistent mean dates throughout the 10-year period.

Stabilisation of sample size with time

Progressive annual arithmetic sample means for aphids are given in Table 8. The same species, years, regions and stations are used as in Table 7. Although some species in some regions seem to have reached a fairly stable level, others show trends over several years or sudden changes in the accumulated mean even after 9 years. An example of an apparent trend is seen in North and Scottish region for *Phyllaphis fagi* where there is an increase in mean from 1970 until 1973 is added, then a steady decrease until 1979. Sudden changes can be seen in several places in the table, most noticeably for *Metopolophium dirhodum* in the SE region which seems to have a fairly stable mean until 1979 when there is almost a five-fold increase in the mean with the addition of only a single year; the year 1979 was exceptional for this species (see Cochrane, 1980; Dewar

SYNOPTIC MONITORING FOR MIGRANT INSECT PESTS. I

et al., 1980). With numbers that are considerably smaller, a similar change can be seen in the SE region for *Rhopalosiphum maidis* when there is a six-fold increase in the mean with the addition of 1979.

Table 9 is equivalent to Table 8 but for 20 species of moths from light traps for regions with different boundaries and with the mean calculated from five traps in each region (see Fig. 2). In comparison with the aphids the progressive annual moth means become stable more quickly and most species have reached a consistent mean value after only 2 or 3 years. This is probably a reflection of the more local nature of moth populations and the small number of generations per year in comparison with the highly migratory and multigeneration aphid species.

Only two species of moth show marked discontinuities or trends in the mean after a few years. These are *Agrotis exclamatoris* in the SE region, where the mean doubles with the addition of the 1976 data and remains at this higher level, and *Erannis aurantiaria* in Scotland where the mean increased by a factor of 10 from 1972 to 1978 with large jumps in 1977 and 1978.

Acknowledgements

We wish to thank past and present staff of the Insect Survey and also the following voluntary workers: Mr D. Barbour, Mr K. Bond, Mr W. I. Bowen, Mr M. D. Bryan, Miss J. Cadwallader, Mr W. Coster, the late Mr D. Ffennell, Mr P. Follett, Mr F. Harrison, Mr P. Kendell, Mr W. W. Mather, Mr M. Mitchell, Mr R. M. Palmer, Mr E. Pickard, Mr R. E. M. Pilcher, Mr T. A. Potter (Jnr), Mr C. I. Rutherford, Mr M. J. Skelton, Mr P. Q. Winter, Mr B. Withers, Mr B. Wurzell, and Dr M. Young.

Our thanks are also given to Mr D. S. Fletcher and Mr D. J. Carter of the British Museum (Natural History) Entomology Department and Dr J. D. Bradley of the Commonwealth Institute of Entomology for help with difficult identifications of Lepidoptera.

REFERENCES

References are to be found after the Tables and Figures on page 104.

ROTHAMSTED REPORT FOR 1980, PART 2

TABLE 1
Sampling stations for the 12.2 m (40 ft) suction traps

Station number	Station name	Grid reference*	Date trapping commenced	Date trapping finished	Operator
ENGLAND					
901	Rothamsted Tower	TL 133134	29 April 1964	16 October 1973	Rothamsted Experimental Station
902	Rothamsted Farm I	TL 119137	29 April 1965		" "
903	Wye, Kent	TR 054470	30 November 1966		Wye College
904	Broom's Barn	TL 754656	22 March 1965		Broom's Barn Experimental Station
905	High Mowthorpe	SE 888686	5 August 1965		High Mowthorpe Experimental Husbandry Farm
906	Newcastle	NZ 202911	21 May 1965		Cockle Park Experimental Station
908	Silwood Park	SU 945687	26 March 1968		Imperial College Field Station
910	Rosewarne	SW 642411	12 November 1968		Rosewarne Experimental Horticulture Station
913	Starcross	SX 972821	5 February 1970		Agricultural Development and Advisory Service
914	Long Ashton	ST 536700	6 April 1970		Long Ashton Research Station
915	Garston	TL 124017	11 June 1970	5 November 1973	Building Research Station
917	Hereford	SO 564476	12 July 1971		Rosemaund Experimental Husbandry Farm
919	Shardlow	SK 438304	20 March 1972		Agricultural Development and Advisory Service
920	Rothamsted Farm II	TL 119137	6 September 1971		Rothamsted Experimental Station
921	Rainham I	TQ 546832	26 March 1973	16 October 1973 13 June 1976	W. O. Watts & Partners, Rainham
922	Preston	SD 984401	29 April 1974		Lancashire College of Agriculture
924	Writtle	TL 676067	22 May 1975	31 March 1980	Writtle Agricultural College
928	Rainham II	TQ 532816	4 March 1977		E. Knight, South Hall Farm, Rainham
929	North Farm	TQ 121103	14 April 1977		North Farm (Washington) Ltd., Pulborough
932	Cranfield	SP 955413	22 June 1978		Ecological Physics Research Group
933	Littlehampton	TQ 044034	4 May 1979		Glasshouse Crops Research Institute
934	Kirtton	TF 297395	2 May 1980		Kirtton Experimental Horticulture Station
SCOTLAND					
907	Dundee	NO 341300	12 May 1965	31 October 1976	Scottish Crop Research Institute
912	Edinburgh	NT 181737	3 April 1969		Department of Agriculture and Fisheries for Scotland
916	Elgin	NJ 185625	6 August 1970		North of Scotland College of Agriculture, Aldroughy Farm
923	Auchincruive	NS 378233	30 August 1974		West of Scotland Agricultural College
925	Stirling	NS 815968	13 August 1979		University of Stirling
926	Musselburgh	NT 337708	14 June 1976		David Lowe & Sons Ltd., Monkton Hall, Musselburgh
931	Pathhead	NT 412661	30 May 1977		Scottish Plant Breeding Institute
WALES					
911	Aberystwyth	SN 632837	16 March 1969		Welsh Plant Breeding Station
IRELAND					
927	Belfast	54°33.5' N 5° 56.5' W	1 July 1976		Northern Ireland Department of Agriculture

SYNOPTIC MONITORING FOR MIGRANT INSECT PESTS. I

HOLLAND 909	Zeeland (Goes)	51°31' N 3°53' E	5 May 1968	5 June 1972	Instituut voor Plantenziektenkundig Onderzoek
	Zeeland (Colijnsplaat)	51°35' N 3°49' E	6 June 1972	"	"
	N. E. Polder	52°38' N 5°44' E	29 March 1977	"	"
				"	"
DENMARK 918	Copenhagen	55°40' N 12°17' E	1 July 1971	30 November 1977	Den kgl. Veterinaer-og Landbohøjskole
FRANCE 971	Arras	50°17' N 2°46' E	31 March 1978	ACTA/SPV	Arras
	Landerneau	48°26' N 4°15' W	24 April 1978	ACTA/FNPPPT/I'ITP	Landerneau
	Rennes	48°6' N 1°42' W	18 April 1978	ACTA/INRA/I'ITP	Rennes
	Colmar	48°3' N 7°2' E	2 May 1977	ACTA/INRA	Colmar
	Orleans	47°59' N 1°45' E	26 May 1978	ACTA/SPV	Orleans
	Aigre	45°54' N 0°01' E	28 May 1978	ACTA	Aigre
	Montpellier	43°37' N 3°52' E	13 April 1978	ACTA/INRA	Montpellier
BELGIUM 978	Gembloux	50°33' N 4°42' E	1 April 1980		Station de Zoologie Appliquée de l'État, Gembloux

* Traps in Great Britain are designated by the National Grid Reference System; all other traps are designated by their latitude and longitude

ROTHAMSTED REPORT FOR 1980, PART 2

TABLE 2
Sampling stations for the 1.2 m (4 ft) Rothamsted light traps

No.	Name	Grid reference	Years operating		Environmental category	Operator or organisation
			1st year	No. years		
1	Barnfield	TL132 135	1933	29	Farmland	Rothamsted Entomology Department
10	Bradford	SE151 310	1966	3	Urban	Mr J. Briggs
12	Hatfield A	TL222 090	1964	5	Urban	Mr S. C. Littlewood
13	Hatfield B	TL217 081	1964	4	Urban	Mr S. C. Littlewood
15	Stockton on Tees	NZ424 153	1965	1	Urban	Dr I. J. Faulkner
16	Straffield Mortimer	SU650 645	1965	14	Woodland	Dr M. I. Crichton
17	Dale Fort	SM823 052	1965	10	Coastal	FSC
18	Flatford Mill	TM076 332	1965	5	Farmland	FSC
20	Chipping Norton	SP315 264	1966	1	Urban	Mr P. D. J. Hugo
22	Geescroft I	TL132 128	1965	14	Woodland	Rothamsted Entomology Department
23	St. Ives, Hunts	TL309 710	1965	3	Parkland	Mr H. J. Berman
24	Aberystwyth	SN600 811	1966	1	Urban	Mr T. M. Whitaker
29	Rannoch	NN595 563	1966	14	Parkland	Mr D. G. J. Barry and Dr D. J. R. Wallace
31	Dunmow	TL680 205	1966	3	Parkland	Mr M. F. Walker
33	Dungeness	TR063 196	1966	6	Coastal	Mr R. E. Scott (RSPB)
34	Allotments	TL134 134	1966	14	Parkland	Rothamsted Entomology Department
35	Bangor	SH578 720	1966	14	Urban	Mrs M. J. Morgan
36	Portland Bill	SY681 690	1966	1	Coastal	Mr F. R. Clifton
37	Helston	SW661 271	1966	1	Urban	Mr L. M. Peters
38	Killiecrankie	NN912 637	1966	3	Farmland	Mr J. E. Thorpe
39	Chester le Street	NZ275 515	1966	14	Urban	Mr T. C. Dunn
40	Lancaster	SD486 616	1966	2	Urban	Mr N. A. Robinson and Mr R. A. Hadfield
45	Malham Tarn	SD894 672	1966	13	Moorland	FSC
46	Alice Holt	SU803 428	1967	13	Woodland	Mr C. I. Carter and Mr T. M. Winter (FC (RB))
47	Dundee	NO341 299	1967	13	Parkland	Mr S. C. Gordon
48	Kindrogan	NO055 630	1967	11	Parkland	Mr B. S. Brookes <i>et al.</i>
49	Fort Augustus	NH366 092	1967	13	Woodland	FC (RB)
50	Carbost, Skye	NG385 267	1968	8	Woodland	FC
53	Preston Montford	SI433 143	1967	5	Parkland	FSC
57	Ardross	NH629 738	1967	10	Woodland	FC
58	Elgin	NJ160 636	1967	13	Woodland	FC (RB)
59	Morangie	NH755 836	1969	1	Woodland	Mr G. Small (FC)
60	Aros, Mull	NM554 453	1967	7	Farmland	FC
61	Sutton Bonington	SK505 261	1967	3	Parkland	Dr P. W. Murphy
62	Wye	TR059 472	1967	2	Farmland	ADAS
67	Slapton Ley	SX824 450	1967	13	Farmland	FSC
68	Harrogate	SE313 526	1967	11	Urban	Dr I. J. Faulkner
69	Wisley	TQ064 591	1967	7	Woodland	Dr K. Harris
72	Castletown, IOM	SC256 686	1968	7	Parkland	Mr J. J. Hedges
73	Orielton	SR956 992	1967	2	Parkland	FSC
74	Cullompton	ST019 074	1968	3	Urban	Mr A. H. Dobson
76	Iwerne Minster	ST864 147	1967	2	Parkland	The late Mr H. J. Moore
77	Maentwrog	SH666 414	1968	6	Woodland	Mr M. J. D'Oyly and Mr W. I. Jones (NCC)
78	Ringwood	SU184 070	1968	8	Woodland	Mr G. Barrell (FC) and the late Mr L. W. Siggs

SYNOPTIC MONITORING FOR MIGRANT INSECT PESTS. I

79	Shardlow	SK438 304	1967	8	Mixed	Mr B. Cooper <i>et al.</i> (ADAS)
80	Shirley	SP119 800	1968	4	Urban	Mr C. H. Woolman
82	Dunblane	NN779 011	1968	3	Urban	Mr G. Thomson
83	Killiecrankie Pass	NN916 626	1968	2	Woodland	Mr J. E. Thorpe
85	Prestwich	SD817 043	1968	6	Urban	Mr D. Cowie, Mr G. J. Miller <i>et al.</i>
86	Cheltenham	SP025 285	1969	1	Urban	Mr L. R. Lassman
87	Writtle	TL677 071	1968	11	Parkland	Mr K. Seale <i>et al.</i>
88	Broom's Barn	TL752 656	1968	12	Farmland	Dr G. D. Heathcote
89	Sandwich	HU435 237	1968	1	Coastal	Miss V. Johnston
90	Isleworth	TQ155 771	1968	6	Mixed	Mr T. C. Walters <i>et al.</i>
92	Nettlecombe Court	ST056 378	1968	11	Parkland	Miss K. Noble <i>et al.</i> (FSC)
93	Newton St Lo	ST695 642	1968	1	Parkland	Mr L. Wolff
94	Monks Wood	TL203 798	1969	11	Parkland	ITE
95	Gibraltar Point	TF556 580	1970	3	Coastal	Bird Observatory staff
96	Riseholme	SK985 756	1968	8	Parkland	Agricultural college staff
97	Rowardennan	NS378 958	1969	9	Woodland	Mr J. Twaddle and Messrs. R. and D. McMath
98	Auchincruive	NS384 235	1968	6	Parkland	Dr G. N. Foster
99	Geescroft II	TL131 127	1973	7	Woodland	Rothamsted Entomology Department
100	Carlisle	NY408 559	1968	1	Urban	Mrs B. E. Day
101	Keighley	SE057 423	1968	5	Urban	Mr J. C. Lavin
102	Helston	SW661 281	1968	5	Urban	Mr H. R. Ashton
103	Durham	NZ274 404	1967	1	Parkland	Dr J. C. Coulson
104	Wellington, Somerset	ST146 199	1970	5	Urban	Mr I. W. Brassington
105	Caythorpe	SK958 483	1969	2	Farmland	Mr P. A. Manderfield
106	Haverfordwest	SM952 166	1969	1	Urban	Mr P. J. Brown
107	Axminster	ST270 051	1969	1	Mixed	Mr T. J. Wallace
108	Egremont	NY008 108	1969	5	Urban	Mr R. G. Burn and Mr M. R. Mills
109	Holme Fen	TL194 884	1969	7	Farmland	NCC
111	Llysdinam	SO009 586	1975	5	Woodland	Dr F. M. Slater
112	Solihull	SP120 797	1969	4	Urban	Mr E. Cross
113	Liskeard	SX251 649	1969	1	Urban	Mr R. C. Harrison
114	Rosewarne	SW642 411	1969	11	Farmland	Mr J. N. Levitt (Exp. Hort. Stn)
116	Tow Hill	SD829 872	1975	5	Moorland	Mr H. Kemp
117	Burton on Trent	SK259 214	1969	1	Parkland	Mr G. Goodall
119	Darlaston	SO975 970	1969	2	Urban	Dr F. M. Slater
120	Wickham Bishops	TL847 123	1969	7	Mixed	Mr G. C. Davidson
121	Port Talbot	SS747 928	1969	2	Urban	Mr R. J. Boak
123	Carmarthen	SN411 205	1969	1	Urban	Mr J. M. Jones
124	Longridge	SD627 346	1970	4	Mixed	Mr E. E. Jones
125	Sandy	TL187 478	1969	5	Scrubland	RSPB
126	Aberystwyth	SN633 836	1969	8	Farmland	Mr J. A'Brook
127	Kielder	NY632 936	1969	6	Woodland	FC (RB)
128	Norwich	TG229 066	1975	1	Urban	Mr L. O. Watkin
129	Wellingborough	SP903 676	1969	5	Urban	Mr P. G. Gent
130	Bath	ST773 644	1969	11	Parkland	Mr P. Clark
131	Spurn Head	TA419 150	1970	10	Coastal	Mr B. Spence
133	Leighton Moss	SD476 750	1970	7	Mixed	Mr J. Briggs and RSPB
137	Harrogate	SE325 559	1970	1	Urban	Mr D. A. Wood
138	Market Harborough	SP731 880	1970	4	Woodland	Mr G. Myton <i>et al.</i>
139	Gwenffrwd	SN749 460	1970	5	Moorland	Mr J. Humphrey (RSPB)
140	Loch Leven	NT160 991	1970	6	Moorland	RSPB

ROTHAMSTED REPORT FOR 1980, PART 2

Table 2 continued

No.	Name	Grid reference	Years operating		Environmental category	Operator or organisation
			1st year	No. years		
142	Oundle	TL039 888	1970	1	Parkland	Mr G. H. Blackman
143	Stony Stratford	SP792 405	1970	1	Urban	Mr D. D. Millerchip
144	Bletchley Park	SP863 337	1970	5	Urban	Mr D. Petrie
145	Shenley Brook End	SP835 355	1970	4	Farmland	Mr G. Daniels
146	Jersey	49°14'N 2°55'W	1970	10	Parkland	Mr G. Thomas
147	Simpson	SP878 367	1970	3	Farmland	Mr K. Welchman
148	Cleeve Prior	SP087 491	1970	2	Mixed	Mrs J. Eburn
149	Starcross	SX972 821	1970	8	Parkland	Mr A. Rushton and Mr R. W. Brown (ADAS)
150	Bletchley	SP866 336	1972	1	Urban	Mr A. Robinson
153	Wimborne	SY984 964	1970	2	Urban	Mr W. G. West
154	Rowton	SJ625 195	1976	2	Farmland	Mr S. C. Littlewood
157	Barnsley	SE398 131	1970	7	Urban	The late Mr F. M. Snookes
158	Ipswich	TM179 463	1970	3	Parkland	Miss V. A. Short
160	Thorpe in the Glebe	SK614 261	1970	6	Farmland	Mr and Mrs J. Anabel-Cooper
163	Arne	SY969 877	1970	7	Scrubland	Mr B. P. Pickess (RSPB)
165	Bournemouth	SZ096 913	1975	1	Urban	Mr M. S. Woodward and Mr K. Horton
167	Malton	SE777 721	1975	1	Parkland	Mr R. Couthard and Mr P. M. Burrow
168	Sutton Bonington	SK503 260	1970	10	Parkland	Dr P. W. Murphy and Mrs M. Garner
170	Howe Park	SP830 342	1971	7	Woodland	Mr J. C. Wickham
171	Windsorham	SU942 638	1971	9	Mixed	Mr and Mrs J. A. Bailey
172	Hempstead	TQ790 647	1971	1	Urban	Mr P. Legon
173	Lydd	TR048 221	1971	3	Urban	Mr E. Carpenter
174	Tenterden	TQ834 366	1971	3	Mixed	Messrs M. S. and J. S. Carpenter
175	Lancing	TQ194 065	1971	1	Parkland	Mr S. Gray and Dr G. Shaw
176	Brighton	TQ308 075	1971	2	Urban	Mr P. G. Webb
178	East Malling	TQ712 570	1971	7	Mixed	Mr M. E. Cook
179	Pirbright	SU952 545	1971	7	Mixed	Mr J. Boorman and Mr E. Dennison
180	Hurley	SU817 813	1971	9	Farmland	Mr R. O. Clements
181	Wye	TR066 485	1971	9	Mixed	ADAS
182	Woodstock	SP455 169	1972	7	Mixed	Mr E. J. Adhams
184	Dulverton	SS867 275	1971	2	Farmland	Mr T. Pearks
185	West Buckland	SS666 315	1971	3	Parkland	Dr Angela Avens
186	Great Torrington	SS504 228	1971	8	Farmland	Mr and Mrs M. J. Staines
187	Wykeham	SE941 875	1973	6	Woodland	RC (RB)
188	Stoke	SJ938 518	1972	1	Parkland	Mr R. C. Merrifield
189	Leek	SK010 550	1971	5	Mixed	Mr M. Waterhouse (RSPB)
191	Guernsey	49°28'N 2°36'W	1971	2	Urban	Mr A. Dale
192	Ringmer	TQ450 120	1971	2	Parkland	Mr C. R. Pratt
193	Rye Meads	TL386 103	1971	1	Mixed	Mr T. R. E. Devlin
195	Pershore	SO956 448	1971	8	Parkland	Mr O. Gale
196	Rousdon	SO295 913	1971	1	Parkland	Mr R. J. Olliver
197	Dunblane	NN785 017	1971	3	Urban	Mr G. Thomson
199	Chepstow	ST534 946	1972	1	Parkland	Mr R. J. Hompsstead
200	Thame	SO697 058	1971	1	Parkland	Mr C. Brookes
201	Sutton Bonington	SK503 262	1972	2	Parkland	Dr P. W. Murphy, Mrs M. Garner and Mr M. Gubbins
202	Caythorpe	SK960 480	1975	5	Parkland	Mr P. A. Manderfield

SYNOPTIC MONITORING FOR MIGRANT INSECT PESTS. I

207	Pallaskenry	52°37'5"N 9°22'5"W	1973	3	Mixed	Father J. Butler and Mr F. O'Donnell
208	Whipsnade	TL002 179	1972	2	Woodland	Mr G. J. Buss
210	Bettyhill	NC742 636	1972	1	Coastal	Mrs Lexie Mackay
211	Torpoint	SX402 552	1972	3	Coastal	Mr J. H. Swan
212	Hereford	SO564 476	1972	7	Farmland	Exp. Farm staff
213	Gower	SS544 893	1972	8	Coastal	Mr R. G. Burn
214	Rye Meads	TL386 103	1972	1	Mixed	Middle Lea Drainage Board staff
215	Basingstoke	SU710 552	1972	4	Parkland	Mr R. Coulthard
216	Terrington	TF547 186	1972	6	Farmland	Mr W. C. Hunt (Exp. Farm)
217	Woodstock II	SP456 169	1972	1	Mixed	Mr E. J. Adnams
218	Farnborough	SU867 654	1969	2	Urban	Mr G. Barson
219	Haslemere	SU904 340	1973	7	Urban	Mr T. Winter
220	Brighton	TQ308 091	1973	7	Urban	Mr D. Stone and Mr C. R. Pratt
223	Gibraltar Point	TF555 583	1973	7	Coastal	Bird Observatory staff
224	Llandrindod Wells	SO055 615	1973	1	Urban	Mr H. Beresford Williams and Mr. B. Willis
225	Newtown	SO082 892	1973	3	Woodland	Mr R. Lovegrove (RSPB)
226	Staylittle	SN875 905	1973	7	Moorland	Mr A. Bucknell and Dr M. Newson
227	Scillies	SV907 107	1973	2	Coastal	Miss Lena Hawkrige
228	Cleppa Park	ST281 849	1973	4	Parkland	Mr D. Webley and Exp. Hort. Stn staff
231	Brecon	SN977 262	1973	3	Moorland	Mr R. Adams
232	Capel Isaac	SN584 262	1973	4	Farmland	Mr J. W. Rayment
233	Trelech	SN286 316	1973	7	Woodland	Mr B. J. Reeley
235	Llangeler	SN362 402	1973	1	Mixed	Rev. A. J. Davies
236	Cardigan	SN190 469	1973	4	Coastal	Mr G. Williams
237	Rhosyrfan	SH487 574	1973	3	Mixed	Mr N. A. Richardson
240	Rhos on Sea	SH842 800	1973	1	Coastal	Mr I. Harris
242	Denbigh	SJ056 660	1973	3	Urban	Mrs E. Littler-Jones
243	Nantclwyd	SJ106 514	1976	4	Mixed	Mr I. R. Green
244	Glyn Ceiriog	SJ200 370	1973	5	Mixed	Mr W. H. Buckley
245	Caerwrlle	SJ285 579	1975	2	Mixed	Mr K. G. Sutton
246	Connah's Quay	SJ297 686	1973	1	Urban	Mr A. M. Francis
248	Banchory	NO655 995	1973	2	Parkland	Dr B. Mitchell and Mr P. Marren (ITE)
249	Caerlaverock	NY052 657	1975	2	Coastal	Mr L. Colley
251	Harpenden	TL132 151	1973	3	Urban	Mr R. Coulter
252	Guernsey	49°26'2"N 2°34'3"W	1973	7	Parkland	Miss Wendy Angell
253	Ashridge	SP980 125	1975	1	Woodland	Mr J. Wilson
255	Ysbyty Ystwyth	SN735 706	1973	3	Mixed	Mr J. J. Richards
256	Lydd	TR044 209	1974	3	Coastal	Mr E. Carpenter
257	Gleadthorpe	SK592 699	1973	7	Farmland	Mr W. A. Walker and Mr D. M. Alvey (Exp. Farm)
259	Santon Downham	TL816 876	1974	6	Woodland	FB (RB)
261	East Craigs	NT181 736	1974	6	Parkland	Mr K. I. Ransome
263	Middleton in Teesdale	NY934 260	1974	6	Mixed	Mr I. Findlay (NCC)
264	Culzean Castle	NS235 095	1976	4	Parkland	Mr D. Bremner and Mr G. Riddle
265	Middlesbrough	NZ492 190	1974	1	Urban	Mr C. Thornton
266	Yarner Wood	SX786 788	1974	6	Woodland	Mr R. Prowse and Mr D. A. Rogers (NCC)
267	Wolverhampton	SO914 988	1975	5	Urban	Dr R. D. Ward
268	Burnley	SD853 343	1975	1	Urban	Mr T. Welch and Mr G. Rushton
269	East Didsbury	SJ856 904	1974	4	Mixed	Mr O. Elwood
272	Wytham	SJ471 096	1975	1	Parkland	Mr G. Barson and Mr C. Rivers
274	Wells next the Sea	TF918 435	1974	6	Coastal	Mr P. Banham
275	Bedgebury	TQ723 336	1974	6	Woodland	Mr A. Westall

ROTHAMSTED REPORT FOR 1980, PART 2

Table 2 continued

No.	Name	Grid reference	Years operating		Environmental category	Operator or organisation
			1st year	No. years		
276	Knock e Dhooney	NX406 024	1974	1	Coastal	Mr J. J. Martin
277	Ewingswode	TL200 797	1974	6	Woodland	ITE
278	Rochester	NY833 961	1976	4	Farmland	Mr A. Murray (Exp. Farm)
279	Matlock	SK306 608	1974	6	Parkland	Mr C. E. Channon
280	Empingham	SK909 508	1974	6	Urban	Mr M. W. Tyler
281	Moor House	NY758 328	1976	4	Moorland	Mr P. Burnham (NCC)
283	Shuttleworth	TL148 444	1974	6	Parkland	Mr S. J. Willis
284	Salway Ash	SY456 964	1974	2	Mixed	Mr A. Dale
285	Winchester	SU519 342	1974	3	Farmland	Miss H. Simkins and Mr A. V. King (Exp. Farm)
287	Gatehouse of Fleet	NX602 553	1975	5	Woodland	Mr W. Kinsey (FC (RB))
288	Preston	SD499 400	1979	1	Parkland	Mr A. Lubman
289	Wisley	TQ065 581	1976	4	Parkland	Mr A. J. Halstead
290	Sandy	TL188 478	1974	2	Scrubland	RSPB
291	Hayton	SE821 456	1975	5	Mixed	Mr I. M. Horsley
292	Westonbirt	ST847 898	1975	5	Mixed	Mr C. Webber and Mr P. J. Webb (FC)
293	Auchincruive	NS377 233	1975	5	Parkland	Dr G. N. Foster
296	Kielder	NY632 936	1975	5	Woodland	Mr G. Forbes and Mr J. D. McNeill (FC (RB))
298	Dunblane	NN778 010	1975	5	Urban	Mr G. Thomson
299	Ilford	TQ450 884	1975	3	Urban	Mrs M. Verdon and Mr P. Verdon
301	Methwold Fen	TL686 958	1975	5	Farmland	Mr G. H. Waterfall
302	Duns	NT691 620	1975	1	Mixed	Miss H. L. Jones
303	Bedlington	NZ278 827	1976	3	Urban	Dr J. Parrack
304	Haltwhistle	NY747 726	1976	2	Moorland	Mr P. J. Lornie
305	Chigwell Row	TQ465 936	1976	4	Urban	Mr I. Simms
306	Castletown IOM	SC256 687	1976	4	Parkland	Mr J. Hedges
307	West Buckland	SS665 315	1978	2	Parkland	Dr Angela Avens
308	Yarner Wood II	SX785 788	1976	4	Woodland	Mr R. Prose and Mr D. A. Rogers (NCC)
310	Shardlow	SK437 304	1976	1	Mixed	Mr B. Cooper and Mrs Alison Dick (ADAS)
312	Bolam	NZ199 225	1976	2	Mixed	Mrs. V. Campbell
315	Baldersby	SE360 767	1976	4	Mixed	Mr T. A. Potter, snr.
318	Sunderland	NZ398 567	1976	1	Urban	Mr T. Pettigrew
319	Petworth	SU943 165	1976	2	Parkland	Mr D. Hitchman
320	Stoke on Tern	SJ639 280	1976	2	Urban	The late Mr E. Jackson
322	Newton Rigg	NY491 311	1977	3	Parkland	Miss B. Balmain
323	Windermere	SD390 957	1976	4	Parkland	Dr M. Elliott and Mrs P. Tullett
324	Bridge of Dee	NX730 590	1976	2	Mixed	Dr J. K. Jackson
325	Penninghame	NX382 696	1976	2	Woodland	Mr K. Whitaker
326	Newton Stewart	NX407 655	1976	1	Urban	Dr P. G. Hopkins
328	Lambourne	SU375 806	1976	2	Farmland	Mr R. Caswell
330	Blacktoft Sands	SE816 226	1976	4	Urban	Mr A. Grieve (RSPB)
331	Tregaron	SN687 618	1976	4	Urban	Mr I. J. L. Tillotson (NCC)
332	Whiteford	SS437 941	1976	4	Mixed	Mr M. R. Hughes (NCC)
333	Pontrhyfendigaidd	SN730 667	1976	3	Coastal	Mr J. J. Richards
334	Woolverstone	TM195 385	1976	2	Parkland	Mr A. Watkins
335	Gritnam	SU283 065	1978	1	Woodland	S. Hale and the late Mr L. W. Siggs
336	Cockayne Hatley	TL253 494	1976	4	Mixed	Mr I. P. Woiwod

SYNOPTIC MONITORING FOR MIGRANT INSECT PESTS. I

337	Jodrell Bank	SJ796 706	1976	4	Parkland	Mr J. H. Swan
338	Waterside Mains	NX873 974	1976	4	Mixed	Mr J. F. Young
339	Glentress	NT285 396	1976	4	Woodland	Mr D. Campbell (FC)
340	Aberystwyth	SN629 837	1977	4	Mixed	Mr J. A'Brook and Mr I. J. L. Tillotson
341	Malton	SE776 722	1977	1	Parkland	Mr P. Burrows
343	Rousdon	SY289 904	1977	3	Parkland	Mr R. J. Oliver
345	Benbecula	NF797 504	1976	2	Moorland	Mr R. Sutton
346	Rhandirmwyn	SN782 441	1977	3	Mixed	Mr D. Davies
347	Cardiff	ST199 789	1977	3	Urban	Mr R. Smith
349	Harris	NG013 873	1977	3	Coastal	Mr J. McWilliam
350	Beinn Eighe	NH024 629	1977	3	Mixed	Mr H. Brown (NCC)
351	Knockan	NC188 088	1977	3	Mixed	Mr W. Henderson (NCC)
352	Inverpolly	NC074 134	1977	3	Mixed	Mr D. Duncan and Mr A. Scott (NCC)
354	Bradwell Abbey	SP827 395	1978	2	Scrubland	Mr M. Baker and Mr P. Carty
355	Luddington	SP162 523	1977	3	Parkland	Mrs K. Littlewood
356	Chingford	TQ389 947	1977	3	Urban	Mr P. Hilliard
357	Oxwich	SS504 881	1977	2	Coastal	Mr D. Elias (NCC)
359	Wellesbourne	SP269 564	1977	3	Parkland	Miss R. Kay
360	Waresley	TL254 545	1977	3	Mixed	Mr J. C. V. Day
361	Whiteknights	SU739 716	1976	2	Parkland	Dr M. I. Crichton
363	Acomb	SE584 514	1977	3	Urban	Miss G. Wilson
364	Leeds	SE262 356	1977	1	Urban	Mr J. H. Nunney
365	Edale	SK097 855	1977	3	Moorland	Major R. Weeks
366	Lydd	TR050 212	1977	3	Coastal	Mr D. Chittenden
367	Wytham	SP471 096	1976	1	Parkland	Mr C. Rivers
368	Denny Lodge	SU333 056	1977	3	Mixed	Mr F. A. Courtier (FC)
369	Norwich II	TG192 075	1978	2	Parkland	Mr K. Walters
370	Sheppey	TR952 738	1977	3	Coastal	Mr G. Burton
371	Tarleton	SD446 224	1978	2	Mixed	Mr C. A. Garside
372	New Deer	NJ885 444	1977	3	Mixed	Mr and Mrs H. Smith
374	St Albans	TL162 059	1978	1	Urban	Mr K. Jackson
375	Beverley	NT911 678	1978	1	Mixed	Mr G. Evans
376	Southwick	TA986 403	1978	2	Parkland	Mr M. D. Alder and Mrs O. Kershaw
377	Shardlow	SU634 075	1978	1	Farmland	Mr B. Pound
378	Winchester	SK438 307	1978	2	Parkland	Mr B. Cooper and Mrs Alison Dick (ADAS)
379	Hope	SU517 339	1978	2	Farmland	Mr A. V. King (Exp. Farm)
380	Terrington	SJ303 585	1978	2	Mixed	Mr K. G. Sutton
381	Preston Montford	TF547 186	1978	2	Farmland	Mr W. C. Hunt (Exp. Farm)
382	East Malling	SJ433 143	1978	2	Parkland	Mr A. J. Bayley (FSC)
384	Leek	TQ706 578	1978	2	Parkland	Mr M. E. Cook
385	West Bridgford	SJ972 560	1978	2	Urban	Mr N. J. R. Wickstead
388	Slepe Farm	SK578 362	1979	1	Mixed	Mr M. E. Marchant and Mr C. H. Woolman
392	Sheerness	SY960 859	1979	1	Scrubland	Mr D. Wheeler (NCC)
394	Cromarty	TQ927 745	1979	1	Coastal	Mr M. Crawford
398	Wilmington	NH786 672	1979	1	Coastal	Dr P. J. Tilbrook
402	Arnscliffe	SJ841 801	1979	1	Urban	Dr R. H. L. Dennis
403	Oxwich	SD463 788	1979	1	Coastal	Mr C. Scott
409		SS502 881	1979	1	Coastal	Mr R. Kerr and Mr D. Elias (NCC)

ROTHAMSTED REPORT FOR 1980, PART 2

TABLE 3

Species of Aphididae from suction traps in Great Britain 1964–79

<i>EULACHNUS</i> Del Guercio, 1909	<i>CARICOSIPHA</i> Börner, C., 1939
1 <i>agilis</i> (Kaltenbach, 1843)	55 <i>paniculatae</i> Börner, C., 1939
2 <i>bluncki</i> (Börner, C., 1940)	<i>ATHEROIDES</i> Haliday, 1839
3 <i>brevipilosus</i> (Börner, C., 1940)	58 <i>hirtellus</i> Haliday, 1839
<i>SCHIZOLACHNUS</i> Mordvilko, 1909	59 <i>serrulatus</i> Haliday, 1839
4 <i>pineti</i> (Fabricius, 1781)	<i>CALLAPHIS</i> Walker, 1870
<i>CINARA</i> Curtis, 1835	60 <i>juglandis</i> (Goeze, 1778)
6 <i>acutirostris</i> Hille Ris Lambers, 1956	<i>CHROMAPHIS</i> Walker, 1870
7 <i>boernerii</i> Hille Ris Lambers, 1956	61 <i>juglandicola</i> (Kaltenbach, 1843)
8 <i>bogdanowi</i> (Mordvilko, 1895)	<i>MYZOCALLIS</i> Passerini, 1860
9 <i>cupressi</i> (Buckton, 1881)	63 <i>castanicola</i> Baker, 1917
11 <i>juniperi</i> (DeGeer, 1773)	64 <i>coryli</i> (Goeze, 1778)
13 <i>laricis</i> (Walker, 1848)	65 <i>boernerii</i> Stroyan, 1957
14 <i>pectinatae</i> (Nördlander, 1880)	<i>TUBERCULOIDES</i> van der Goot, 1915
15 <i>piceae</i> (Panzer, 1801)	68 <i>annulatus</i> (Hartig, T., 1841)
17 <i>pineae</i> (Mordvilko, 1895)	758 <i>borealis</i> (Krzywiec, 1971)
18 <i>pini</i> (Linnaeus, 1758)	759 <i>neglectus</i> (Krzywiec, 1966)
19 <i>pinicola</i> (Kaltenbach, 1843)	<i>TUBERCULATUS</i> Mordvilko, 1894
20 <i>schimitscheki</i> Börner, C., 1940	69 <i>querceus</i> (Kaltenbach, 1843)
21 <i>tujafilina</i> (Del Guercio, 1909)	<i>EUCALLIPTERUS</i> Schouteden, 1906
729 <i>pinihabitans</i> (Mordvilko, 1895)	70 <i>tiliae</i> (Linnaeus, 1758)
730 <i>stroyani</i> Pasék, 1954	<i>TINOCALLIS</i> Matsumura, 1919
734 <i>fresai</i> E. E. Blanchard, 1939	71 <i>platani</i> (Kaltenbach, 1843)
735 <i>brauni</i> Börner, 1940	<i>TAKECALLIS</i> Matsumura, 1917
736 <i>escherichi</i> (Börner, 1950)	72 <i>arundicolens</i> (Clarke, 1903)
<i>LACHNIELLA</i> Del Guercio, 1909	73 <i>arundinariae</i> (Essig, 1917)
22 <i>costata</i> Zetterstedt, 1828	<i>PTEROCALLIS</i> Passerini, 1860
<i>TUBEROLACHNUS</i> Mordvilko, 1909	75 <i>alni</i> (De Geer, 1773)
23 <i>salignus</i> (Gmelin, J. F., 1788)	<i>PHYLLAPHIS</i> Koch, C. L., 1856
<i>MACULOLACHNUS</i> Gaumont, 1920	78 <i>fagi</i> (Linnaeus, 1767)
24 <i>submacula</i> (Walker, 1848)	<i>CALLIPTERINELLA</i> van der Goot, 1913
<i>LACHNUS</i> Burmeister, 1835	79 <i>calliptera</i> (Hartig, T., 1841)
26 <i>roboris</i> (Linnaeus, 1758)	80 <i>minutissima</i> (Stroyan, 1953)
757 <i>exsiccator</i> Altum, 1882	<i>KALLISTAPHIS</i> Kirkaldy, 1905
<i>PROTRAMA</i> Baker, 1920	82 <i>basalis</i> Stroyan, 1957
28 <i>flavescens</i> (Koch, C. L., 1857)	83 <i>betulicola</i> (Kaltenbach, 1843)
30 <i>ranunculi</i> (Del Guercio, 1909)	<i>BETULAPHIS</i> Glendenning, 1926
<i>NEOTRAMA</i> Baker, 1920	84 <i>quadrituberculata</i> (Kaltenbach, 1843)
31 <i>caudata</i> (Del Guercio, 1909)	<i>MONAPHIS</i> Walker, 1870
<i>TRAMA</i> von Heyden, C. H. G., 1837	85 <i>antennata</i> (Kaltenbach, 1843)
33 <i>rara</i> Mordvilko, 1908	<i>SYMYDOBIUS</i> Mordvilko, 1894
34 <i>trogodytes</i> von Heyden, C. H. G., 1837	86 <i>oblongus</i> (von Heyden, C. H. G., 1837)
<i>PERIPHYLLUS</i> van der Hoeven, 1863	<i>CLETHROBIUS</i> Mordvilko, 1928
35 <i>acericola</i> (Walker, 1848)	87 <i>comes</i> (Walker, 1848)
36 <i>xanthomelas</i> (Koch, C. L., 1854)	<i>EUCERAPHIS</i> Walker, 1870
37 <i>californiensis</i> (Shinji, 1917)	88 <i>punctipennis</i> (Zetterstedt, 1828)
38 <i>hirticornis</i> (Walker, 1848)	<i>DREPANOSIPHUM</i> Koch, C. L., 1855
39 <i>lyropictus</i> (Kessler, 1886)	89 <i>acerinum</i> (Walker, 1848)
41 <i>testudinaceus</i> (Ferne, 1852)	90 <i>aceris</i> Koch, C. L., 1855
<i>CHAITOPHORUS</i> Koch, C. L., 1854	91 <i>platanoidis</i> (Schränk, 1801)
42 <i>beuthani</i> (Börner, C., 1950)	754 <i>dixonii</i> Hille Ris Lambers, 1971
43 <i>capreae</i> (Mosley, O., 1841)	<i>THERIOAPHIS</i> Walker, 1870
45 <i>populeti</i> (Panzer, 1805)	92 <i>luteola</i> (Börner, C., 1949)
46 <i>populialbae</i> (Boyer de Fonscolombe, 1841)	93 <i>ononidis</i> (Kaltenbach, 1843)
47 <i>saliciti</i> (Schränk, 1801)	94 <i>trifolii</i> (Monell, 1882)
48 <i>tremulae</i> (Koch, C. L., 1854)	731 <i>riehmi</i> (Börner, 1949)
49 <i>truncatus</i> (Hausmann, 1802)	<i>TRICHOCELLIS</i> Börner, C., 1930
50 <i>versicolor</i> Koch, C. L., 1854	95 <i>cyperi</i> (Walker, 1848)
742 <i>leucomelas</i> Koch, 1854	
<i>SIPHA</i> Passerini, 1860	
51 <i>glyceriae</i> (Kaltenbach, 1843)	
52 <i>kurdjumovi</i> Mordvilko, 1921	

SYNOPTIC MONITORING FOR MIGRANT INSECT PESTS. I

- ALLAPHIS** Mordvilko, 1921
 96 *thripsoides* (Hille Ris Lambers, 1939)
- SUBSALTUSAPHIS** Quednau, 1953
 737 *ornata* (Theobald, 1927)
- JUNCOBIA** Quednau, 1954
 100 *leegei* (Börner, C., 1940)
- PTEROCOMMA** Buckton, 1879
 102 *pilosum* Buckton, 1879
 103 *populeum* (Kaltenbach, 1843)
 104 *salicis* (Linnaeus, 1758)
 105 *steinheili* (Mordvilko, 1901)
- PLOCAMAPHIS** Oestlund, 1923
 107 *bituberculata* (Theobald, 1912)
- HYALOPTERUS** Koch, C. L., 1854
 109 *amygdali* (Blanchard, M. E., 1840)
 110 *pruni* (Geoffrey, 1762)
- RHOPALOSIPHUM** Koch, C. L., 1854
 111 *insertum* (Walker, 1849)
 112 *maidis* (Fitch, 1856)
 113 *nymphaeae* (Linnaeus, 1761)
 114 *padi* (Linnaeus, 1758)
 122 *luzulellum* Hille Ris Lambers, 1947
 739 *rufulum* Richards, 1960
 750 *pilipes* Ossiannilsson, 1959
- EUSCHIZAPHIS** Hille Ris Lambers, 1947
 115 *palustris* (Theobald, 1929)
- SCHIZAPHIS** Börner, C., 1931
 116 *graminum* (Rondani, 1847)
- PARASCHIZAPHIS** Hille Ris Lambers, 1947
 121 *scirpi* (Passerini, 1874)
- APHIS** Linnaeus, 1758
 125 *sambuci* Linnaeus, 1758
 132 *fabae* Scopoli, 1763
 137 *rumicis* Linnaeus, 1758
 142 *corniella* (Hille Ris Lambers, 1935)
 147 *epilobii* Kaltenbach, 1843
 150 *idaei* van der Goot, 1912
 152 *nasturtii* Kaltenbach, 1843
 153 *pomi* DeGeer, 1773
 154 *ruborum* (Börner, C., 1931)
 155 *schneideri* (Börner, C., 1940)
 163 *craccivora* Koch, C. L., 1854
 179 *frangulae* Kaltenbach in Koch, C. L., 1855
 192 *sedi* Kaltenbach, 1843
 196 *tormentillae* Passerini, 1879
 204 *taraxacicola* (Börner, C., 1940)
- TOXOPTERA** Koch, C. L., 1856
 208 *aurantii* (Boyer de Fonscolombe, 1841)
- CRYPTOSIPHUM** Buckton, 1879
 209 *artemisiae* Buckton, 1879
- CERURAPHIS** Börner, C., 1926
 211 *eriphori* (Walker, 1848)
- DYSAPHIS** Börner, C., 1931
 229 *ranunculi* (Kaltenbach, 1843)
- S. POMAPHIS** Börner, C., 1939
 233 *maritima* (Hille Ris Lambers, 1955)
 234 *plantaginae* (Passerini, 1860)
 235 *pyri* (Boyer de Fonscolombe, 1841)
- ANURAPHIS** Del Guercio, 1907
 237 *catonii* Hille Ris Lambers, 1935
 238 *farfarae* (Koch, C. L., 1854)
 239 *subterranea* (Walker, 1852)
- BRACHYCAUDUS** van der Goot, 1913
 241 *cardui* (Linnaeus, 1758)
 243 *helichrysi* (Kaltenbach, 1843)
 244 *jacobi* Stroyan, 1957
 245 *klugkisti* (Börner, C., 1942)
 246 *linariae* Stroyan, 1950
 248 *lychnidis* (Linnaeus, 1758)
 249 *persicaecola* (Boisduval, 1867)
 747 *populi* (del Guercio, 1911)
- S. APPELIA** Börner, 1930
 745 *schwartzi* Börner, 1931
- THULEAPHIS** Hille Ris Lambers, 1961
 253 *rumexicolens* (Patch, 1917)
 254 *sedi* Jacob, 1964
- BRACHYCOLUS** Buckton, 1879
 255 *cerastii* (Kaltenbach, 1846)
- DIURAPHIS** Aizenberg, 1935
 259 *muehlei* (Börner, C., 1950)
- ASPIDAPHIS** Gillette, 1917
 753 *porosiphon* Börner, 1950
- HAYHURSTIA** Del Guercio, 1917
 261 *atriplicis* (Linnaeus, 1761)
 262 *cucubali* (Passerini, 1863)
- BREVICORYNE** van der Goot, 1915
 264 *brassicae* (Linnaeus, 1758)
- LIPAPHIS** Mordvilko, 1928
 267 *erysimi* (Kaltenbach, 1843)
- LIPAMYZODES** Heinze, 1960
 269 *matthiolae* (Doncaster, 1954)
- HYADAPHIS** Kirkaldy, 1904
 271 *foeniculi* (Passerini, 1860)
 778 *passerini* (Del Guercio, 1911)
- STAEGIERIELLA** Hille Ris Lambers, 1947
 273 *necopinata* (Börner, C., 1939)
- DECOROSIPHON** Börner, C., 1939
 274 *corynothrix* Börner, C., 1939
- PSEUDACAUELLA** Börner, C., 1944
 275 *rubida* (Börner, C., 1939)
- HYALOPTEROIDES** Theobald, 1916
 276 *humilis* (Walker, 1852)
- COLORADOA** Wilson, 1910
 277 *absinthii* Hille Ris Lambers, 1939
 278 *achilleae* Hille Ris Lambers, 1939
 280 *rufomaculata* (Wilson, 1908)
 281 *tanacetina* (Walker, 1850)
 748 *inodorella* Ossiannilsson, 1959
- LONGICAUDUS** van der Goot, 1913
 283 *trirhodus* (Walker, 1849)
- ERICAPHIS** Börner, C., 1939
 284 *ericae* (Börner, 1933)
- MYZAPHIS** van der Goot, 1913
 286 *rosarum* (Kaltenbach, 1843)
- CHAETOSIPHON** Nevsky, 1929
- S. PENTATRICHOPUS** Börner, C., 1930
 287 *fragaefolii* (Cockerell, 1901)
 288 *potentillae* (Walker, 1850)
 289 *tetrarhodus* (Walker, 1849)
- ELATOBIIUM** Mordvilko, 1914
 290 *abietinum* (Walker, 1849)
- LIOSOMAPHIS** Walker, 1868
 291 *berberidis* (Kaltenbach, 1843)

ROTHAMSTED REPORT FOR 1980, PART 2

Table 3 continued

<i>CAVARIELLA</i> Del Guercio, 1911	<i>CAPITOPHORUS</i> van der Goot, 1913
292 <i>aegopodii</i> (Scopoli, 1763)	341 <i>carduinus</i> (Walker, 1850)
293 <i>archangelicae</i> (Scopoli, 1763)	342 <i>elaeagni</i> (Del Guercio, 1894)
295 <i>konoii</i> Takahashi, 1939	343 <i>hippophaes</i> (Walker, 1852)
296 <i>pastinaceae</i> (Linnaeus, 1758)	344 <i>horni</i> (Börner, C., 1931)
298 <i>theobaldi</i> (Gillette and Bragg, 1918)	346 <i>similis</i> van der Goot, 1915
299 <i>intermedia</i> Hille Ris Lambers, 1969)	
<i>JACKSONIA</i> Theobald, 1923	<i>PLEOTRICHOPHORUS</i> Börner, C., 1930
300 <i>papillata</i> Theobald, 1923	349 <i>duponti</i> Hille Ris Lambers, 1935
	350 <i>glandulosus</i> (Kaltenbach, 1843)
<i>OVATUS</i> van der Goot, 1913	<i>NASONOVIA</i> Mordvilko, 1914
301 <i>crataegarius</i> (Walker, 1850)	352 <i>compositellae</i> (Theobald, 1924)
302 <i>glechomae</i> Hille Ris Lambers, 1947	354 <i>pilosellae</i> (Börner, C., 1933)
303 <i>insitus</i> (Walker, 1849)	355 <i>ribisnigri</i> (Mosley, O., 1841)
304 <i>mentharius</i> (van der Goot, 1913)	
<i>S. OVATOIDES</i> Börner, C., 1939	<i>S. NEOKAKIMIA</i> Doncaster and Stroyan, 1952
305 <i>inulae</i> (Walker, 1849)	356 <i>dasyphylli</i> Stroyan, 1957
<i>S. OVATOMYZUS</i> Hille Ris Lambers, 1947	<i>HYPEROMYZUS</i> Börner, C., 1933
306 <i>calaminthae</i> (Macchiati, 1885)	358 <i>lactucae</i> (Linnaeus, 1758)
307 <i>stachyos</i> (Hille Ris Lambers, 1947)	359 <i>lampsanae</i> (Börner, C., 1932)
764 <i>boraginacearum</i> Eastop, 1952	360 <i>pallidus</i> Hille Ris Lambers, 1935
<i>PHORODON</i> Passerini, 1860	<i>S. NEONASONOVIA</i> Hille Ris Lambers, 1949
308 <i>humuli</i> (Schränk, 1801)	361 <i>hieracii</i> (Börner, C., 1939)
<i>RHOPALOMYZUS</i> Mordvilko, 1921	362 <i>picridis</i> (Börner, C. and Blunk, 1916)
309 <i>poae</i> (Gillette, 1908)	<i>S. HYPEROMYZELLA</i> Hille Ris Lambers, 1949
<i>S. JUDENKOA</i> Hille Ris Lambers, 1949	363 <i>rhinanthi</i> (Schouteden, 1903)
310 <i>loniceræ</i> (von Siebold, 1839)	<i>MYZOTOXOPTERA</i> Theobald, 1927
<i>MYZODIUM</i> Börner, C., 1950	364 <i>wimshurstae</i> Theobald, 1927
311 <i>modestum</i> (Hottes, 1926)	<i>RHOPALOSIPHONINUS</i> Baker, 1920
<i>MYZUS</i> Passerini, 1860	366 <i>latysiphon</i> (Davidson, W. M., 1912)
312 <i>cerasi</i> (Fabricius, 1775)	367 <i>ribesinus</i> (van der Goot, 1912)
314 <i>lythri</i> (Schränk, 1801)	368 <i>staphyleae</i> (Koch, C. L., 1854)
315 <i>ornatus</i> Laing, 1932	<i>S. SUBMEGOURA</i> Hille Ris Lambers, 1953
<i>S. NECTAROSIPHON</i> Schouteden, 1901	370 <i>heikinheimoi</i> (Börner, C., 1952)
318 <i>ascalonicus</i> Doncaster, 1946	<i>MICROLOPHIUM</i> Mordvilko, 1914
319 <i>certus</i> (Walker, 1849)	372 <i>evansi</i> (Theobald, 1923)
320 <i>ligustri</i> (Mosley, O., 1841)	<i>AULACORTHUM</i> Mordvilko, 1914
321 <i>myosotidis</i> (Börner, C., 1950)	374 <i>palustre</i> Hille Ris Lambers, 1947
322 <i>persicae</i> (Sulzer, 1776)	375 <i>rufum</i> Hille Ris Lambers, 1947
740 <i>varians</i> Davidson, 1912	376 <i>solani</i> (Kaltenbach, 1843)
<i>S. SCIAMYZUS</i> , Stroyan, 1954	377 <i>speyeri</i> Börner, C., 1939
323 <i>cymbalariellus</i> Stroyan, 1967	<i>S. NEOMYZUS</i> van der Goot, 1915
<i>S. FIMBRIAPHIS</i> Richards, W. R., 1959	378 <i>circumflexum</i> (Buckton, 1876)
324 <i>latifrons</i> (Börner, C., 1942)	<i>ACYRTHOSIPHON</i> Mordvilko, 1914
<i>TUBAPHIS</i> Hille Ris Lambers, 1947	381 <i>loti</i> (Theobald, 1912)
325 <i>ranunculina</i> (Walker, 1852)	382 <i>malvae</i> (Mosley, O., 1841)
<i>GALIOBIUM</i> Börner, C., 1933	389 <i>pisum</i> (Harris, 1776)
326 <i>langei</i> (Börner, C., 1933)	392 <i>primulae</i> (Theobald, 1913)
<i>VESICULAPHIS</i> Del Guercio, 1911	<i>SUBACYRTHOSIPHON</i> Hille Ris Lambers, 1947
327 <i>theobaldi</i> Takahashi, 1930	394 <i>cryptobius</i> Hille Ris Lambers, 1947
<i>ASPIDAPHIUM</i> Börner, C., 1939	<i>METOPOLOPHIUM</i> Mordvilko, 1914
330 <i>escherichi</i> Börner, C., 1939	395 <i>albidum</i> Hille Ris Lambers, 1947
<i>PARAMYZUS</i> Börner, C., 1933	396 <i>dirhodum</i> (Walker, 1848)
333 <i>heraclei</i> Börner, C., 1933	397 <i>festucae</i> (Theobald, 1917)
<i>CRYPTOMYZUS</i> Oestlund, 1923	398 <i>friscicum</i> Hille Ris Lambers, 1947
335 <i>ballotae</i> Hille Ris Lambers, 1953	399 <i>tenerum</i> Hille Ris Lambers, 1947
336 <i>galeopsidis</i> (Kaltenbach, 1843)	<i>CRYPTAPHIS</i> Hille Ris Lambers, 1947
339 <i>korschelti</i> Börner, C., 1938	400 <i>poae</i> (Hardy, J., 1850)
340 <i>ribis</i> (Linnaeus, 1758)	<i>RHODOBIUM</i> Hille Ris Lambers, 1947
	401 <i>porosum</i> (Sanderson, 1901)
	<i>LINOSIPHON</i> Börner, C., 1944
	402 <i>galiophagus</i> (Wimshurst, 1923)
	<i>CORYLOBIUM</i> Mordvilko, 1914
	403 <i>avellanae</i> (Schränk, 1801)

SYNOPTIC MONITORING FOR MIGRANT INSECT PESTS. I

- DELPHINIOBIUM* Mordvilko, 1914
404 *junackianum* (Karsch, 1887)
- ANTHRACOSIPHON* Hille Ris Lambers, 1947
405 *hertae* Hille Ris Lambers, 1947
- MACROSIPHUM* Passerini, 1860
408 *cholodkovskiyi* Mordvilko, 1909
410 *euphorbiae* (Thomas, C. A., 1878)
412 *funestum* (Macchiati, 1885)
413 *gei* (Koch, C. L., 1855)
414 *hellebori* Theobald and Walton, 1923
416 *rosae* (Linnaeus, 1758)
- S. SITOBION* Mordvilko, 1914
420 *avenae* (Fabricius, 1775)
421 *fragariae* (Walker, 1848)
423 *eastopi* Hille Ris Lambers
- DACTYNOTUS* Rafinesque, 1818
426 *achilleae* (Koch, C. L., 1855)
432 *jaceicola* Hille Ris Lambers, 1939
439 *tussilaginus* (Walker, 1850)
- S. UROMELAN* Mordvilko, 1914
449 *taraxaci* (Kaltenbach, 1843)
- MACROSIPHONIELLA* Del Guercio, 1911
450 *abrotani* (Walker, 1852)
451 *absinthii* (Linnaeus, 1758)
452 *artemisiae* (Boyer de Fonscolombe, 1841)
453 *millefolii* (DeGeer, 1773)
455 *pulvera* (Walker, 1848)
456 *sanborni* (Gillette, 1908)
457 *tanacetaria* (Kaltenbach, 1843)
458 *trimaculata* Hille Ris Lambers, 1938
459 *usquertensis* Hille Ris Lambers, 1935
- S. PHALANGOMYZUS* Börner, C., 1939
462 *persequens* (Walker, 1852)
463 *sejuncta* (Walker, 1848)
732 *tapuskae* (Hottes & Frison, 1931)
- S. ASTEROBIUM* Hille Ris Lambers, 1938
464 *asteris* (Walker, 1849)
- AMPHOROPHORA* Buckton, 1876
465 *ampullata* Buckton, 1876
- S. EUNECTAROSIPHON* Del Guercio, 1913
467 *gei* (Börner, C., 1939)
468 *rubi* (Kaltenbach, 1843)
- MEGOURA* Buckton, 1876
470 *viciae* Buckton, 1876
- MEGOURELLA* Hille Ris Lambers, 1949
471 *purpurea* Hille Ris Lambers, 1949
- MASONAPHIS* Hille Ris Lambers, 1939
741 *lambersi* MacGillivray, 1960
- S. ERICOBIVM* MacGillivray, 1958
475 *goldamaryae* (Knowlton, 1938)
476 *morrisoni* (Swain, 1918)
- WAHLGRENIELLA* Hille Ris Lambers, 1949
477 *arbuti* (Davidson, W. M., 1910)
479 *vaccinii* (Theobald, 1924)
- ANOECIA* Koch, C. L., 1857
480 *corni* (Fabricius, 1775)
483 *vagans* (Koch, C. L., 1856)
- GLYPHINA* Koch, C. L., 1856
487 *betulae* (Linnaeus, 1758)
- THELAXES* Westwood, 1840
490 *dryophila* (Schränk, 1801)
- MINDARUS* Koch, C. L., 1857
491 *abietinus* Koch, C. L., 1857
- HORMAPHIS* Osten-Sacken, 1861
496 *betulina* (Horváth, 1896)
- ERIOSOMA* Leach, 1818
497 *lanigerum* (Hausmann, 1802)
- SCHIZONEURA* Hartig, T., 1839
499 *patchae* Börner, C., and Blunk, 1916
500 *ulmi* (Linnaeus, 1758)
- KALTENBACHIELLA* Schouteden, 1906
502 *pallida* (Haliday, 1838)
- TETRANEURA* Hartig, T., 1841
503 *ulmi* (Linnaeus, 1758)
- ASIPHUM* Koch, C. L., 1856
505 *tremulae* (Linnaeus, 1761)
- PROCIPHILUS* Koch, C. L., 1857
507 *fraxini* (Geoffroy, 1762)
508 *pini* (Burmeister, 1835)
- MIMEURIA* Börner, C., 1952
510 *ulmiphila* (Del Guercio, 1917)
- THECABIUS* Koch, C. L., 1857
512 *affinis* (Kaltenbach, 1843)
- PEMPHIGUS* Hartig, T., 1839
S. PARATHECABIUS Börner, C., 1950
523 *lysimachiae* (Börner, C., 1916)
- S. PEMPHIGINUS* Börner, C., 1930
524 *populi* Courchet, 1879
- SMYNTHURODES* Westwood, 1849
526 *betae* Westwood, 1849
- FORDA* van Heyden, C. H. G., 1837
527 *formicaria* von Heyden, C. H. G., 1837
- S. PENTAPHIS* Horváth, 1896
528 *marginata* Koch, C. L., 1857
- APLONEURA* Passerini, 1863
530 *lentisci* (Passerini, 1856)
- BAIZONGIA* Rondani, 1848
531 *pistaciae* (Linnaeus, 1767)
- GEOICA* Hart, 1894
532 *setulosa* (Passerini, 1860)
533 *eragrostidis* (Passerini, 1860)
- MELANAPHIS* van der Goot, 1917
726 *elizabethae* (Ossiannilsson, 1967)
727 *pyraria* (Passerini, 1861)
- SEMIAPHIS* van der Goot, 1913
728 *dauci* (Fabricius, 1775)
- NEACTAPHIS* Shaposhnikov, 1950
733 *bakeri* (Cowen, 1895)
- UTAMPHOROPHORA* Knowlton, 1947
751 *humboldti* (Essig, 1941)
- CEDROBIUM* Remaudière, 1954
756 *laportei* Remaudière, 1954
- 1000 *EULACHNUS* Del Guercio, 1909
1001 *PERIPHYLLUS* van der Hoeven, 1863
1002 *CHAITOPHORUS* Koch, 1854
1003 *MYZOCALLIS* Passerini, 1860
1004 *PTEROCOMMA* Buckton, 1879
1005 *APHIS* Linnaeus, 1758
1006 *DYSAPHIS* Börner, 1951
1007 *HYPEROMYZUS* Börner, 1933
1008 *METOPOLOPHIUM* Mordvilko, 1914
1009 *MACROSIPHUM* Passerini, 1860
1010 *ERIOSOMA* Leach, 1818
1011 *NASONOVIA* Mordvilko, 1914
1019 *CRYPTOMYZUS* Oestlund, 1922

ROTHAMSTED REPORT FOR 1980, PART 2

Table 3 continued

1024 <i>TUBERCULOIDES</i> van der Goot, 1915	1502 <i>HOLCAPHIS</i> Hille Ris Lambers, 1939
1030 <i>MYZUS</i> Passerini, 1860	1503 <i>DACTYNOTUS</i> Rafinesque, 1818
1031 <i>SITOBION</i> Mordvilko, 1914	1504 <i>UROMELAN</i> Mordvilko, 1914
1036 <i>DIURAPHIS</i> Aizenberg, 1935	1505 <i>AMPHOROPHORA</i> Buckton, 1876
1045 <i>RHOPALOSIPHUM</i> Koch, 1854	1506 <i>PEMPHIGUS</i> Hartig, 1839
1046 <i>CAVARIELLA</i> Del Guercio, 1911	2002 <i>ADELGES</i> Vallot, 1836
1500 <i>CINARA</i> Curtis, 1835	2003 <i>PHYLLOXERA</i> Boyer de Fonscolombe, 1834
1501 <i>SUBSALTUSAPHIS</i> Quednau, 1953	

SYNOPTIC MONITORING FOR MIGRANT INSECT PESTS. I

TABLE 4

Species of Lepidoptera from light traps in Great Britain 1933–78

Heslop's species No.	South's common name	South's Latin name	Kloet and Hincks* Latin name
79	Lime Hawk-moth	<i>Mimas tiliae</i>	<i>Mimas tiliae</i> Linn.
80	Poplar Hawk-moth	<i>Laothoe populi</i>	<i>Laothoe populi</i> Linn.
81	Eyed Hawk-moth	<i>Smerinthus ocellata</i>	<i>Smerinthus ocellata</i> Linn.
86	Privet Hawk-moth	<i>Sphinx ligustri</i>	<i>Sphinx ligustri</i> Linn.
87	Pine Hawk-moth	<i>Hyloicus pinastri</i>	<i>Hyloicus pinastri</i> Linn.
91	Bedstraw Hawk-moth	<i>Celerio galii</i>	<i>Hyles galii</i> Rott.
95	Small Elephant Hawk-moth	<i>Deilephila porcellus</i>	<i>Deilephila porcellus</i> Linn.
96	Elephant Hawk-moth	<i>elpenor</i>	<i>elpenor</i> Linn.
97	Humming-bird Hawk-moth	<i>Macroglossum stellatarum</i>	<i>Macroglossum stellatarum</i> Linn.
100	Alder Kitten	<i>Harpyia bicuspis</i>	<i>Furcula bicuspis</i> Borkh.
101	Poplar Kitten	<i>bifida</i>	<i>bifida</i> Brahm
102	Sallow Kitten	<i>furcula</i>	<i>furcula</i> Cl.
103	Puss Moth	<i>Cerura vinula</i>	<i>Cerura vinula</i> Linn.
104	Lobster Moth	<i>Stauropus fagi</i>	<i>Stauropus fagi</i> Linn.
106	Marbled Brown	<i>Drymonia dodonea</i>	<i>Drymonia dodonea</i> D. & S.
107	Lunar Marbled Brown	<i>Chaonia ruficornis</i>	<i>ruficornis</i> Hufn.
108	Swallow Prominent	<i>Pheosia tremula</i>	<i>Pheosia tremula</i> Cl.
109	Lesser Swallow Prominent	<i>gnoma</i>	<i>gnoma</i> Fabr.
110	Pebble Prominent	<i>Notodonta ziczac</i>	<i>Eligmodonta ziczac</i> Linn.
111	Iron Prominent	<i>dromedarius</i>	<i>Notodonta dromedarius</i> Linn.
114	Great Prominent	<i>trepida</i>	<i>Peridea anceps</i> Goeze
116	Maple Prominent	<i>Lophopteryx cucullina</i>	<i>Ptilodontella cucullina</i> D. & S.
117	Coxcomb Prominent	<i>capucina</i>	<i>Ptilodon capucina</i> Linn.
118	Scarce Prominent	<i>Odontosis carmelita</i>	<i>Odontosis carmelita</i> Esp.
119	Plumed Prominent	<i>Ptilophora plumigera</i>	<i>Ptilophora plumigera</i> D. & S.
120	Pale Prominent	<i>Pterostoma palpina</i>	<i>Pterostoma palpina</i> Cl.
121	Buff-tip	<i>Phalera bucephala</i>	<i>Phalera bucephala</i> Linn.
122	Chocolate-tip	<i>Clostera curtula</i>	<i>Clostera curtula</i> Linn.
124	Small Chocolate-tip	<i>pigra</i>	<i>pigra</i> Hufn.
125	Buff Arches	<i>Habrosyne pyritoides</i>	<i>Habrosyne pyritoides</i> Hufn.
126	Peach Blossom	<i>Thyatira batis</i>	<i>Thyatira batis</i> Linn.
127	Figure of Eighty	<i>Tethea ocularis</i>	<i>Tethea ocularis</i> Linn.
128	Poplar Lutestring	<i>or</i>	<i>spp. octogesimea</i> Hb.
129	Common Lutestring	<i>duplaris</i>	<i>or</i> D. & S.
130	Satin Lutestring	<i>fluctuosa</i>	<i>Ochropacha duplaris</i> Linn.
131	Oak Lutestring	<i>Asphalia diluta</i>	<i>Tetheella fluctuosa</i> Hb.
132	Yellow-horned	<i>Achyla flavicornis</i>	<i>Cymatophorima diluta</i> D. & S.
133	Frosted Green	<i>Polyploca ridens</i>	<i>spp. hartwegi</i> Reisser
135	The Vapourer	<i>Orgyia antiqua</i>	<i>Achyla flavicornis</i> Linn.
136	Dark Tussock	<i>Dasychira fascelina</i>	<i>Polyploca ridens</i> Fabr.
137	Pale Tussock	<i>pudibunda</i>	<i>Orgyia antiqua</i> Linn.
138	Brown-tail	<i>Euproctis chrysorrhoea</i>	<i>Dasychira fascelina</i> Linn.
139	Yellow-tail	<i>similis</i>	<i>pudibunda</i> Linn.
142	White Satin Moth	<i>Leucoma salicis</i>	<i>Euproctis chrysorrhoea</i> Linn.
143	Gypsy Moth	<i>Lymantria dispar</i>	<i>similis</i> Fuess.
144	Black Arches	<i>monacha</i>	<i>Leucoma salicis</i> Linn.
145	The Lackey	<i>Malacosoma neustria</i>	<i>Lymantria dispar</i> Linn.
147	Pale Eggar	<i>Trichiura crataegi</i>	<i>monacha</i> Linn.
148	December Moth	<i>Poecilocampa populi</i>	<i>Malacosoma neustria</i> Linn.
149	Small Eggar	<i>Eriogaster lanestris</i>	<i>Trichiura crataegi</i> Linn.
150	Oak Eggar	<i>Lasiocampa quercus</i>	<i>Poecilocampa populi</i> Linn.
151	Grass Eggar	<i>trifolii</i>	<i>Eriogaster lanestris</i> Linn.
152	Fox Moth	<i>Macrothylacia rubi</i>	<i>Lasiocampa quercus</i> Linn.
154	The Drinker	<i>Philudoria potatoria</i>	<i>trifolii</i> D. & S.
156	The Lappet	<i>Gastropacha quercifolia</i>	<i>Macrothylacia rubi</i> Linn.
157	Kentish Glory	<i>Endromis versicolora</i>	<i>Philudoria potatoria</i> Linn.
159	Emperor Moth	<i>Saturnia pavonia</i>	<i>Gastropacha quercifolia</i> Linn.
161	Oak Hook-tip	<i>Drepana binaria</i>	<i>Endromis versicolora</i> Linn.
162	Barred Hook-tip	<i>cultraria</i>	<i>Saturnia pavonia</i> Linn.
			<i>Drepana binaria</i> Hufn.
			<i>cultraria</i> Fabr.

* As used by Bradley & Fletcher (1979).

ROTHAMSTED REPORT FOR 1980, PART 2

Table 4 continued

Heslop's species No.	South's common name	South's Latin name	Kloet and Hincks' Latin name
163	Pebble Hook-tip	<i>Drepana falcatoria</i>	<i>Drepana falcatoria</i> Linn.
164	Scalloped Hook-tip	<i>lacertinaria</i>	<i>Falcaria lacertinaria</i> Linn.
165	Chinese Character	<i>Cilix glaucata</i>	<i>Cilix glaucata</i> Scop.
166	Short-cloaked Moth	<i>Nola cucullatella</i>	<i>Nola cucullatella</i> Linn.
167	Small Black Arches	<i>strigula</i>	<i>Meganola strigula</i> D. & S.
168	Kent Black Arches	<i>albula</i>	<i>albula</i> D. & S.
169	Least Black Arches	<i>Celama confusalis</i>	<i>Nola confusalis</i> H.-S.
170	Scarce Black Arches	<i>tuberculana</i>	<i>aerugula</i> Hb.
171	Red-necked Footman	<i>Atolmis rubricollis</i>	<i>Atolmis rubricollis</i> Linn.
172	Muslin Footman	<i>Nudaria mundana</i>	<i>Nudaria mundana</i> Linn.
173	Round-winged Muslin	<i>Thumatha senex</i>	<i>Thumatha senex</i> Hb.
174	Rosy Footman	<i>Mitochrista miniata</i>	<i>Mitochrista miniata</i> Forst.
176	Four-dotted Footman	<i>Cybosia mesomella</i>	<i>Cybosia mesomella</i> Linn.
177	Four-spotted Footman	<i>Lithosia quadra</i>	<i>Lithosia quadra</i> Linn.
178	Buff Footman	<i>deplana</i>	<i>Eilema deplana</i> Esp.
179	Dingy Footman	<i>griseola</i>	<i>griseola</i> Hb.
180	Common Footman	<i>lurideola</i>	<i>lurideola</i> Zinck.
181	Scarce Footman	<i>complanata</i>	<i>complanata</i> Linn.
183	Pygmy Footman	<i>pygmaeola</i>	<i>pygmaeola</i> Doubl.
184	Hoary Footman	<i>caniola</i>	<i>caniola</i> Hb.
185	Orange Footman	<i>sororcula</i>	<i>sororcula</i> Hufn.
186	Dotted Footman	<i>Pelosis muscerda</i>	<i>Pelosis muscerda</i> Hufn.
188	Speckled Footman	<i>Coscinia cribraria</i>	<i>Coscinia cribraria</i> Linn.
191	The Cinnabar	<i>Callimorpha jacobaeae</i>	<i>Tyria jacobaeae</i> Linn.
192	White Ermine	<i>Spilosoma lubricipeda</i>	<i>Spilosoma lubricipeda</i> Linn.
193	Water Ermine	<i>urticae</i>	<i>urticae</i> Esp.
194	Buff Ermine	<i>lutea</i>	<i>luteum</i> Hufn.
195	Muslin Moth	<i>Cycnia mendica</i>	<i>Diaphora mendica</i> Cl.
196	Clouded Buff	<i>Diacrisia sannio</i>	<i>Diacrisia sannio</i> Linn.
197	Ruby Tiger	<i>Phragmatobia fuliginosa</i>	<i>Phragmatobia fuliginosa</i> Linn.
200	Garden Tiger	<i>Arctia caja</i>	<i>Arctia caja</i> Linn.
201	Cream-spot Tiger	<i>villica</i>	<i>villica</i> Linn.
202	Jersey Tiger	<i>Euplagia quadripunctaria</i>	<i>Euplagia quadripunctaria</i> Ob.
203	Scarlet Tiger	<i>Panaxia dominula</i>	<i>Euplagia quadripunctaria</i> Pod.
208	The Festoon	<i>Apoda avellana</i>	<i>Callimorpha dominula</i> Linn.
218	Six-spot Burnet	<i>Zygaena filipendulae</i>	<i>Apoda limacodes</i> Hufn.
263	Reed Leopard	<i>ssp. anglicola</i>	<i>Zygaena filipendulae</i> Linn.
264	Leopard Moth	<i>Phragmataecia castaneae</i>	<i>ssp. anglicola</i> Trem.
265	Goat Moth	<i>Zeuzera pyrina</i>	<i>Phragmataecia castaneae</i> Hb.
266	Ghost Swift	<i>Cossus cossus</i>	<i>Zeuzera pyrina</i> Linn.
267	Orange Swift	<i>Hepialus humuli</i>	<i>Cossus cossus</i> Linn.
268	Map-winged Swift	<i>sylvina</i>	<i>Hepialus humuli</i> Linn.
269	Common Swift	<i>fuscobulbosa</i>	<i>sylvina</i> Linn.
270	Gold Swift	<i>lupulina</i>	<i>fuscobulbosa</i> DeG.
272	Coast Dart	<i>hecta</i>	<i>lupulinus</i> Linn.
273	Garden Dart	<i>Euxoa cursoria</i>	<i>hecta</i> Linn.
274	White-line Dart	<i>nigricans</i>	<i>Euxoa cursoria</i> Hufn.
276	Square-spot Dart	<i>tritici</i>	<i>nigricans</i> Linn.
277	Turnip Moth	<i>obelisca</i>	<i>tritici</i> Linn.
278	Archer's Dart	<i>Agrotis segetum</i>	<i>obelisca</i> D. & S.
280	Heart and Club	<i>vestigialis</i>	<i>ssp. grisea</i> Tutt
281	Light Feathered Rustic	<i>clavis</i>	<i>Agrotis segetum</i> D. & S.
282	Shuttle-shaped Dart	<i>denticulata</i>	<i>vestigialis</i> Hufn.
283	Crescent Dart	<i>puta</i>	<i>clavis</i> Hufn.
285	Heart and Dart	<i>trux</i>	<i>cinerea</i> D. & S.
286	Dark Sword-grass	<i>ssp. lunigera</i>	<i>puta</i> Hb.
287	Sand Dart	<i>exclamationis</i>	<i>trux</i> Hb.
289	True Lover's Knot	<i>ipsilon</i>	<i>ssp. lunigera</i> Steph.
290	Portland Moth	<i>ripae</i>	<i>exclamationis</i> Linn.
292	Pearly Underwing	<i>Lycophotia varia</i>	<i>ipsilon</i> Hufn.
293	Northern Rustic	<i>Actebia praecox</i>	<i>ripae</i> Hb.
		<i>Peridroma porphyrea</i>	<i>Lycophotia porphyrea</i> D. & S.
		<i>Ammogrotis lucerneae</i>	<i>Ochropleura praecox</i> Linn.
			<i>Peridroma saucia</i> Hb.
			<i>Standfussiana lucerneae</i> Linn.

SYNOPTIC MONITORING FOR MIGRANT INSECT PESTS. I

Heslop's species No.	South's common name	South's Latin name	Kloet and Hincks' Latin name
294	Dotted Rustic	<i>Rhyacia simulans</i>	<i>Rhyacia simulans</i> Hufn.
295	Stout Dart	<i>Spaelotis ravidia</i>	<i>Spaelotis ravidia</i> D. & S.
297	Double Dart	<i>Graphiphora augur</i>	<i>Graphiphora augur</i> Fabr.
298	Purple Clay	<i>Diarsia brunnea</i>	<i>Diarsia brunnea</i> D. & S.
299	Ingrailed Clay	<i>mendica</i>	<i>mendica</i> Fabr.
301	Barred Chestnut	<i>dahlia</i>	<i>dahlia</i> Hb.
302	Small Square-spot	<i>rubi</i>	<i>rubi</i> View.
304	Flame Shoulder	<i>Ochropleura plecta</i>	<i>Ochropleura plecta</i> Linn.
305	Heath Rustic	<i>Amathes agathina</i>	<i>Xestia agathina</i> Dup.
306	Northern Dart	<i>alpicola</i>	<i>alpicola</i> Zett. ssp. <i>alpina</i> Humph. & Westw.
308	Ashworth's Rustic	<i>ashworthii</i>	<i>ashworthii</i> Doubl.
309	Autumnal Rustic	<i>Paradiarsia glareosa</i>	<i>Paradiarsia glareosa</i> Esp.
310	Neglected or Grey Rustic	<i>Amathes castanea</i>	<i>Xestia castanea</i> Esp.
311	Dotted Clay	<i>baja</i>	<i>baja</i> D. & S.
312	Plain Clay	<i>Eugnorisma depuncta</i>	<i>Eugnorisma depuncta</i> Linn.
313	Setaceous Hebrew Character	<i>Amathes c-nigrum</i>	<i>Xestia c-nigrum</i> Linn.
314	Triple-spotted Clay	<i>ditrapezium</i>	<i>ditrapezium</i> D. & S.
315	Double Square-spot	<i>triangulum</i>	<i>triangulum</i> Hufn.
316	Square-spotted Clay	<i>stigmatica</i>	<i>rhomboidea</i> Esp.
317	Six-striped Rustic	<i>sexstrigata</i>	<i>sexstrigata</i> Haw.
318	Square-spot Rustic	<i>xanthographa</i>	<i>xanthographa</i> D. & S.
319	The Flame	<i>Axylia putris</i>	<i>Axylia putris</i> Linn.
320	Green Arches	<i>Anaplectoides prasina</i>	<i>Anaplectoides prasina</i> D. & S.
321	Great Brocade	<i>Eurois occulta</i>	<i>Eurois occulta</i> Linn.
322	White-marked	<i>Gypsites leucographa</i>	<i>Cerastis leucographa</i> D. & S.
323	Red Chestnut	<i>Cerastis rubricosa</i>	<i>rubricosa</i> D. & S.
324	The Gothic	<i>Naenia typica</i>	<i>Naenia typica</i> Linn.
326	Cousin German	<i>Euschesis sobrina</i>	<i>Paradiarsia sobrina</i> Dup.
327	Lesser Yellow Underwing	<i>comes</i>	<i>Noctua comes</i> Hb.
328	Lunar Yellow Underwing	<i>orbona</i>	<i>orbona</i> Hufn.
329	Lesser Broad-bordered Yellow underwing	<i>janthina</i>	<i>janthina</i> D. & S.
330	Least Yellow Underwing	<i>interjecta</i>	<i>interjecta</i> Hb. ssp. <i>caliginosa</i> Schaw.
331	Large Yellow Underwing	<i>Noctua pronuba</i>	<i>pronuba</i> Linn.
332	Broad-bordered Yellow Underwing	<i>Lampra fimbriata</i>	<i>fimbriata</i> Schreb.
334	Bordered Sallow	<i>Pyrrhia umbra</i>	<i>Pyrrhia umbra</i> Hufn.
335	Marbled Clover	<i>Heliothis virescens</i>	<i>Heliothis virescens</i> Hufn.
340	Bordered Straw	<i>peltigera</i>	<i>peltigera</i> D. & S.
341	Scarce Bordered Straw	<i>armigera</i>	<i>Helicoverpa armigera</i> Hb.
342	Beautiful Yellow Underwing	<i>Anarta myrtille</i>	<i>Anarta myrtille</i> Linn.
345	Cabbage Moth	<i>Mamestra brassicae</i>	<i>Mamestra brassicae</i> Linn.
346	Dot Moth	<i>Melanchra persicariae</i>	<i>Melanchra persicariae</i> Linn.
347	Silvery Arches	<i>Polia hepatica</i>	<i>Polia hepatica</i> Cl.
348	Pale Shining Brown	<i>nitens</i>	<i>bombycina</i> Hufn.
351	Bright-line Brown-eye	<i>Diataraxia oleracea</i>	<i>Lacanobia oleracea</i> Linn.
353	Broom Moth	<i>Ceramica pisi</i>	<i>Ceramica pisi</i> Linn.
354	The Shears	<i>Hada nana</i>	<i>Hada nana</i> Hufn.
355	The Nutmeg	<i>Dicestra trifolii</i>	<i>Dicestra trifolii</i> Hufn.
357	Light Brocade	<i>Hadena w-latinum</i>	<i>Lacanobia w-latinum</i> Hufn.
358	Dog's Tooth	<i>suasa</i>	<i>suasa</i> D. & S.
359	Pale-shouldered Brocade	<i>thalassina</i>	<i>thalassina</i> Hufn.
360	Beautiful Brocade	<i>contigua</i>	<i>contigua</i> D. & S.
361	Glaucous Shears	<i>bombycina</i>	<i>Papestra biren</i> Goeze
363	Broad-barred White	<i>bicolorata</i>	<i>Hecarata bicolorata</i> Hufn.
365	White Spot	<i>albimacula</i>	<i>Hadena albimacula</i> Borkh.
366	Marbled Coronet	<i>conspersa</i>	<i>confusa</i> Hufn.
367	Varied Coronet	<i>compta</i>	<i>compta</i> D. & S.
368	The Lychnis	<i>bicruris</i>	<i>bicruris</i> Hufn.
369	Barrett's Marbled Coronet	<i>barrettii</i>	<i>luteago</i> D. & S. ssp. <i>barrettii</i> Doubl.
370	The Champion	<i>rivularis</i>	<i>rivularis</i> Fabr.
371	Tawny Shears	<i>lepida</i>	<i>perplexa</i> D. & S. ssp. <i>perplexa</i> D. & S.

ROTHAMSTED REPORT FOR 1980, PART 2

Table 4 continued

Heslop's species No.	South's common name	South's Latin name	Kloet and Hincks' Latin name
372	Pod Lover	<i>Hadena lepida</i> ssp. <i>capsophila</i>	<i>Hadena perplexa</i> D. & S. ssp. <i>capsophila</i> Dup.
374	White Colon	<i>Heliophobus albicolon</i>	<i>Sideridis albicolon</i> Hb.
375	Bordered Gothic	<i>calcatrippae</i>	<i>Heliophobus reticulata</i> Goeze
376	Feathered Gothic	<i>Tholera popularis</i>	<i>Tholera decimalis</i> Poda
377	Hedge Rustic	<i>cespitis</i>	<i>cespitis</i> D. & S.
378	Antler Moth	<i>Cerapteryx graminis</i>	<i>Cerapteryx graminis</i> Linn.
380	Silver Cloud	<i>Xylomyges conspicillaris</i>	<i>Egira conspicillaris</i> Linn.
382	Hebrew Character	<i>Orthosia gothica</i>	<i>Orthosia gothica</i> Linn.
383	Blossom Underwing	<i>miniosa</i>	<i>miniosa</i> D. & S.
384	Small Quaker	<i>cruda</i>	<i>cruda</i> D. & S.
385	Common Quaker	<i>stabilis</i>	<i>stabilis</i> D. & S.
386	Lead-coloured Drab	<i>populeti</i>	<i>populeti</i> Fabr.
387	Clouded Drab	<i>incerta</i>	<i>incerta</i> Fabr.
388	Twin-spotted Quaker	<i>munda</i>	<i>munda</i> D. & S.
389	Northern Drab	<i>advena</i>	<i>opima</i> Hb.
390	Powdered Quaker	<i>gracilis</i>	<i>gracilis</i> D. & S.
391	Pine Beauty	<i>Panolis flammea</i>	<i>Panolis flammea</i> D. & S.
392	Flame Wainscot	<i>Meliana flammea</i>	<i>Senta flammea</i> Curt.
393	Common Wainscot	<i>Leucania pallens</i>	<i>Mythimna pallens</i> Linn.
394	Mathew's Wainscot	<i>favicolor</i>	<i>favicolor</i> Barr.
395	Smoky Wainscot	<i>impura</i>	<i>impura</i> Hb.
396	Southern Wainscot	<i>straminea</i>	<i>straminea</i> Treit.
397	Striped Wainscot	<i>pudorina</i>	<i>pudorina</i> D. & S.
398	Obscure Wainscot	<i>obsoleta</i>	<i>obsoleta</i> Hb.
399	Shore Wainscot	<i>litoralis</i>	<i>litoralis</i> Curt.
400	Shoulder-striped Wainscot	<i>comma</i>	<i>comma</i> Hb.
401	Devonshire Wainscot	<i>putrescens</i>	<i>putrescens</i> Hb.
402	White-speck	<i>unipuncta</i>	<i>unipuncta</i> Haw.
403	L-album Wainscot	<i>l-album</i>	<i>l-album</i> Linn.
404	The Delicate	<i>vitellina</i>	<i>vitellina</i> Hb.
406	White-point	<i>albipuncta</i>	<i>albipuncta</i> D. & S.
407	The Clay	<i>lythargyria</i>	<i>ferrago</i> Fabr.
408	Brown-line Bright-eye	<i>conigera</i>	<i>conigera</i> D. & S.
409	Double line	<i>Mythimna turca</i>	<i>turca</i> Linn.
410	The Anomalous	<i>Stilbia anomala</i>	<i>Stilbia anomala</i> Haw.
411	Large Wainscot	<i>Rhizedra lutosa</i>	<i>Rhizedra lutosa</i> Hb.
413	Small Wainscot	<i>Arenostola pygmina</i>	<i>Photedes pygmina</i> Haw.
414	The Concolorous	<i>extrema</i>	<i>extrema</i> Hb.
415	Mere Wainscot	<i>fluxa</i>	<i>fluxa</i> Hb.
417	Lyme Grass	<i>elymi</i>	<i>elymi</i> Treit.
419	Fen Wainscot	<i>phragmitidis</i>	<i>Arenostola phragmitidis</i> Hb.
420	Brighton Wainscot	<i>Oria musculosa</i>	<i>Oria musculosa</i> Hb.
421	Rush Wainscot	<i>Nonagria algae</i>	<i>Archanara algae</i> Esp.
422	Webb's Wainscot	<i>sparganii</i>	<i>sparganii</i> Esp.
423	Bulrush Wainscot	<i>typhae</i>	<i>Nonagria typhae</i> Thunb.
424	Twin-spotted Wainscot	<i>geminipuncta</i>	<i>Archanara geminipuncta</i> Haw.
425	Brown-veined Wainscot	<i>dissoluta</i>	<i>dissoluta</i> Treit.
427	Small Rufous	<i>Coenobia rufa</i>	<i>Coenobia rufa</i> Haw.
428	Silky Wainscot	<i>Chilodes maritima</i>	<i>Chilodes maritimus</i> Tausch.
429	Treble Lines	<i>Meristis trigrammica</i>	<i>Charanyca trigrammica</i> Hufn.
430	Mottled Rustic	<i>Caradrina morpheus</i>	<i>Caradrina morpheus</i> Hufn.
431	The Uncertain	<i>alsines</i>	<i>Hoplodrina alsines</i> Brahm
432	The Rustic	<i>blanda</i>	<i>blanda</i> D. & S.
433	Vine's Rustic	<i>ambigua</i>	<i>ambigua</i> D. & S.
435	Pale Mottled Willow	<i>clavipalpis</i>	<i>Caradrina clavipalpis</i> Scop.
436	Small Mottled Willow	<i>Laphygma exigua</i>	<i>Spodoptera exigua</i> Hb.
438	Bird's Wing	<i>Dypterygia scabriuscula</i>	<i>Dypterygia scabriuscula</i> Linn.
441	Light Arches	<i>Apamea lithoxylea</i>	<i>Apamea lithoxylea</i> D. & S.
442	Reddish Light Arches	<i>sublustris</i>	<i>sublustris</i> Esp.
444	Dark Arches	<i>monoglyphia</i>	<i>monoglyphia</i> Hufn.
446	Clouded Brindle	<i>epomidion</i>	<i>epomidion</i> Haw.
447	Clouded-bordered Brindle	<i>crenata</i>	<i>crenata</i> Hufn.
448	Rustic Shoulder-knot	<i>sordens</i>	<i>sordens</i> Hb.
449	Small Clouded Brindle	<i>unanimis</i>	<i>unanimis</i> Hb.

SYNOPTIC MONITORING FOR MIGRANT INSECT PESTS. I

Heslop's species No.	South's common name	South's Latin name	Kloet and Hincks' Latin name
451	Crescent Striped	<i>Apamea oblonga</i>	<i>Apamea oblonga</i> Haw.
452	Large Nutmeg	<i>infesta</i>	<i>anceps</i> D. & S.
453	The Confused	<i>furva</i>	<i>furva</i> D. & S.
454	Dusky Brocade	ssp. <i>britannica</i>	ssp. <i>britannica</i> Cock.
455	Slender Brindle	<i>remissa</i>	<i>remissa</i> Hb.
456	Common Rustic	<i>scolopacina</i>	<i>scolopacina</i> Esp.
457	Double Lobed	<i>secalis</i>	<i>Mesapamea secalis</i> Linn.
458	Dingy Shears	<i>ophiogramma</i>	<i>Apamea ophiogramma</i> Esp.
460	Northern Arches	<i>ypsillon</i>	<i>Enargia ypsillon</i> D. & S.
		<i>exulis</i>	<i>Apamea exulis</i> Lefeb.
		ssp. <i>assimilis</i>	ssp. <i>assimilis</i> Dbl.
461	Dusky Sallow	<i>Eremobia ochroleuca</i>	<i>Eremobia ochroleuca</i> D. & S.
462	Marbled Minor	<i>Procus strigilis</i>	<i>Oligia strigilis</i> Linn.
463	Tawny Marbled Minor	<i>latruncula</i>	<i>latruncula</i> D. & S.
464	Rufous Minor	<i>versicolor</i>	<i>versicolor</i> Borkh.
465	Middle-barred Minor	<i>fasciuncula</i>	<i>fasciuncula</i> Haw.
466	Rosy Minor	<i>literosa</i>	<i>Mesologia literosa</i> Haw.
467	Cloaked Minor	<i>furuncula</i>	<i>furuncula</i> D. & S.
469	Flounced Rustic	<i>Luperina testacea</i>	<i>Luperina testacea</i> D. & S.
472	Small Angle Shades	<i>Euplexia lucipara</i>	<i>Euplexia lucipara</i> Linn.
473	Angle Shades	<i>Phlogophora meticulosa</i>	<i>Phlogophora meticulosa</i> Linn.
475	The Saxon	<i>Hyppa rectilinea</i>	<i>Hyppa rectilinea</i> Esp.
476	Straw Underwing	<i>Thalpophila matura</i>	<i>Thalpophila matura</i> Hufn.
478	Small Dotted Buff	<i>Petilampa minima</i>	<i>Photodes minima</i> Haw.
479	Rosy Marbled	<i>Haplotis venustula</i>	<i>Elaphria venustula</i> Hb.
480	Marsh Moth	<i>Hydrillula palustris</i>	<i>Athetis pallustris</i> Hb.
481	Haworth's Minor	<i>Celaena haworthii</i>	<i>Celaena haworthii</i> Curt.
482	The Crescent	<i>leucostigma</i>	<i>leucostigma</i> Hb.
			ssp. <i>leucostigma</i> Hb.
484	Ear Moth	<i>Hydraecia oculea</i>	<i>Amphipoea oculea</i> Linn.
485	Saltern Ear	<i>paludis</i>	<i>fucosa</i> Freyer
			ssp. <i>paludis</i> Tutt
486	Large Ear	<i>lucens</i>	<i>lucens</i> Freyer
487	Crinan Ear	<i>crinanensis</i>	<i>crinanensis</i> Burr.
488	Rosy Rustic	<i>Gortyna micacea</i>	<i>Hydraecia micacea</i> Esp.
490	Frosted Orange	<i>flavago</i>	<i>Gortyna flavago</i> D. & S.
491	Giant Ear	<i>Hydraecia hucherardi</i>	<i>Hydraecia osseola</i> Stdgr
			ssp. <i>hucherardi</i> Mab.
492	Heart Moth	<i>Dicycla oo</i>	<i>Dicycla oo</i> Linn.
493	Lunar-spotted Pinion	<i>Cosmia pyralina</i>	<i>Cosmia pyralina</i> D. & S.
494	Lesser-spotted Pinion	<i>affinis</i>	<i>affinis</i> Linn.
495	White-spotted Pinion	<i>diffinis</i>	<i>diffinis</i> Linn.
496	The Dun-bar	<i>trapezina</i>	<i>trapezina</i> Linn.
497	Angle-striped Sallow	<i>Enargia paleacea</i>	<i>Enargia paleacea</i> Esp.
499	Double Kidney	<i>Zenobia retusa</i>	<i>Ipimorpha retusa</i> Linn.
500	The Olive	<i>subtusa</i>	<i>subtusa</i> D. & S.
502*	Copper Underwing	<i>Amphipyra pyramidea</i>	<i>Amphipyra pyramidea</i> Linn.
503	Mouse Moth	<i>tragopogonis</i>	<i>tragopogonis</i> Cl.
504	Brown Rustic	<i>Rusina ferruginea</i>	<i>Rusina ferruginea</i> Esp.
505	Old Lady	<i>Mormo maura</i>	<i>Mormo maura</i> Linn.
506	Marbled Beauty	<i>Cryphia perla</i>	<i>Cryphia domestica</i> Hufn.
507	Marbled Green	<i>muralis</i>	<i>muralis</i> Forst.
512	The Miller	<i>Apatele leporina</i>	<i>Acronicta leporina</i> Linn.
513	The Sycamore	<i>aceris</i>	<i>aceris</i> Linn.
514	Poplar Grey	<i>megacephala</i>	<i>megacephala</i> D. & S.
515	Alder Moth	<i>alni</i>	<i>alni</i> Linn.
517	Dark Dagger	<i>tridens</i>	<i>tridens</i> D. & S.
518	Grey Dagger	<i>psi</i>	<i>psi</i> Linn.
520	Light Knot Grass	<i>menyanthidis</i>	<i>menyanthidis</i> Esp.
523	Knot Grass	<i>rumicis</i>	<i>rumicis</i> Linn.
524	The Coronet	<i>Craniophora ligustri</i>	<i>Craniophora ligustri</i> D. & S.
525	Reed Dagger	<i>Simyra venosa</i>	<i>Simyra albovenosa</i> Goeze
527	The Shark	<i>Cucullia umbratica</i>	<i>Cucullia umbratica</i> Linn.
528	Star-wort	<i>asteris</i>	<i>asteris</i> D. & S.
529	Chamomile Shark	<i>chamomillae</i>	<i>chamomillae</i> D. & S.

* See No. 2507 and text on p. 48.

ROTHAMSTED REPORT FOR 1980, PART 2

Table 4 continued

Heslop's species No.	South's common name	South's Latin name	Kloet and Hincks' Latin name
533	The Mullein	<i>Cucullia verbasci</i>	<i>Cucullia verbasci</i> Linn.
535	Striped Lychnis	<i>lychnitis</i>	<i>lychnitis</i> Ramb.
537	Golden-rod Brindle	<i>Lithomoia solidaginis</i>	<i>Lithomoia solidaginis</i> Hb.
538	Tawny Pinion	<i>Lithophane semibrunnea</i>	<i>Lithophane semibrunnea</i> Haw
539	Pale Pinion	<i>socia</i>	<i>socia</i> Hufn.
540	Blair's Shoulder-knot	<i>leautieri</i>	<i>leautieri</i> Boisd. ssp. <i>hesperica</i> Bours.
543	Grey Shoulder-knot	<i>ornitopus</i>	<i>ornitopus</i> Hufn.
		ssp. <i>lactipennis</i>	ssp. <i>lactipennis</i> Dadd
544	Sword-grass	<i>Xylena exsoleta</i>	<i>Xylena exsoleta</i> Linn.
545	Red Sword-grass	<i>vetusta</i>	<i>vetusta</i> Hb.
546	Early Grey	<i>Xylocampa areola</i>	<i>Xylocampa areola</i> Esp.
547	Toadflax Brocade	<i>Calophasia lunula</i>	<i>Calophasia lunula</i> Hufn.
549	Beautiful Gothic	<i>Leucochlaena oditis</i>	<i>Leucochlaena oditis</i> Hb.
550	The Sprawler	<i>Brachionycha sphinx</i>	<i>Brachionycha sphinx</i> Hufn.
551	Rannoch Sprawler	<i>nubeculosa</i>	<i>nubeculosa</i> Esp.
552	Minor Shoulder-knot	<i>Bombycia viminalis</i>	<i>Brachylomia viminalis</i> Fabr.
553	Deep-brown Dart	<i>Aporophyla lutulenta</i>	<i>Aporophyla lutulenta</i> D. & S.
554	Deep-brown Dart	<i>lutulenta</i>	<i>lutulenta</i> D. & S.
		ssp. <i>lunebergensis</i>	ssp. <i>lunebergensis</i> Freyer
555	Black Rustic	<i>nigra</i>	<i>nigra</i> Haw.
556	Feathered Brindle	<i>australis</i>	<i>australis</i> Boisd. ssp. <i>pascuea</i> Humph. & Westw.
557	Green-brindled Crescent	<i>Allophyes oxyacanthae</i>	<i>Allophyes oxyacanthae</i> Linn.
559	Merveille de Jour	<i>Gripesia aprilina</i>	<i>Dichonia aprilina</i> Linn.
560	Flame Brocade	<i>Trigonophora flammea</i>	<i>Trigonophora flammea</i> Esp.
562	Dark Brocade	<i>Eumichtis adusta</i>	<i>Blepharita adusta</i> Esp.
563	Feathered Ranunculus	<i>lichenae</i>	<i>Eumichtis lichenae</i> Hb.
564	The Suspected	<i>Parastichtis suspecta</i>	<i>Parastichtis suspecta</i> Hb.
565	Brindled Green	<i>Dryobotodes eremita</i>	<i>Dryobotodes eremita</i> Fabr.
567	Brindled Ochre	<i>Dasypolia templi</i>	<i>Dasypolia templi</i> Thunb.
568	Large Ranunculus	<i>Antitype flavicincta</i>	<i>Polymixis flavicincta</i> D. & S.
569	Grey Chi	<i>chi</i>	<i>Antitype chi</i> Linn.
570	Black-banded	<i>xanthomista</i>	<i>Polymixis xanthomista</i> Hb.
		ssp. <i>statice</i>	ssp. <i>statice</i> Gress.
571	The Satellite	<i>Eupsilia transversa</i>	<i>Eupsilia transversa</i> Hufn.
572	Orange Underwing	<i>Jodia croceago</i>	<i>Jodia croceago</i> D. & S.
573	Dotted Chestnut	<i>Dasycampa rubiginea</i>	<i>Conistra rubiginea</i> D. & S.
574	Lunar Underwing	<i>Omphaloscelis lunosa</i>	<i>Omphaloscelis lunosa</i> Haw.
575	Red-line Quaker	<i>Agrochola lota</i>	<i>Agrochola lota</i> Cl.
576	Yellow-line Quaker	<i>macilenta</i>	<i>macilenta</i> Hb.
577	The Brick	<i>circellaris</i>	<i>circellaris</i> Hufn.
578	Beaded Chestnut	<i>lychnidis</i>	<i>lychnidis</i> D. & S.
579	Flounced Chestnut	<i>Anchoscelis helvola</i>	<i>helvola</i> Linn.
580	Brown-spot Pinion	<i>litura</i>	<i>litura</i> Linn.
581	Centre-barred Sallow	<i>Atethmia xerampelina</i>	<i>Atethmia centrargo</i> Haw.
582	Orange Sallow	<i>Tiliacea citrargo</i>	<i>Xanthia citrargo</i> Linn.
583	Barred Sallow	<i>aurago</i>	<i>aurago</i> D. & S.
584	Pink-barred Sallow	<i>Citria lutea</i>	<i>togata</i> Esp.
585	The Sallow	<i>Cirrhia icteritia</i>	<i>icteritia</i> Hufn.
586	Dusky-lemon Sallow	<i>gilvago</i>	<i>gilvago</i> D. & S.
588	Pale-lemon Sallow	<i>ocellaris</i>	<i>ocellaris</i> Borkh.
590	The Chestnut	<i>Conistra vaccinii</i>	<i>Conistra vaccinii</i> Linn.
591	Dark Chestnut	<i>ligula</i>	<i>ligula</i> Esp.
592	Green Silver-lines	<i>Bena fagana</i>	<i>Pseudoips fagana</i> Fabr. ssp. <i>britannica</i> Warr.
593	Scarce Silver-lines	<i>Pseudoips prasinana</i>	<i>Bena prasinana</i> Linn.
594	Cream-bordered Green Pea	<i>Earias clorana</i>	<i>Earias clorana</i> Linn.
595	Oak Nycteoline	<i>Nycteola revayana</i>	<i>Nycteola revayana</i> Scop.
601	Small Marbled	<i>Eublemma parva</i>	<i>Eublemma parva</i> Hb.
603	Marbled White-spot	<i>Lithacodia fasciana</i>	<i>Lithacodia pygarga</i> Hufn.
606	Silver Hook	<i>Eustrotia uncula</i>	<i>Eustrotia uncula</i> Cl.
610	Red Underwing	<i>Catocala nupta</i>	<i>Catocala nupta</i> Linn.
617	Nut-tree Tussock	<i>Colocasia coryli</i>	<i>Colocasia coryli</i> Linn.
619	Figure of Eight	<i>Episema caeruleocephala</i>	<i>Diloba caeruleocephala</i> Linn.

SYNOPTIC MONITORING FOR MIGRANT INSECT PESTS. I

Heslop's species No.	South's common name	South's Latin name	Kloet and Hincks' Latin name
621	Golden Plusia	<i>Polychrisia moneta</i>	<i>Polychrisia moneta</i> Fabr.
623	Burnished Brass	<i>Plusia chrysitis</i>	<i>Diachrysia chrysitis</i> Linn.
625	Scarce Burnished Brass	<i>chryson</i>	<i>chryson</i> Hb.
626	Gold Spangle	<i>bractea</i>	<i>Autographa bractea</i> D. & S.
627†	Gold Spot	<i>festucae</i>	<i>Plusia festucae</i> Linn.
630	Plain Golden Y	<i>jota</i>	<i>Autographa jota</i> Linn.
631	Beautiful Golden Y	<i>pulchrina</i>	<i>pulchrina</i> Haw.
632	Ni Moth	<i>ni</i>	<i>Trichoplusia ni</i> Hb.
635	Silver Y	<i>gamma</i>	<i>Autographa gamma</i> Linn.
636	Scarce Silver Y	<i>interrogationis</i>	<i>Syngrapha interrogationis</i> Linn.
638	Dark Spectacle	<i>Unca trigemina</i>	<i>Abrostola trigemina</i> Wernb.
639	The Spectacle	<i>triplesia</i>	<i>triplesia</i> Linn.
641	Four-spotted	<i>Acontia luctuosa</i>	<i>Tyta luctuosa</i> D. & S.
644	The Blackneck	<i>Lygephila pastinum</i>	<i>Lygephila pastinum</i> Treit.
646	The Brother	<i>Raphia frater</i>	<i>Raphia frater</i> Grote
648	Straw Dot	<i>Rivula sericealis</i>	<i>Rivula sericealis</i> Scop.
649	Small Purple-barred	<i>Phytometra viridaria</i>	<i>Phytometra viridaria</i> Cl.
650	Waved Black	<i>Parascotia fuliginaria</i>	<i>Parascotia fuliginaria</i> Linn.
651	The Herald	<i>Scoliopteryx libatrix</i>	<i>Scoliopteryx libatrix</i> Linn.
652	Beautiful Snout	<i>Bomolocha crassalis</i>	<i>Hypena crassalis</i> Fabr.
653	The Snout	<i>Hypena proboscidalis</i>	<i>proboscidalis</i> Linn.
654	Bloxworth Snout	<i>obsitalis</i>	<i>obsitalis</i> Hb.
656	Buttoned Snout	<i>rostralis</i>	<i>rostralis</i> Linn.
657	White-line Snout	<i>Schrankia taenialis</i>	<i>Schrankia taenialis</i> Hb.
658	Pinion-streaked Snout	<i>costaestrigalis</i>	<i>costaestrigalis</i>
659	Marsh Oblique-barred	<i>Hypenodes turfosalis</i>	<i>Hypenodes turfosalis</i> Wocke
661	The Fan-foot	<i>Zanclognatha tarsipennalis</i>	<i>Herminia tarsipennalis</i> Treit.
662	Small Fan-foot	<i>nemoralis</i>	<i>nemoralis</i> Fabr.
663	Dotted Fan-foot	<i>cribrumalis</i>	<i>Macrochilo cribrumalis</i> Hb.
664	Clay Fan-foot	<i>Paracolax derivialis</i>	<i>Paracolax derivialis</i> Hb.
665	Common Fan-foot	<i>Herminia barbalis</i>	<i>Herminia strigilata</i> Linn.
666	Beautiful Hook-tip	<i>Laspeyria flexula</i>	<i>Laspeyria flexula</i> D. & S.
669	March Moth	<i>Alsophila aescularia</i>	<i>Alsophila aescularia</i> D. & S.
671	Grass Emerald	<i>Pseudoterpna pruinata</i> ssp. <i>atropunctaria</i>	<i>Pseudoterpna pruinata</i> Hufn. ssp. <i>atropunctaria</i> Walk.
672	Large Emerald	<i>Geometra papilionaria</i>	<i>Geometra papilionaria</i> Linn.
673	Blotched Emerald	<i>Comibaena pustulata</i>	<i>Comibaena bajularia</i> D. & S.
674	Common Emerald	<i>Hemitheia aestivaria</i>	<i>Hemitheia aestivaria</i> Hb.
675	Small Grass Emerald	<i>Chlorissa viridata</i>	<i>Chlorissa viridata</i> Linn.
678	Sussex Emerald	<i>Thalera fimbrialis</i>	<i>Thalera fimbrialis</i> Scop.
679	Small Emerald	<i>Hemistola immaculata</i>	<i>Hemistola chrysoprasaria</i> Esp.
680	Little Emerald	<i>Jodis lactearia</i>	<i>Jodis lactearia</i> Linn.
681	Blood-vein	<i>Calothyranis amata</i>	<i>Timandra griseata</i> Peters.
682	Birch Mocha	<i>Cosymbia albipunctata</i>	<i>Cyclophora albipunctata</i> Hufn.
683	Dingy Mocha	<i>pendularia</i>	<i>pendularia</i> Cl.
684	The Mocha	<i>annulata</i>	<i>annulata</i> Schulze
686	False Mocha	<i>porata</i>	<i>porata</i> Linn.
687	Maiden's Blush	<i>punctaria</i>	<i>punctaria</i> Linn.
688	Clay Triple-lines	<i>linearia</i>	<i>linearia</i> Hb.
689	Smoky Wave	<i>Scopula ternata</i>	<i>Scopula ternata</i> Schr.
690	Lewes Wave	<i>immorata</i>	<i>immorata</i> Linn.
691	Tawny Wave	<i>rubiginata</i>	<i>rubiginata</i> Hufn.
692	Mullein Wave	<i>conjugata</i>	<i>marginipunctata</i> Goeze
693	Lace Border	<i>ornata</i>	<i>ornata</i> Scop.
694	Small Blood-vein	<i>imitaria</i>	<i>imitaria</i> Hb.
695	Rosy Wave	<i>emutaria</i>	<i>emutaria</i> Hb.
696	Sub-angled Wave	<i>nigropunctata</i>	<i>nigropunctata</i> Hufn.
698	Lesser Cream Wave	<i>immutata</i>	<i>immutata</i> Linn.
699	Cream Wave	<i>lactata</i>	<i>floslactata</i> Haw.
700	Bright Wave	<i>Sterrhia ochrata</i> ssp. <i>cantiata</i>	<i>Idaea ochrata</i> Scop. ssp. <i>cantiata</i> Prout
701	Least Carpet	<i>vulpinaria</i>	<i>vulpinaria</i> H.-S.
702	Dwarf Cream Wave	<i>interjectaria</i>	ssp. <i>atrosignaria</i> Lempke
704	Silky Wave	<i>dilutaria</i>	<i>fuscovenosa</i> Goeze <i>dilutaria</i> Hb.

† See No. 2510 and text on p. 48.

ROTHAMSTED REPORT FOR 1980, PART 2

Table 4 continued

Heslop's species No.	South's common name	South's Latin name	Kloet and Hincks' Latin name
706	Purple-bordered Gold	<i>Sterrhia muricata</i>	<i>Idaea muricata</i> Hufn.
707	Single-dotted Wave	<i>dimidiata</i>	<i>dimidiata</i> Hufn.
708	Weaver's Wave	<i>eburnata</i>	<i>contiguaria</i> Hb.
		<i>ssp. britanniae</i>	<i>ssp. britanniae</i> Müll.
710	Small Dusty Wave	<i>seriata</i>	<i>seriata</i> Schr.
711	Satin Wave	<i>subsericeata</i>	<i>subsericeata</i> Haw.
712	Dotted Border Wave	<i>sylvestraria</i>	<i>sylvestraria</i> Hb.
716	Plain Wave	<i>straminata</i>	<i>straminata</i> Borkh.
717	Riband Wave	<i>aversata</i>	<i>aversata</i> Linn.
718	Treble Brown Spot	<i>trigeminata</i>	<i>trigeminata</i> Haw.
719	Small Fanfooted Wave	<i>biselata</i>	<i>biselata</i> Hufn.
720	Small Scallop	<i>emarginata</i>	<i>emarginata</i> Haw.
721	The Vestal	<i>Rhodometra sacraria</i>	<i>Rhodometra sacraria</i> Linn.
723	Large Twin-spot Carpet	<i>Xanthorhoe quadrifasciata</i>	<i>Xanthorhoe quadrifasciata</i> Cl.
724	Red Carpet	<i>munitata</i>	<i>munitata</i> Hb.
725	Dark-barred Twin-spot	<i>ferrugata</i>	<i>ferrugata</i> Cl.
726	Red Twin-spot Carpet	<i>spadicearia</i>	<i>spadicearia</i> D. & S.
727	Balsam Carpet	<i>biriviata</i>	<i>biriviata</i> Borkh.
728	Flame Carpet	<i>designata</i>	<i>designata</i> Hufn.
729	Silver-ground Carpet	<i>montanata</i>	<i>montanata</i> D. & S.
730	Garden Carpet	<i>fluctuata</i>	<i>fluctuata</i> Linn.
731	The Gem	<i>Nyctosea obstipata</i>	<i>Orthonama obstipata</i> Fabr.
732	Beech-green Carpet	<i>Colostygia olivata</i>	<i>Colostygia olivata</i> D. & S.
733	Green Carpet	<i>pectinataria</i>	<i>pectinataria</i> Knoch
734	Striped Twin-spot Carpet	<i>salicata</i>	<i>Coenoteophria salicata</i> Hb.
		<i>ssp. latentaria</i>	<i>ssp. latentaria</i> Curt.
735	Mottled Grey	<i>multistrigaria</i>	<i>Colostygia multistrigaria</i> Haw.
736	Twin-spot Carpet	<i>didymata</i>	<i>Perizoma didymata</i> Linn.
737	Barberry Carpet	<i>Pareulype berberata</i>	<i>Pareulype berberata</i> D. & S.
738	Shoulder Stripe	<i>Earophila badiata</i>	<i>Anticlea badiata</i> D. & S.
739	The Streamer	<i>Anticlea derivata</i>	<i>derivata</i> D. & S.
740	Beautiful Carpet	<i>Mesoleuca albicillata</i>	<i>Mesoleuca albicillata</i> Hb.
741	Grey Mountain Carpet	<i>Entephria caesiata</i>	<i>Entephria caesiata</i> D. & S.
742	Yellow-ringed Carpet	<i>flavicinctata</i>	<i>flavicinctata</i> Hb.
743	Marsh Carpet	<i>Perizoma saggitata</i>	<i>Perizoma saggitata</i> Fabr.
744	Pretty Pinion	<i>blandiata</i>	<i>blandiata</i> D. & S.
745	Barred Carpet	<i>taeniata</i>	<i>taeniatum</i> Steph.
746	The Rivulet	<i>affinitata</i>	<i>affinitatum</i> Steph.
747	Small Rivulet	<i>alchemillata</i>	<i>alchemillata</i> Linn.
748	Sandy Carpet	<i>flavofasciata</i>	<i>flavofasciata</i> Thunb.
749	Grass Rivulet	<i>albulata</i>	<i>albulata</i> D. & S.
750	Barred Rivulet	<i>bifasciata</i>	<i>bifasciata</i> Haw.
751	Heath Rivulet	<i>minorata</i>	<i>minorata</i> Treit.
		<i>ssp. ericetata</i>	<i>ssp. ericetata</i> Steph.
752	Sharp-angled Carpet	<i>Euphyia unangulata</i>	<i>Euphyia unangulata</i> Haw.
753	White-banded Carpet	<i>luctuata</i>	<i>Spargania luctuata</i> D. & S.
754	Cloaked Carpet	<i>picata</i>	<i>Euphyia biangulata</i> Haw.
755	Royal Mantle	<i>cuculata</i>	<i>Catarhoe cuculata</i> Hufn.
756	Ruddy Carpet	<i>rubidata</i>	<i>rubidata</i> D. & S.
758	Yellow Shell	<i>bilineata</i>	<i>Campptogramma bilineata</i> Linn.
759	Pretty Chalk Carpet	<i>Melanthia procellata</i>	<i>Melanthia procellata</i> D. & S.
760	Oblique Striped	<i>Mesotype virgata</i>	<i>Mesotype virgata</i> Hufn.
761	Purple Bar	<i>Lyncometra ocellata</i>	<i>Cosmorhoe ocellata</i> Linn.
762	Water Carpet	<i>Lampropteryx suffumata</i>	<i>Lampropteryx suffumata</i> D. & S.
763	Devon Carpet	<i>otregiata</i>	<i>otregiata</i> Metc.
764	Broken-barred Carpet	<i>Electrophaes corylata</i>	<i>Electrophaes corylata</i> Thunb.
765	Small Phoenix	<i>Ecliptopera silaceata</i>	<i>Ecliptopera silaceata</i> D. & S.
766	Netted Carpet	<i>Eustroma reticulata</i>	<i>Eustroma reticulatum</i> D. & S.
767	The Phoenix	<i>Lygris prunata</i>	<i>Eulithis prunata</i> Linn.
768	The Chevron	<i>testata</i>	<i>testata</i> Linn.
769	Northern Spinach	<i>populata</i>	<i>populata</i> Linn.
770	The Spinach	<i>mellinata</i>	<i>mellinata</i> Fabr.
771	Barred Straw	<i>pyraliata</i>	<i>pyraliata</i> D. & S.
772	Barred Yellow	<i>Cidaria fulvata</i>	<i>Cidaria fulvata</i> Forst.
773	Blue-bordered Carpet	<i>Plemyria rubiginata</i>	<i>Plemyria rubiginata</i> D. & S.

SYNOPTIC MONITORING FOR MIGRANT INSECT PESTS. I

Heslop's species No.	South's common name	South's Latin name	Kloet and Hincks' Latin name
774	Red-green Carpet	<i>Chloroclysta siterata</i>	<i>Chloroclysta siterata</i> Hufn.
775	Autumn Green Carpet	<i>miata</i>	<i>miata</i> Linn.
776	Common Marbled Carpet	<i>Dysstroma truncata</i>	<i>truncata</i> Hufn.
778	Dark Marbled Carpet	<i>citrata</i>	<i>citrata</i> Linn.
779	Grey Pine Carpet	<i>Thera obeliscata</i>	<i>Thera obeliscata</i> Hb.
780	Spruce Carpet	<i>variata</i>	<i>variata</i> D. & S.
		<i>ssp. britannica</i>	<i>ssp. britannica</i> Turn.
781	Chestnut-coloured Carpet	<i>cognata</i>	<i>cognata</i> Thunb.
782	Pine Carpet	<i>firmata</i>	<i>firmata</i> Hb.
783	Juniper Carpet	<i>juniperata</i>	<i>juniperata</i> Linn.
784	July Highflyer	<i>Hydriomena furcata</i>	<i>Hydriomena furcata</i> Thunb.
785	May Highflyer	<i>coerulata</i>	<i>impluviata</i> D. & S.
786	Ruddy Highflyer	<i>ruberata</i>	<i>ruberata</i> Freyer
787	Brown Scallop	<i>Philereme vetulata</i>	<i>Philereme vetulata</i> D. & S.
788	Dark Umber	<i>transversata</i>	<i>transversata</i> Hufn.
		<i>ssp. britannica</i>	<i>ssp. britannica</i> Lempke
789	The Tissue	<i>Triphosa dubitata</i>	<i>Triphosa dubitata</i> Linn.
790	Scarce Tissue	<i>Rheumaptera cervicalis</i>	<i>Rheumaptera cervicalis</i> Scop.
791	Scallop Shell	<i>undulata</i>	<i>undulata</i> Linn.
792	Argent and Sable	<i>hastata</i>	<i>hastata</i> Linn.
794	Wood Carpet	<i>Epirrhoe rivata</i>	<i>Epirrhoe rivata</i> Hb.
795	Common Carpet	<i>alternata</i>	<i>alternata</i> Müll.
796	Small Argent and Sable	<i>tristata</i>	<i>tristata</i> Linn.
797	Galium Carpet	<i>galiata</i>	<i>galiata</i> D. & S.
800	The Streak	<i>Chesias legatella</i>	<i>Chesias legatella</i> D. & S.
801	Broom-tip	<i>rufata</i>	<i>rufata</i> Fabr.
802	Chimney-Sweeper	<i>Odezia atrata</i>	<i>Odezia atrata</i> Linn.
803	Treble-Bar	<i>Anaitis plagiata</i>	<i>Aplocera plagiata</i> Linn.
804	Lesser Treble-bar	<i>efformata</i>	<i>efformata</i> Guen.
805	Manchester Treble-bar	<i>Carsia sororiata</i>	<i>Carsia sororiata</i> Hb.
		<i>ssp. anglica</i>	<i>ssp. anglica</i> Prout
806	Slender-striped Rufous	<i>Coenocalpe lapidata</i>	<i>Coenocalpe lapidata</i> Hb.
807	Small Waved Umber	<i>Horisme vitalbata</i>	<i>Horisme vitalbata</i> D. & S.
809	The Fern	<i>tersata</i>	<i>tersata</i> D. & S.
810	The Seraphim	<i>Lobophora halterata</i>	<i>Lobophora halterata</i> Hufn.
811	Small Seraphim	<i>Mysticoptera sexalata</i>	<i>Pterapherapteryx sexalata</i> Retz.
812	Yellow-barred Brindle	<i>Acasis viretata</i>	<i>Acasis viretata</i> Hb.
813	Barred Tooth-striped	<i>Trichopteryx polycommata</i>	<i>Trichopteryx polycommata</i> D. & S.
		<i>carpinata</i>	<i>carpinata</i> Borkh.
814	Early Tooth-striped	<i>Orthonama lignata</i>	<i>Orthonama vittata</i> Borkh.
815	Oblique Carpet	<i>Ortholitha mucronata</i>	<i>Scotopteryx mucronata</i> Scop.
816	Lead Belle	<i>plumbaria</i>	<i>luridata</i> Hufn.
817	July Belle		<i>ssp. plumbaria</i> Fabr.
818	Shaded Broad-bar	<i>chenopodiata</i>	<i>chenopodiata</i> Linn.
820	—	<i>peribolata</i>	<i>peribolata</i> Hb.
821	Chalk Carpet	<i>bipunctaria</i>	<i>bipunctaria</i> D. & S.
		<i>ssp. cretata</i>	<i>ssp. cretata</i> Prout
822	The Mallow	<i>Larentia clavaria</i>	<i>Larentia clavaria</i> Haw.
823	Dark Spinach	<i>Pelurga comitata</i>	<i>Pelurga comitata</i> Linn.
824	Autumnal Moth	<i>Oporinia autumnata</i>	<i>Epirrita autumnata</i> Borkh.
825	Small Autumnal Moth	<i>filigrammaria</i>	<i>filigrammaria</i> H.-S.
826	November Moth	<i>dilutata</i>	<i>dilutata</i> D. & S.
827	Pale November Moth	<i>christyi</i>	<i>christyi</i> Allen
828	Winter Moth	<i>Operophtera brumata</i>	<i>Operophtera brumata</i> Linn.
829	Northern Winter Moth	<i>fagata</i>	<i>fagata</i> Scharf.
830	Small White Wave	<i>Asthena albulata</i>	<i>Asthena albulata</i> Hufn.
831	Drab Looper	<i>Minoa murinata</i>	<i>Minoa murinata</i> Scop.
832	Small Yellow Wave	<i>Hydrelia flammeolaria</i>	<i>Hydrelia flammeolaria</i> Hufn.
833	Waved Carpet	<i>testacea</i>	<i>sylvata</i> D. & S.
834	Dingy Shell	<i>Euchoeca nebulata</i>	<i>Euchoeca nebulata</i> Scop.
835	Welsh Wave	<i>Venusia cambrica</i>	<i>Venusia cambrica</i> Curt.
836	Blomer's Rivulet	<i>Discoloxia blomeri</i>	<i>Discoloxia blomeri</i> Curt.
888	Clouded Magpie	<i>Abraxas sylvata</i>	<i>Abraxas sylvata</i> Scop.
889	The Magpie	<i>grossulariata</i>	<i>grossulariata</i> Linn.
891	Clouded Border	<i>Lomaspilis marginata</i>	<i>Lomaspilis marginata</i> Linn.

ROTHAMSTED REPORT FOR 1980, PART 2

Table 4 continued

Heslop's species No.	South's common name	South's Latin name	Kloet and Hincks' Latin name
892	Scorched Carpet	<i>Ligdia adustata</i>	<i>Ligdia adustata</i> D. & S.
893	Sloe Carpet	<i>Bapta distinctata</i>	<i>Aleucis distinctata</i> H.-S.
894	White-spotted Pinion	<i>bimaculata</i>	<i>Lomographa bimaculata</i> Fabr.
895	Clouded Silver	<i>temerata</i>	<i>temerata</i> D. & S.
896	Common White Wave	<i>Deilinia pusaria</i>	<i>Cabera pusaria</i> Linn.
897	Common Wave	<i>exanthemata</i>	<i>exanthemata</i> Scop.
898	Barred Red	<i>Ellopie fasciaria</i>	<i>Hylaea fasciaria</i> Linn.
899	Light Emerald	<i>Campaea margaritata</i>	<i>Campaea margaritata</i> Linn.
900	Orange Moth	<i>Angerona prunaria</i>	<i>Angerona prunaria</i> Linn.
901	Peacock Moth	<i>Semiothisa notata</i>	<i>Semiothisa notata</i> Linn.
902	Sharp-angled Peacock	<i>alternata</i>	<i>alternata</i> Hb.
903	Tawny-barred Angle	<i>liturata</i>	<i>liturata</i> Cl.
904	Early Moth	<i>Theria rupicaprararia</i>	<i>Theria primaria</i> Haw.
905	Spring Usher	<i>Erannis leucophaearia</i>	<i>Agriopsis leucophaearia</i> D. & S.
906	Scarce Umber	<i>aurantiaria</i>	<i>aurantiaria</i> Hb.
907	Dotted Border	<i>marginaria</i>	<i>marginaria</i> Fabr.
908	Mottled Umber	<i>defoliaria</i>	<i>Erannis defoliaria</i> Cl.
909	Barred Umber	<i>Ananoga pulveraria</i>	<i>Plagodis pulveraria</i> Linn.
910	Large Thorn	<i>Ennomos autumnaria</i>	<i>Ennomos autumnaria</i> Wernb.
911	August Thorn	<i>quercinaria</i>	<i>quercinaria</i> Hufn.
912	Canary-shouldered Thorn	<i>Deuteronomos alniaria</i>	<i>alniaria</i> Linn.
913	Dusky Thorn	<i>fuscantaria</i>	<i>fuscantaria</i> Haw.
914	September Thorn	<i>erosaria</i>	<i>erosaria</i> D. & S.
915	Early Thorn	<i>Selenia bilunaria</i>	<i>Selenia dentaria</i> Fabr.
916	Lunar Thorn	<i>lunaria</i>	<i>lunaria</i> Hb.
917	Purple Thorn	<i>tetralunaria</i>	<i>tetralunaria</i> Hufn.
918	Lilac Beauty	<i>Apeira syringaria</i>	<i>Apiera syringaria</i> Linn.
919	Scalloped Hazel	<i>Gonodontis bidentata</i>	<i>Odontopera bidentata</i> Cl.
920	Feathered Thorn	<i>Colotois pennaria</i>	<i>Colotois pennaria</i> Hb.
921	Scalloped Oak	<i>Crocallis elinguararia</i>	<i>Crocallis elinguararia</i> Linn.
922	Scorched Wing	<i>Plagodis dolabraria</i>	<i>Plagodis dolabraria</i> Linn.
923	Brimstone Moth	<i>Opisthograptis luteolata</i>	<i>Opisthograptis luteolata</i> Linn.
924	Bordered Beauty	<i>Epione repandaria</i>	<i>Epione repandaria</i> Hufn.
926	Little Thorn	<i>Cepphis advenaria</i>	<i>Cepphis advenaria</i> Hb.
927	Speckled Yellow	<i>Pseudopanthera macularia</i>	<i>Pseudopanthera macularia</i> Linn.
928	Swallow-tail Moth	<i>Ourapteryx sambucaria</i>	<i>Ourapteryx sambucaria</i> Linn.
929	Pale Brindled Beauty	<i>Phigalia pilosaria</i>	<i>Apocheima pilosaria</i> D. & S.
930	Small Brindled Beauty	<i>Apocheima hispidaria</i>	<i>hispidaria</i> D. & S.
933	Brindled Beauty	<i>Lycia hirtaria</i>	<i>Lycia hirtaria</i> Cl.
934	Oak Beauty	<i>Biston strataria</i>	<i>Biston strataria</i> Hufn.
935	Peppered Moth	<i>betularia</i>	<i>betularia</i> Linn.
936	Waved Umber	<i>Menophra abruptaria</i>	<i>Menophra abruptaria</i> Thunb.
937	Ringed Carpet	<i>Cleora cinctaria</i>	<i>Cleora cinctaria</i> D. & S.
938	Willow Beauty	<i>rhomboidaria</i>	<i>Peribatodes rhomboidaria</i> D. & S.
939	Brussels Lace	<i>Cleorodes lichenaria</i>	<i>Cleorodes lichenaria</i> Hufn.
940	Satin Beauty	<i>Deileptenia ribeata</i>	<i>Deileptenia ribeata</i> Cl.
941	Mottled Beauty	<i>Alcis repandata</i>	<i>Alcis repandata</i> Linn.
943	Dotted Carpet	<i>jubata</i>	<i>jubata</i> Thunb.
944	Great Oak Beauty	<i>Boarmia roboraria</i>	<i>Boarmia roboraria</i> D. & S.
945	Pale Oak Beauty	<i>Pseudoboarmia punctinalis</i>	<i>Serraca punctinalis</i> Scop.
946	The Engrailed	<i>Ectropis biundulata</i>	<i>Ectropis bistortata</i> Goeze
948	Square Spot	<i>consonaria</i>	<i>consonaria</i> Hb.
949	Brindled White-spot	<i>extersaria</i>	<i>extersaria</i> Hb.
950	Grey Birch	<i>Aethalura punctulata</i>	<i>Aethalura punctulata</i> D. & S.
952	Horse Chestnut	<i>Pachycnemia hippocastanaria</i>	<i>Pachycnemia hippocastanaria</i> Hb.
953	The Annulet	<i>Gnophos obscurata</i>	<i>Gnophos obscuratus</i> D. & S.
954	Scotch Annulet	<i>obfuscata</i>	<i>obfuscatus</i> D. & S.
958	Common Heath	<i>Ematurga atomaria</i>	<i>Ematurga atomaria</i> Linn.
959	Bordered White	<i>Bupalus piniaria</i>	<i>Bupalus piniaria</i> Linn.
960	Bordered Grey	<i>Selidosema brunnearia</i>	<i>Selidosema brunnearia</i> Vill.
		<i>ssp. scandinavaria</i>	<i>ssp. scandinavaria</i> Stdgr.
961	The V-moth	<i>Itame wauaria</i>	<i>Semiothisa wauaria</i> Linn.
962	Rannoch Looper	<i>brunneata</i>	<i>brunneata</i> Thunb.
963	Brown Silver-lines	<i>Lithina chlorosata</i>	<i>Petrophora chlorosata</i> Scop.
964	Latticed Heath	<i>Chiasma clathrata</i>	<i>Semiothisa clathrata</i> Linn.

SYNOPTIC MONITORING FOR MIGRANT INSECT PESTS. I

Heslop's species No.	South's common name	South's Latin name	Kloet and Hincks' Latin name
965	Grey Scalloped Bar	<i>Dyscia fagara</i>	<i>Dyscia fagara</i> Thunb.
967	Straw Belle	<i>Aspitates gilvaria</i>	<i>Aspitates gilvaria</i> D. & S.
968	Yellow Bell	<i>ochrearia</i>	<i>ochrearia</i> Rossi
969	Grass Wave	<i>Perconia strigillaria</i>	<i>Perconia strigillaria</i> Hb.
2500	Pugs	<i>Eupithecia</i> spp.	
2501	Unidentifiable macros		
2502		<i>Hydraecia</i> spp.	
2503		<i>Oporinia</i> spp.	
2504		<i>Caradrina</i> spp.	
2505		<i>Procus</i> spp.	
2509		<i>Sterrhia</i> spp.	
2511		<i>Dysstroma</i> spp.	
2512		<i>Apatele</i> spp.	
2530	Sp. No. 557 typical	} <i>Allophyes oxyacanthae</i>	
2531	Sp. No. 557 melanic		
2532	Sp. No. 617 typical	} <i>Colocasia coryli</i>	
2533	Sp. No. 617 melanic		
2534	Sp. No. 919 typical	} <i>Gonodontis bidentata</i>	
2535	Sp. No. 919 melanic		
2536	Sp. No. 903 typical	} <i>Semiothisa liturata</i>	
2537	Sp. No. 903 melanic		
2538	Sp. No. 936 typical	} <i>Menophra abruptaria</i>	
2539	Sp. No. 936 melanic		
2540	Sp. No. 941 typical	} <i>Alcis repandata</i>	
2541	Sp. No. 941 melanic		
2542	Sp. No. 929 typical	} <i>Phigalia pilosaria</i>	
2543	Sp. No. 929 melanic		
2544	Sp. No. 938 typical	} <i>Cleora rhomboidaria</i>	
2545	Sp. No. 938 melanic		
2546	Sp. No. 935 typical	} <i>Biston betularia</i>	
2547	Sp. No. 935 intermediate		
2548	Sp. No. 935 melanic		
2507*	(Svensson's Copper Underwing)		<i>Amphipyra berbera</i> Rungs ssp. <i>svenssoni</i> Fletch. 1968
2510†	(Lempke's Gold Spot)		<i>Plusia putnami</i> Grote ssp. <i>gracilis</i> Lempke 1966

* See No. 502

† See No. 627 and text on p. 48.

SYNOPTIC MONITORING FOR MIGRANT INSECT PESTS. I

TABLE 6

Standard Week Numbers used in tables and figures and for analysis of insect samples

Week no.	Dates	Week no.	Dates
1	1 January– 7 January	27	2 July– 8 July
2	8 January–14 January	28	9 July–15 July
3	15 January–21 January		
4	22 January–28 January	29	16 July–22 July
		30	23 July–29 July
5	29 January– 4 February	31	30 July– 5 August
6	5 February–11 February	32	6 August–12 August
7	12 February–18 February		
8	19 February–25 February	33	13 August–19 August
		34	20 August–26 August
9	26 February– 4 March	35	27 August– 2 September
10	5 March–11 March	36	3 September– 9 September
11	12 March–18 March		
12	19 March–25 March	37	10 September–16 September
		38	17 September–23 September
13	26 March– 1 April	39	24 September–30 September
14	2 April– 8 April	40	1 October– 7 October
15	9 April–15 April		
16	16 April–22 April	41	8 October–14 October
		42	15 October–21 October
17	23 April–29 April	43	22 October–28 October
18	30 April– 6 May	44	29 October– 4 November
19	7 May–13 May		
20	14 May–20 May	45	5 November–11 November
		46	12 November–18 November
21	21 May–27 May	47	19 November–25 November
22	28 May– 3 June	48	26 November– 2 December
23	4 June–10 June		
24	11 June–17 June	49	3 December – 9 December
		50	10 December–16 December
25	18 June–24 June	51	17 December–23 December
26	25 June– 1 July	52	24 December–30 December

The standard week is obtained by omitting 29 February and 31 December. The table is divided into the standard 4-week periods used in the Annual Summary (Taylor & French, 1970, 1980)

ROTHAMSTED REPORT FOR 1980, PART 2

TABLE 7

Progressive annual arithmetic mean date of first catch (zero catch $\equiv$ 30/12) for 30 aphids recorded in Bulletins from 12 suction trap stations grouped into three regions (see Fig. 1) and in all regions, from 1-10 years (1970-79)

Species name	No.	Region	1970	70-71	70-72	70-73	70-74	70-75	70-76	70-77	70-78	70-79
<i>Acyrtosiphon pisum</i>	389	N/S	16/6	17/6	19/6	19/6	18/6	20/6	18/6	21/6	22/6	23/6
		SW	25/5	21/5	26/5	1/6	3/6	1/6	31/5	1/6	3/6	6/6
		SE	18/5	15/5	18/5	19/5	18/5	21/5	20/5	21/5	22/5	23/5
		GB	30/5	28/5	31/5	3/6	3/6	4/6	2/6	4/6	5/6	7/6
<i>Aphis fabae</i> grp.	132	N/S	16/6	18/6	26/6	20/6	19/6	21/6	23/6	26/6	24/6	27/6
		SW	1/6	27/5	4/6	1/6	1/6	4/6	3/6	4/6	4/6	5/6
		SE	6/6	30/5	3/6	31/5	28/5	31/5	28/5	29/5	29/5	29/5
		GB	8/6	4/6	11/6	7/6	6/6	8/6	8/6	10/6	9/6	10/6
<i>Amphorophora rubi</i>	468	N/S	—	—	—	—	13/8	13/8	6/8	7/8	2/8	8/8
		SW	—	—	—	—	18/6	15/6	13/6	20/6	28/6	17/7
		SE	—	—	—	—	18/6	16/6	13/6	20/6	19/6	19/6
		GB	—	—	—	—	7/7	5/7	1/7	6/7	7/7	15/7
<i>Aulacorthum solani</i>	376	N/S	26/11*	20/5	8/9	20/8	4/8	24/7	16/7	23/7	24/7	6/8
		SW	20/5	11/5	19/5	17/5	17/5	15/5	14/5	17/5	24/5	28/5
		SE	6/6	23/5	9/6	3/6	30/5	30/5	26/5	4/6	5/6	21/6
		GB	28/7	21/6	7/7	24/6	17/6	12/6	8/6	15/6	17/6	28/6
<i>Brachycaudus helichrysi</i>	243	N/S	5/6	26/5	27/5	26/5	24/5	24/5	24/5	26/5	27/5	30/5
		SW	13/5	11/5	13/5	12/5	11/5	9/5	7/5	9/5	10/5	12/5
		SE	22/5	18/5	16/5	15/5	13/5	13/5	12/5	14/5	13/5	15/5
		GB	24/5	18/5	19/5	18/5	16/5	15/5	14/5	17/5	17/5	19/5
<i>Brevicoryne brassicae</i>	264	N/S	19/10	6/10	23/9	18/9	9/9	2/9	23/8	27/8	9/9	21/9
		SW	6/7	17/6	19/6	16/6	12/6	10/6	7/6	14/6	13/6	24/6
		SE	15/6	13/6	21/6	18/6	14/6	12/6	11/6	19/6	22/6	28/6
		GB	3/8	23/7	22/7	18/7	12/7	9/7	4/7	10/7	15/7	25/7
<i>Cavariella aegopodii</i>	292	N/S	7/6	3/6	3/6	1/6	31/5	1/6	30/5	1/6	2/6	3/6
		SW	25/5	20/5	23/5	18/5	15/5	11/5	7/5	8/5	10/5	13/5
		SE	25/5	19/5	19/5	19/5	18/5	20/5	19/5	20/5	20/5	21/5
		GB	29/5	24/5	25/5	23/5	22/5	21/5	19/5	20/5	21/5	23/5
<i>Drepanosiphum platanoidis</i>	91	N/S	22/5	19/5	18/5	20/5	19/5	15/5	14/5	16/5	16/5	18/5
		SW	16/5	13/5	17/5	19/5	17/5	16/5	15/5	17/5	17/5	17/5
		SE	12/5	12/5	15/5	15/5	15/5	16/5	15/5	16/5	17/5	17/5
		GB	17/5	15/5	16/5	18/5	17/5	15/5	15/5	16/5	17/5	17/5

SYNOPTIC MONITORING FOR MIGRANT INSECT PESTS. I

<i>Dysaphis plantaginea</i>	234	N/S SW SE GB	22/8 17/7 9/6 28/7	15/8 15/7 9/6 13/7	4/9 17/7 14/6 22/7	21/9 18/7 13/6 28/7	5/10 21/7 12/6 2/8	14/10 27/7 17/6 9/8	19/10 27/7 15/6 10/8	17/10 22/7 15/6 8/8	21/10 21/7 15/6 9/8	25/10 21/7 15/6 10/8
<i>Elatobium abietinum</i>	290	N/S SW SE GB	30/5 14/5 24/5 22/5	20/5 9/5 13/5 14/5	20/5 30/5 21/5 21/5	19/5 24/5 12/5 18/5	19/5 19/5 12/5 17/5	19/5 17/5 12/5 16/5	18/5 15/5 11/5 15/5	26/5 16/5 13/5 18/5	25/5 15/5 12/5 17/5	27/5 15/5 13/5 18/5
<i>Eriosoma ulmi</i>	500	N/S SW SE GB	17/6 10/6 7/6 11/6	18/6 14/6 9/6 14/6	20/6 17/6 10/6 16/6	19/6 16/6 10/6 15/6	19/6 14/6 9/6 14/6	19/6 25/6 11/6 18/6	19/6 24/6 10/6 18/6	20/6 29/6 10/6 20/6	20/6 27/6 10/6 19/6	20/6 30/6 11/6 20/6
<i>Hyalopterus pruni</i>	110	N/S SW SE GB	19/6 7/6 7/6 11/6	23/6 9/6 8/6 13/6	23/6 15/6 11/6 16/6	20/6 11/6 8/6 13/6	20/6 10/6 7/6 12/6	22/6 17/6 10/6 16/6	21/6 16/6 9/6 15/6	21/6 16/6 9/6 16/6	22/6 17/6 10/6 17/6	23/6 18/6 10/6 17/6
<i>Hyperomyzus lactucae</i>	358	N/S SW SE GB	18/6 31/5 25/5 4/6	17/6 28/5 23/5 2/6	14/6 3/6 26/5 4/6	26/6 31/5 26/5 7/6	23/6 29/5 24/5 5/6	23/6 22/5 25/5 3/6	21/6 22/5 24/5 1/6	20/6 23/5 25/5 2/6	21/6 25/5 26/5 3/6	20/6 26/5 27/5 4/6
<i>Macrosiphum euphorbiae</i>	410	N/S SW SE GB	5/7 24/5 30/5 9/6	16/6 16/5 27/5 30/5	18/6 24/5 24/5 1/6	15/6 23/5 22/5 30/5	13/6 19/5 18/5 27/5	10/6 17/5 19/5 26/5	9/6 16/5 17/5 24/5	17/6 16/5 18/5 27/5	16/6 16/5 18/5 27/5	18/6 20/5 21/5 30/5
<i>Megoura viciae</i>	470	N/S SW SE GB	2/10* 1/7 18/9 27/8	14/9 26/6 14/10 28/8	8/9 15/7 10/10 31/8	24/8 25/7 14/9 21/8	22/8 27/7 30/8 16/8	21/8 15/8 22/8 19/8	20/8 3/9 27/8 27/8	1/9 18/9 11/9 10/9	14/9 29/9 24/9 22/9	13/9 26/9 20/9 20/9
<i>Metopolophium dirhodum</i>	396	N/S SW SE GB	18/6 19/5 27/5 1/6	18/6 4/5 19/5 24/5	15/6 10/5 28/5 28/5	13/6 11/5 26/5 27/5	14/6 10/5 20/5 25/5	13/6 7/5 11/5 21/5	12/6 29/4 11/5 18/5	15/6 2/5 13/5 20/5	15/6 2/5 13/5 20/5	17/6 6/5 15/5 23/5
<i>Metopolophium festucae</i>	397	N/S SW SE GB	27/6 14/5 19/5 30/5	4/6 11/5 13/5 19/5	31/5 13/5 12/5 19/5	28/5 7/5 10/5 15/5	25/5 1/5 6/5 11/5	25/5 29/4 2/5 9/5	24/5 1/5 3/5 9/5	14/6 8/5 7/5 20/5	15/6 9/5 21/5 21/5	17/6 11/5 12/5 23/5

* Effect of zero samples (see Table 8).

ROTHAMSTED REPORT FOR 1980, PART 2

TABLE 7 continued

Species name	No.	Region	1970	70-71	70-72	70-73	70-74	70-75	70-76	70-77	70-78	70-79
<i>Myzus ascalonicus</i>	318	N/S SW SE GB	26/5 12/5 10/5 16/5	12/5 21/4 3/5 2/5	10/5 22/4 1/5 1/5	25/4 15/4 21/4 20/4	27/4 15/4 19/4 20/4	29/4 13/4 13/4 18/4	1/5 15/4 9/4 18/4	18/5 21/4 13/4 27/4	19/5 29/4 15/4 1/5	26/5 1/5 18/4 5/5
<i>Myzus certus</i>	319	N/S SW SE GB	— — — —	— — — —	— — — —	— — — —	— — — —	— — — —	3/9 22/7 8/7 1/8	7/9 18/7 6/7 31/7	29/8 18/7 6/7 28/7	28/8 16/7 14/7 30/7
<i>Myzus ornatus</i>	315	N/S SW SE GB	16/11* 7/5 25/7 5/8	21/8 19/4 9/6 16/6	21/8 8/5 10/6 23/6	1/8 27/4 31/5 9/6	29/7 25/4 22/5 5/6	15/7 15/4 20/5 27/5	8/7 12/4 16/5 22/5	15/7 17/4 30/5 31/5	21/7 30/4 1/6 7/6	1/8 13/5 10/6 18/6
<i>Myzus persicae</i> grp.	322	N/S SW SE GB	18/7 20/5 27/5 11/6	6/7 17/5 20/5 3/6	1/7 22/5 25/5 5/6	1/7 18/5 22/5 3/6	26/6 17/5 17/5 30/5	24/6 11/5 16/5 27/5	19/6 6/5 14/5 24/5	24/6 10/5 16/5 27/5	27/6 14/5 20/5 31/5	1/7 18/5 24/5 4/6
<i>Nasonovia ribisnigri</i>	355	N/S SW SE GB	19/6 8/6 22/5 6/6	9/6 29/5 19/5 29/5	11/6 2/6 25/5 2/6	10/6 31/5 26/5 2/6	12/6 29/5 23/5 1/6	15/6 30/5 25/5 3/6	16/6 28/5 24/5 2/6	25/6 30/5 26/5 7/6	25/6 3/6 27/5 8/6	27/6 3/6 27/5 9/6
<i>Pemphigus</i> spp.	1506	N/S SW SE GB	1/7 15/6 10/6 18/6	30/6 8/6 19/6 19/6	5/7 19/6 24/6 26/6	7/7 20/6 22/6 26/6	3/7 23/6 20/6 25/6	7/7 26/6 26/6 30/6	29/6 24/6 24/6 26/6	3/7 27/6 24/6 28/6	4/7 29/6 24/6 29/6	5/7 30/6 24/6 29/6
<i>Phorodon humuli</i>	308	N/S SW SE GB	21/6 3/6 29/5 7/6	25/6 5/6 26/5 8/6	1/7 10/6 26/5 12/6	27/6 8/6 26/5 10/6	28/6 6/6 25/5 9/6	6/7 6/6 26/5 12/6	3/7 12/6 25/5 13/6	8/7 12/6 26/5 15/6	6/7 11/6 26/5 14/6	6/7 11/6 27/5 14/6
<i>Phyllaphis fagi</i>	78	N/S SW SE GB	10/6 3/6 18/5 31/5	3/6 4/6 20/5 30/5	7/6 21/6 1/6 9/6	4/6 16/6 29/5 6/6	7/6 24/6 30/5 10/6	6/6 22/6 3/6 10/6	4/6 17/6 2/6 8/6	10/6 24/6 2/6 12/6	9/6 21/6 2/6 11/6	9/6 26/6 2/6 12/6
<i>Rhopalosiphum insertum</i>	111	N/S SW SE GB	3/6 12/5 30/5 26/5	10/6 20/5 6/6 2/6	5/6 24/5 30/5 30/5	3/6 26/5 31/5 27/5	2/6 15/5 28/5 25/5	4/6 17/5 30/5 27/5	29/5 16/5 28/5 24/5	29/5 18/5 28/5 25/5	29/5 19/5 28/5 26/5	30/5 20/5 28/5 26/5

SYNOPTIC MONITORING FOR MIGRANT INSECT PESTS. I

<i>Rhopalosiphum maidis</i>	112	N/S SW SE GB	12/8	25/7	3/8	25/7	20/7	18/7	29/7	29/7	29/7	27/7
			21/6	28/6	30/6	22/6	24/6	30/6	9/7	5/7	3/7	2/7
			25/6	17/7	24/7	17/7	24/7	21/7	31/7	28/7	22/7	17/7
			10/7	13/7	19/7	11/7	13/7	13/7	23/7	21/7	18/7	16/7
<i>Rhopalosiphum padi</i>	114	N/S SW SE GB	28/5	26/5	2/6	26/5	26/5	23/5	22/5	23/5	24/5	27/5
			15/4	8/4	23/4	8/4	19/4	7/4	4/4	8/4	9/4	13/4
			19/5	7/5	12/5	7/5	6/5	30/4	29/4	2/5	5/5	7/5
			11/5	4/5	13/5	4/5	7/5	30/4	29/4	1/5	3/5	6/5
<i>Sitobion avenae</i>	420	N/S SW SE GB	27/6	13/6	12/6	13/6	10/6	9/6	7/6	7/6	9/6	12/6
			19/5	16/5	21/5	16/5	14/5	7/5	7/5	8/5	10/5	15/5
			24/5	16/5	15/5	16/5	15/5	15/5	14/5	14/5	16/5	20/5
			3/6	26/5	26/5	26/5	24/5	21/5	19/5	20/5	22/5	26/5
<i>Sitobion fragariae</i>	421	N/S SW SE GB	19/7	25/6	22/6	25/6	17/6	19/6	17/6	22/6	20/6	21/6
			19/5	7/5	16/5	7/5	16/5	15/5	14/5	13/5	14/5	15/5
			31/5	28/5	28/5	28/5	18/5	20/5	20/5	21/5	19/5	20/5
			12/6	30/5	1/6	30/5	27/5	28/5	27/5	29/5	28/5	29/5

* Effect of zero samples (see Table 8)

ROTHAMSTED REPORT FOR 1980, PART 2

TABLE 8
Progressive annual arithmetic sample means (to nearest integer) for 30 aphids recorded in Bulletins from 12 suction trap stations grouped into three regions (see Fig. 1) and in all regions, from 1-10 years (1970-79)

Species name	No.	Region	1970	70-71	70-72	70-73	70-74	70-75	70-76	70-77	70-78	70-79
<i>Acyrtosiphon pisum</i>	389	N/S	21	35	31	29	31	29	47	42	51	72
		SW	20	24	19	23	20	20	23	30	30	36
		SE	292	256	183	168	140	134	153	166	166	243
		GB	111	105	78	73	64	61	74	79	82	117
<i>Aphis fabae</i> grp.	132	N/S	803	449	458	443	434	378	333	302	343	362
		SW	103	132	226	252	224	189	169	176	176	173
		SE	993	688	796	801	768	677	597	680	678	879
		GB	633	423	493	499	475	415	367	386	399	471
<i>Amphorophora rubi</i>	468	N/S	—	—	—	—	3	3	4	5	5	6
		SW	—	—	—	—	6	11	12	11	10	9
		SE	—	—	—	—	4	5	8	8	8	8
		GB	—	—	—	—	4	7	8	8	7	8
<i>Aulacorthum solani</i>	376	N/S	0	4	4	3	5	6	7	6	6	5
		SW	22	26	22	20	20	22	22	20	19	18
		SE	5	8	7	7	8	10	11	10	10	9
		GB	9	13	11	10	11	13	13	12	12	11
<i>Brachycaudus helichrysi</i>	243	N/S	91	171	243	246	260	294	273	254	258	239
		SW	1133	1105	827	695	787	718	679	652	660	623
		SE	418	930	1035	1126	1171	1210	1097	1068	1057	1008
		GB	547	735	702	689	739	741	683	658	658	623
<i>Brevicoryne brassicae</i>	264	N/S	6	4	8	6	6	7	13	11	10	9
		SW	21	363	254	197	162	157	171	156	173	156
		SE	978	574	414	375	308	332	362	320	295	275
		GB	335	314	225	193	159	165	182	162	159	147
<i>Cavariella aegopodii</i>	292	N/S	36	79	136	117	131	115	126	116	111	121
		SW	88	280	233	221	245	209	208	234	215	216
		SE	64	844	658	717	705	602	570	624	582	603
		GB	63	401	342	352	360	308	301	325	303	313
<i>Drepanosiphum platanoidis</i>	91	N/S	2455	1603	1519	1205	1177	1055	1228	1116	1285	1219
		SW	881	753	633	491	456	401	507	450	446	438
		SE	1987	1291	1083	836	724	611	595	539	491	519
		GB	1774	1216	1078	844	786	689	777	702	741	725

SYNOPTIC MONITORING FOR MIGRANT INSECT PESTS. I

<i>Dysaphis plantaginea</i>	234	N/S SW SE GB	2 58 145 68	2 51 95 49	2 38 71 37	1 34 70 35	1 30 69 34	1 28 60 30	1 36 60 32	1 35 58 31	1 33 51 28
<i>Elatobium abietinum</i>	290	N/S SW SE GB	5 83 30 39	223 321 180 241	166 224 133 174	297 207 139 215	269 211 150 210	250 262 133 215	237 252 130 206	211 250 116 192	171 241 121 178
<i>Eriosoma ulmi</i>	500	N/S SW SE GB	56 84 410 183	57 51 255 121	76 42 187 102	80 45 181 102	84 38 151 91	73 32 128 78	90 31 119 80	84 28 107 73	89 24 106 73
<i>Hyalopterus pruni</i>	110	N/S SW SE GB	31 99 287 139	196 237 937 456	1161 299 823 761	896 273 855 675	739 239 758 579	709 203 641 518	664 192 626 494	589 239 701 510	492 222 889 534
<i>Hyperomyzus lactucae</i>	358	N/S SW SE GB	12 55 67 44	12 55 72 46	26 48 62 45	22 43 58 41	23 39 58 40	24 40 64 43	27 39 59 42	25 45 61 44	23 42 80 48
<i>Macrosiphum euphorbiae</i>	410	N/S SW SE GB	29 33 46 36	45 33 42 40	81 29 41 50	69 33 52 51	85 35 66 62	94 48 71 71	89 50 82 73	86 87 82 85	92 79 79 83
<i>Megoura viciae</i>	470	N/S SW SE GB	0 2 4 2	1 4 3 3	2 3 3 3	2 3 5 3	2 3 5 4	2 3 5 3	2 2 4 3	2 2 4 2	1 2 4 2
<i>Metopolophium dirhodum</i>	396	N/S SW SE GB	1110 164 2328 1201	687 107 1964 920	646 196 1491 777	645 164 1174 661	715 141 1000 619	784 147 1111 681	986 224 1141 783	893 293 1084 757	2014 368 5125 2502
<i>Metopolophium festucae</i>	397	N/S SW SE GB	16 50 25 30	109 55 153 106	98 43 152 97	78 43 150 90	78 43 210 110	82 50 187 106	93 47 177 106	81 44 163 96	69 41 146 85
<i>Myzus ascalonicus</i>	318	N/S SW SE GB	16 33 116	33 51 127	34 41 103	42 37 109	47 35 143	48 39 135	47 37 130	41 33 115	35 29 98 54

ROTHAMSTED REPORT FOR 1980, PART 2

TABLE 8 continued

Species name	No.	Region	1970	70-71	70-72	70-73	70-74	70-75	70-76	70-77	70-78	70-79
<i>Myzus certus</i>	319	N/S SW SE GB	— — — —	— — — —	— — — —	— — — —	— — — —	— — — —	8 11 19 13	7 11 17 12	7 10 16 11	6 9 15 10
<i>Myzus ornatus</i>	315	N/S SW SE GB	0 6 2 3	3 12 7 7	4 10 6 7	4 11 8 8	5 13 9 9	6 18 12 12	7 19 12 12	6 17 11 11	6 16 10 10	5 14 9 9
<i>Myzus persicae</i> grp.	322	N/S SW SE GB	75 47 243 122	58 118 185 120	112 106 159 126	120 112 183 138	124 94 171 130	154 95 210 153	149 96 288 178	135 107 267 169	122 104 252 159	114 96 249 153
<i>Nasonovia ribisnigri</i>	355	N/S SW SE GB	5 18 22 15	6 30 26 20	7 34 24 21	6 29 22 19	6 25 22 18	6 23 21 17	6 22 20 16	6 27 21 18	6 26 22 18	6 25 24 18
<i>Pemphigus</i> spp.	1506	N/S SW SE GB	407 789 583 593	541 1559 464 855	550 1336 374 753	459 1339 324 707	378 1086 273 579	329 942 236 502	311 873 218 467	280 773 205 419	263 770 265 433	246 711 307 421
<i>Phorodon humuli</i>	308	N/S SW SE GB	4 82 213 100	11 134 597 247	11 146 502 219	11 124 726 287	9 256 866 377	8 220 759 329	8 214 726 316	8 242 1061 437	11 224 985 407	11 216 979 402
<i>Phyllaphis fagi</i>	78	N/S SW SE GB	16 15 27 19	48 19 78 49	102 16 60 59	337 16 119 158	281 14 105 133	257 13 88 119	231 16 110 119	204 14 101 106	184 13 91 96	167 13 88 89
<i>Rhopalosiphum insertum</i>	111	N/S SW SE GB	2412 1817 472 1567	2353 2842 888 2028	3150 2569 946 2222	2736 2307 821 1954	2371 2057 751 1726	2033 1777 675 1495	1896 1565 611 1357	1782 1439 772 1331	1863 1865 1318 1682	2094 2002 1338 1812
<i>Rhopalosiphum maidis</i>	112	N/S SW SE GB	7 27 15 16	6 22 11 13	5 18 8 10	4 19 10 11	4 17 9 10	11 16 9 12	10 15 9 11	10 16 11 12	9 15 10 12	22 25 60 36

SYNOPTIC MONITORING FOR MIGRANT INSECT PESTS. I

<i>Rhopalosiphum padi</i>	114	N/S SW SE GB	7757 8854 7643 8084	7007 10801 7436 8414	6802 8375 5696 6957	7072 8018 5004 6698	6208 6595 4293 5699	5681 5924 4007 5204	5837 5370 3987 5065	5779 5722 4760 5420	6926 5975 5743 6215	7016 5747 6062 6275
<i>Sitobion avenae</i>	420	N/S SW SE GB	479 474 2433 1129	426 484 3409 1439	482 557 2824 1287	397 517 2352 1089	362 485 2032 960	781 833 2357 1323	1142 1135 3113 1797	1089 1343 3085 1839	1000 1239 2831 1690	939 1141 2668 1583
<i>Sitobion fragariae</i>	421	N/S SW SE GB	14 102 52 56	37 144 101 94	88 146 146 127	69 139 150 119	69 138 151 119	63 134 147 115	59 125 133 106	53 121 122 99	56 131 165 117	64 132 247 148

ROTHAMSTED REPORT FOR 1980, PART 2

TABLE 9
Progressive annual arithmetic sample means for 20 moth species from 15 light trap stations grouped into three regions
(see Fig. 2), and in all regions, from 1-10 years (1969-78)

Species name	No.	Region	1969	69-70	69-71	69-72	69-73	69-74	69-75	69-76	69-77	69-78
<i>Hepialus lupulina</i> Common Swift	269	Scot. M/N SE GB	3 1 1 2	3 5 3 3	2 8 3 4	2 7 3 4	2 7 3 4	2 6 3 4	2 5 2 3	2 5 2 3	2 5 2 3	2 5 2 3
<i>Euxoa nigricans</i> Garden Dart	273	Scot. M/N SE GB	0 0 1 0	0 0 1 0	0 0 0 0	0 0 0 0	1 1 0 0	1 1 0 1	1 1 0 1	1 3 0 1	1 3 0 2	1 3 0 2
<i>Agrotis exclamatoris</i> Heart and Dart	285	Scot. M/N SE GB	6 25 36 22	7 48 135 63	6 79 149 78	6 90 130 75	6 81 124 70	6 73 136 72	6 67 135 70	7 84 294 128	11 91 300 134	11 87 275 124
<i>Noctua pronuba</i> Large Yellow Underwing	331	Scot. M/N SE GB	14 30 7 17	18 36 15 23	17 33 14 21	17 32 16 22	17 42 18 26	17 44 18 26	16 46 18 27	15 48 19 27	15 46 18 26	14 47 18 26
<i>Mamestra brassicae</i> Cabbage Moth	345	Scot. M/N SE GB	1 7 3 4	1 5 5 4	2 4 5 4	3 3 7 4	2 3 6 4	2 3 6 4	2 3 6 4	2 3 6 4	2 3 6 4	2 4 6 4
<i>Melanchra persicariae</i> Dot Moth	346	Scot. M/N SE GB	0 7 29 12	0 4 20 8	0 3 14 6	0 3 11 5	0 3 9 4	0 3 9 4	0 2 8 3	0 2 7 3	0 2 7 3	0 1 6 2
<i>Diatraea oleracea</i> Bright-line Brown-eye	351	Scot. M/N SE GB	3 5 10 6	3 4 9 6	3 4 9 5	3 4 11 6	3 4 11 6	3 3 12 6	3 3 11 6	2 4 11 6	3 4 10 6	3 4 9 5
<i>Cerapteryx graminis</i> Antler Moth	378	Scot. M/N SE GB	137 0 1 46	148 0 2 50	111 0 2 38	89 0 2 30	79 0 2 27	77 0 2 26	79 1 2 27	78 1 2 27	82 1 2 28	78 1 2 27
<i>Panolis flammea</i> Pine Beauty	391	Scot. M/N SE GB	1 0 0 0	3 0 0 1	3 0 0 1	3 0 0 1	2 0 0 1	2 0 0 1	2 0 0 0	3 0 0 1	2 0 0 1	2 0 0 0

87

ROTHAMSTED REPORT FOR 1980, PART 2

Figs. 3–9 show the mean seasonal cycle of migrations of most of the *Bulletin aphids* in Great Britain, excluding *Megoura viciae* (470), *Pentatrichopus fragaefolii* (287), *Aphis* spp. (1005), *Amphorophora rubi* (468) and *Cinara* spp. (1500), all of which have low densities through most of the season, like *Myzus ornatus* (315) (Fig. 9b). Data are plotted on $\log_{10}$ scales, shifted vertically at one log intervals, from week 17 (23–29 April) to week 44 (29 October–4 November) (see Table 6). Curve 0 is the mean for all areas; 1 is the South-east; 2 is Wales and the South-west; 3, Midland England, comprises sites 917, 919, 922; and 4 is Northern England and Scotland; see Fig. 1 for trap stations and regions (except Midland England); all available stations were used in each region.

SYNOPTIC MONITORING FOR MIGRANT INSECT PESTS. I

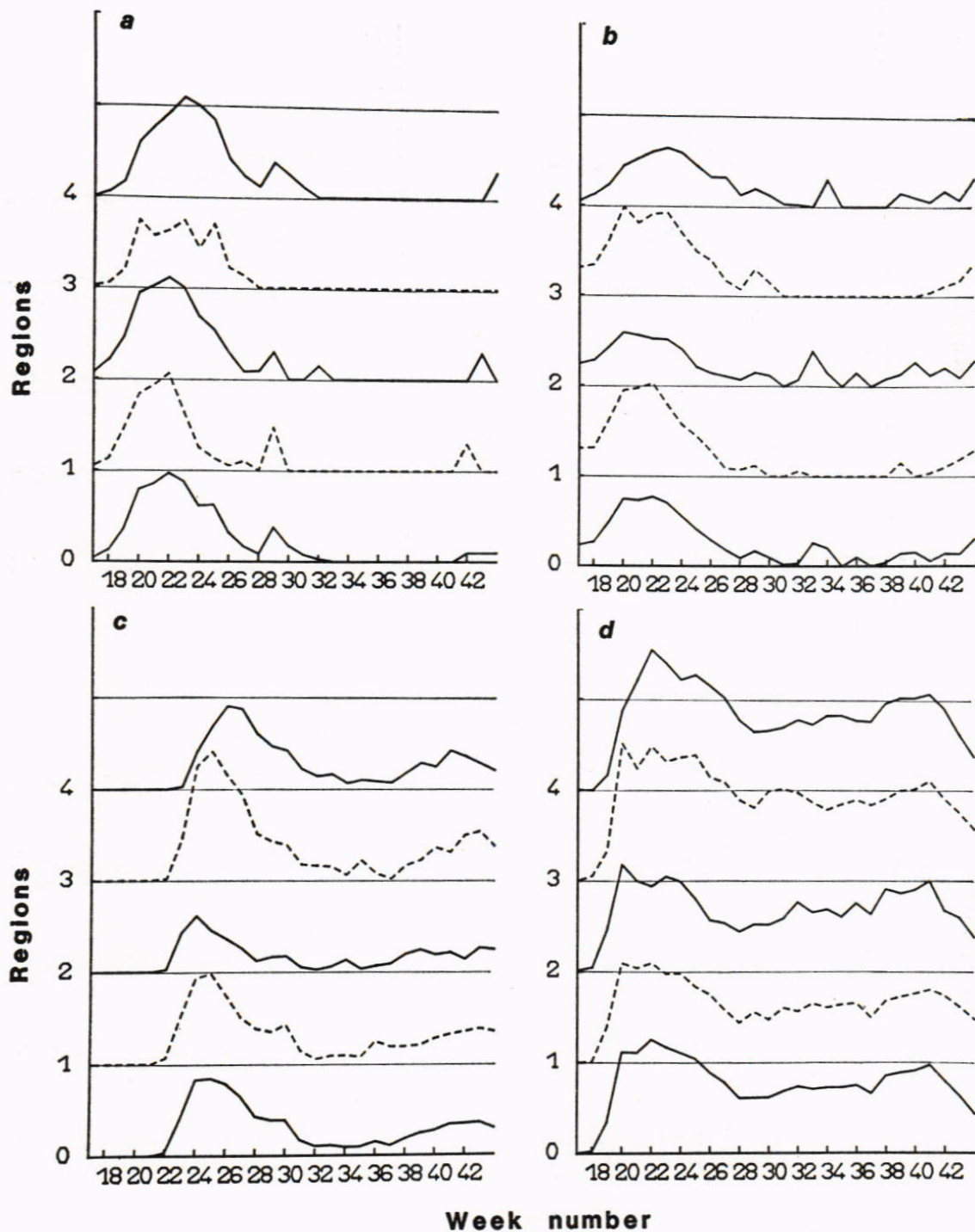


FIG. 3. a, 290, *Elatobium abietinum*; b, 318, *Myzus ascalonicus*; c, 500, *Eriosoma ulmi*; d, 91, *Drepanosiphum platanoidis*.

ROTHAMSTED REPORT FOR 1980, PART 2

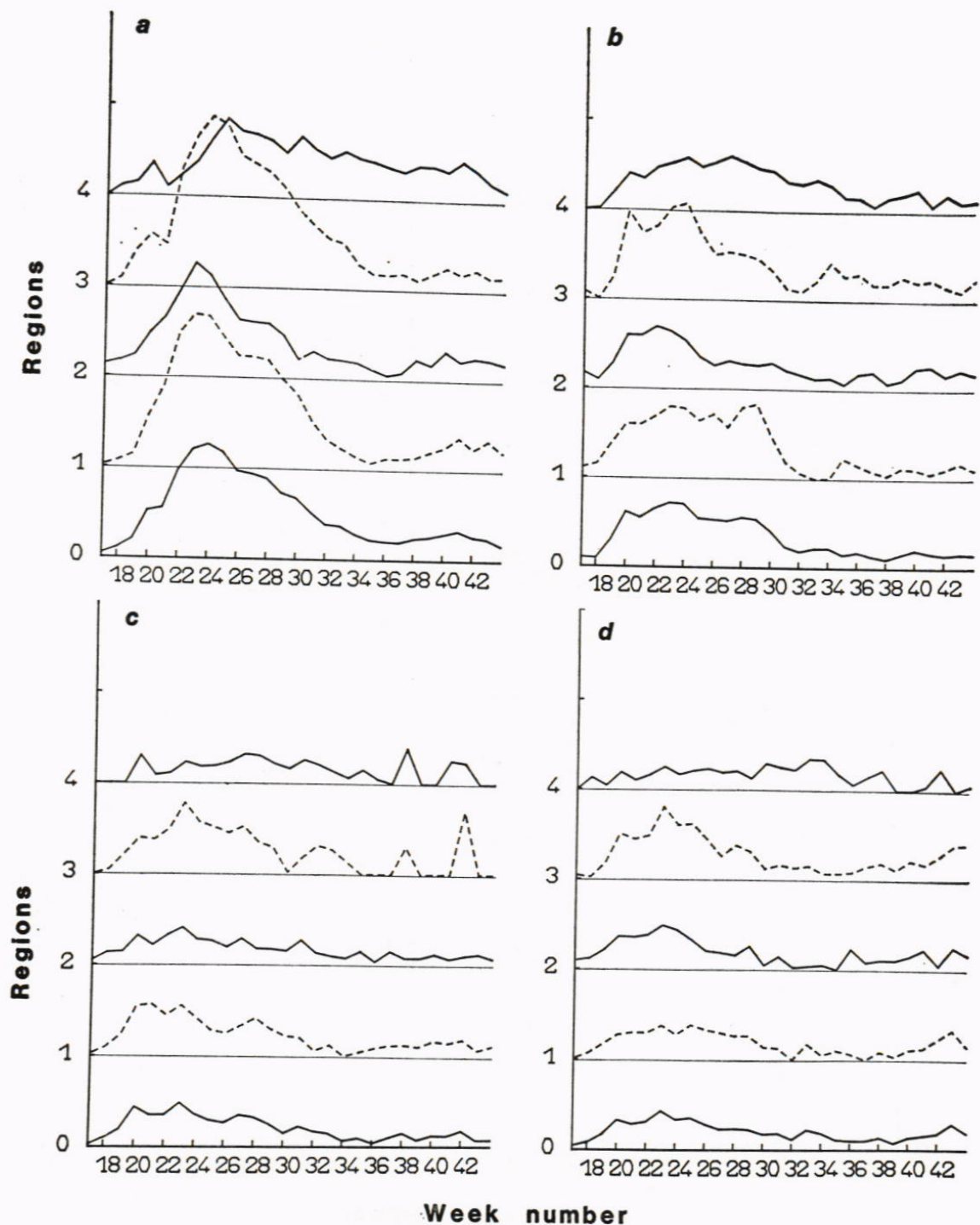


FIG. 4. a, 292, *Cavariella aegopodii*; b, 397, *Metopolophium festucae*; c, 319, *Myzus certus*; d, 376, *Aulacorthum solani*.

SYNOPTIC MONITORING FOR MIGRANT INSECT PESTS. I

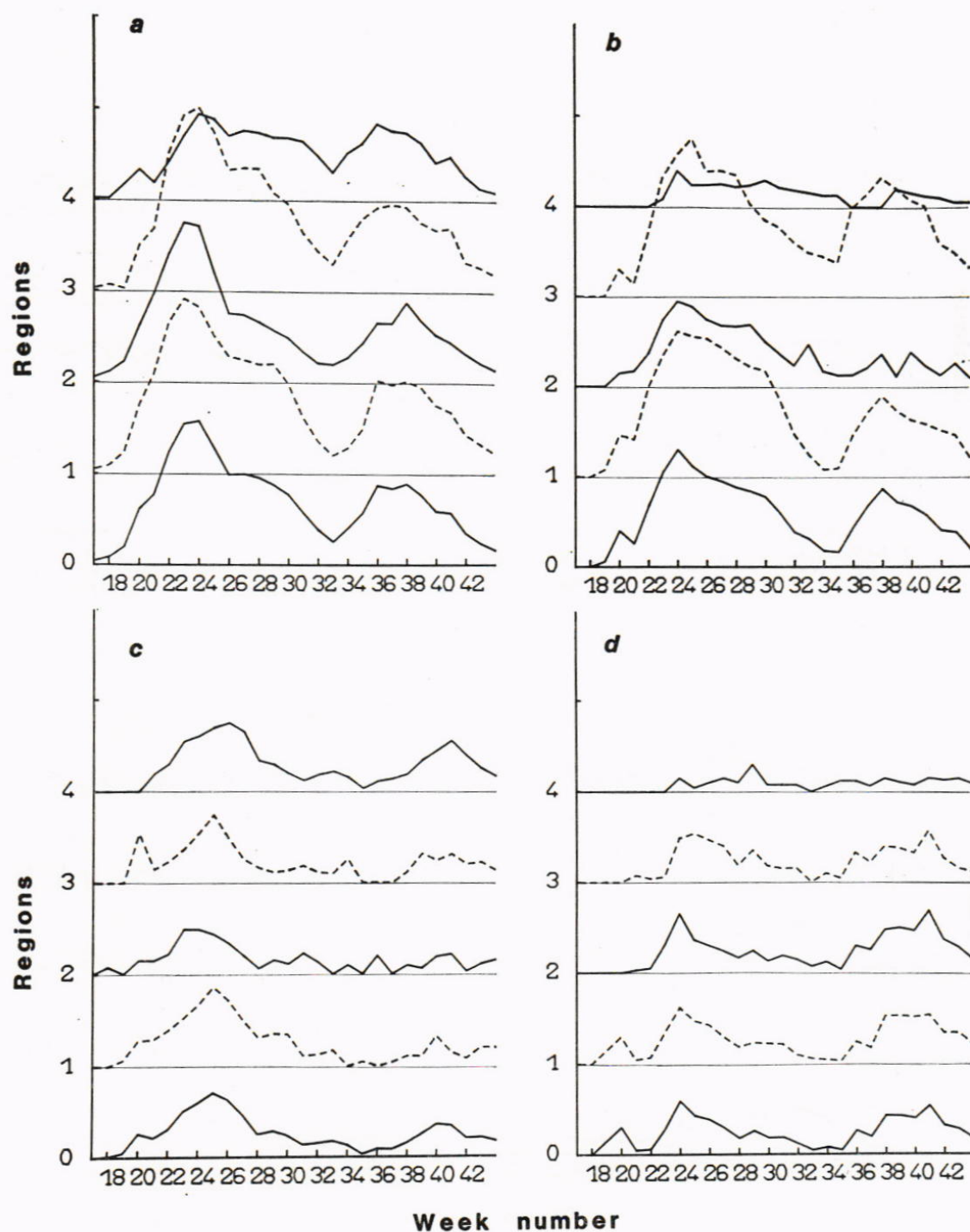


FIG. 5. a, 243, *Brachycaudus helichrysi*; b, 308, *Phorodon humuli*; c, 78, *Phyllaphis fagi*; d, 234, *Dysaphis plantaginea*.

ROTHAMSTED REPORT FOR 1980, PART 2

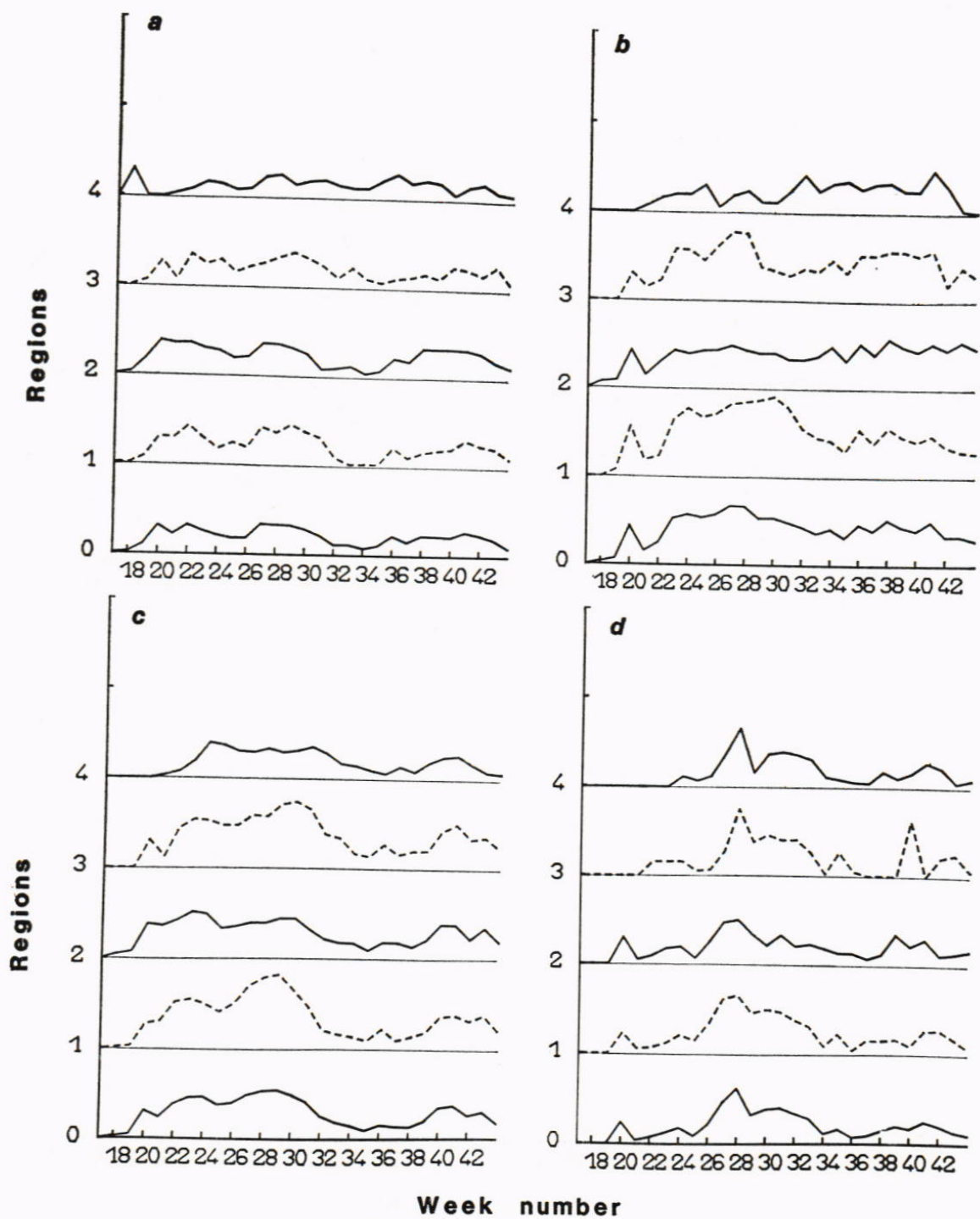


FIG. 6. a, 355, *Nasonovia ribisnigri*; b, 264, *Brevicoryne brassicae*; c, 358, *Hyperomyzus lactucae*; d, 112, *Rhopalosiphum maidis*.

SYNOPTIC MONITORING FOR MIGRANT INSECT PESTS. I

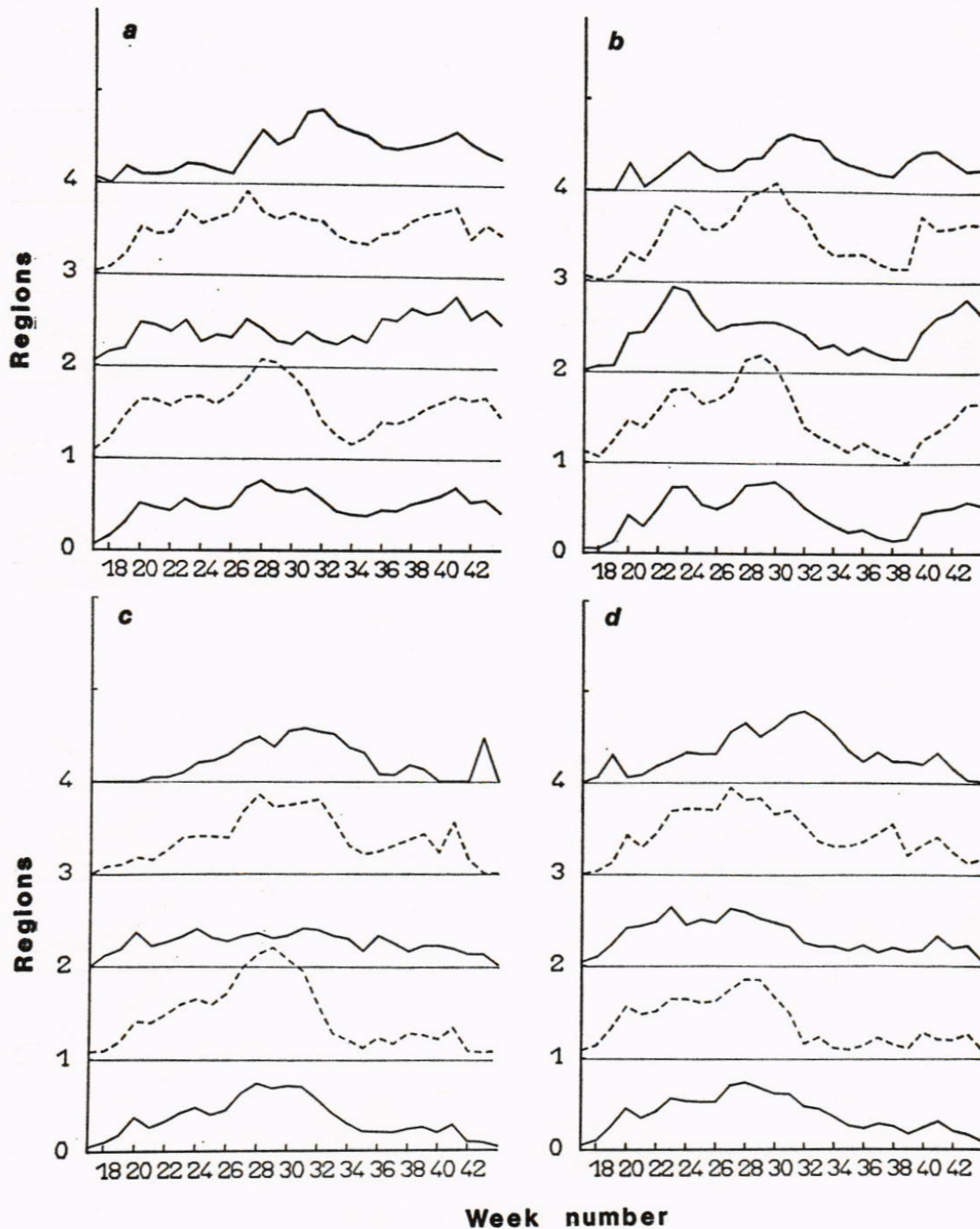


FIG. 7. a, 322, *Myzus persicae* group; b, 421, *Sitobion fragariae*; c, 389, *Acrythosiphon pisum*; d, 410, *Macrosiphum euphorbiae*.

ROTHAMSTED REPORT FOR 1980, PART 2

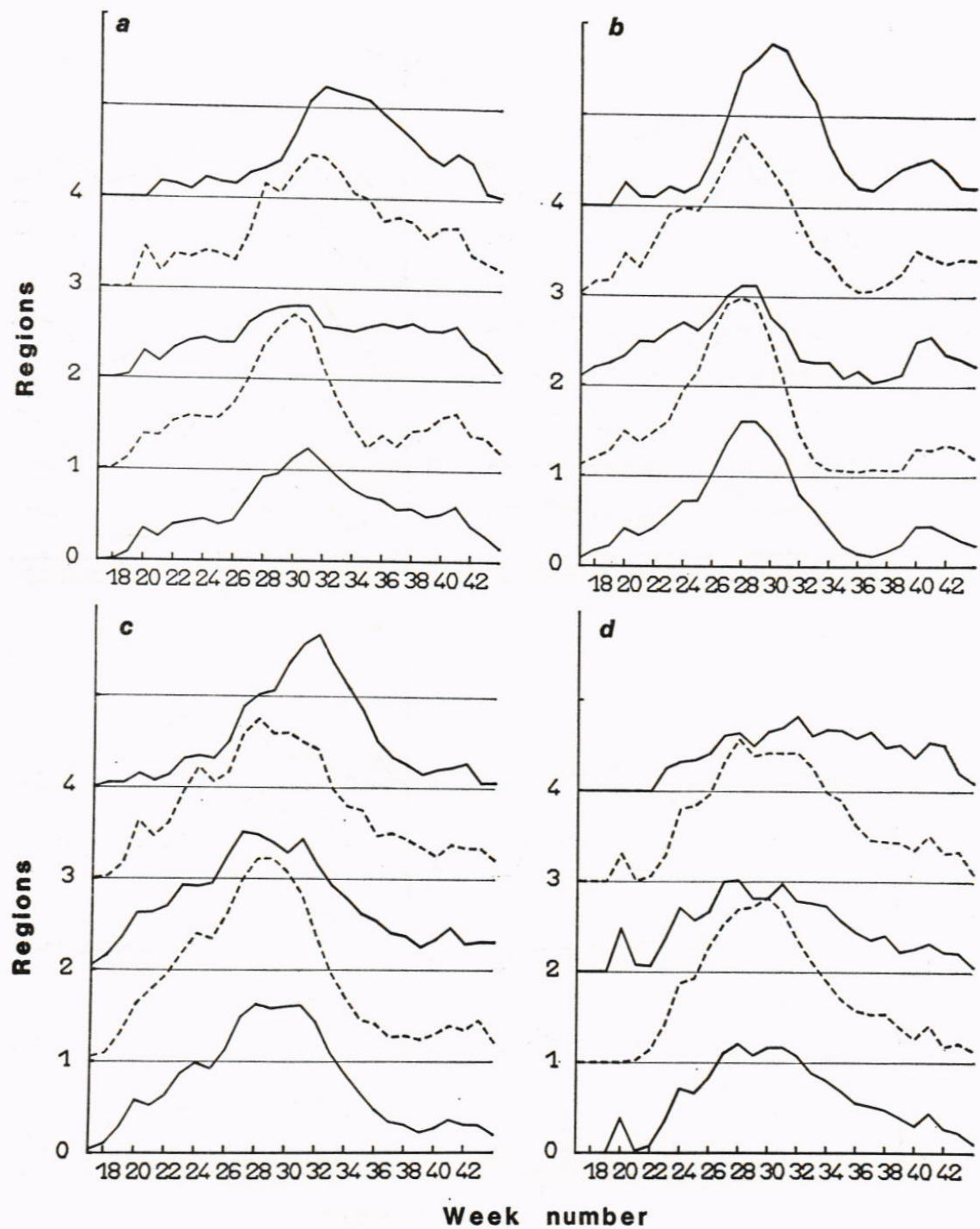


FIG. 8. a, 132, *Aphis fabae* group; b, 396, *Metopolophium dirhodum*; c, 420, *Sitobion avenae*; d, 110, *Hyalopterus pruni*.

SYNOPTIC MONITORING FOR MIGRANT INSECT PESTS. I

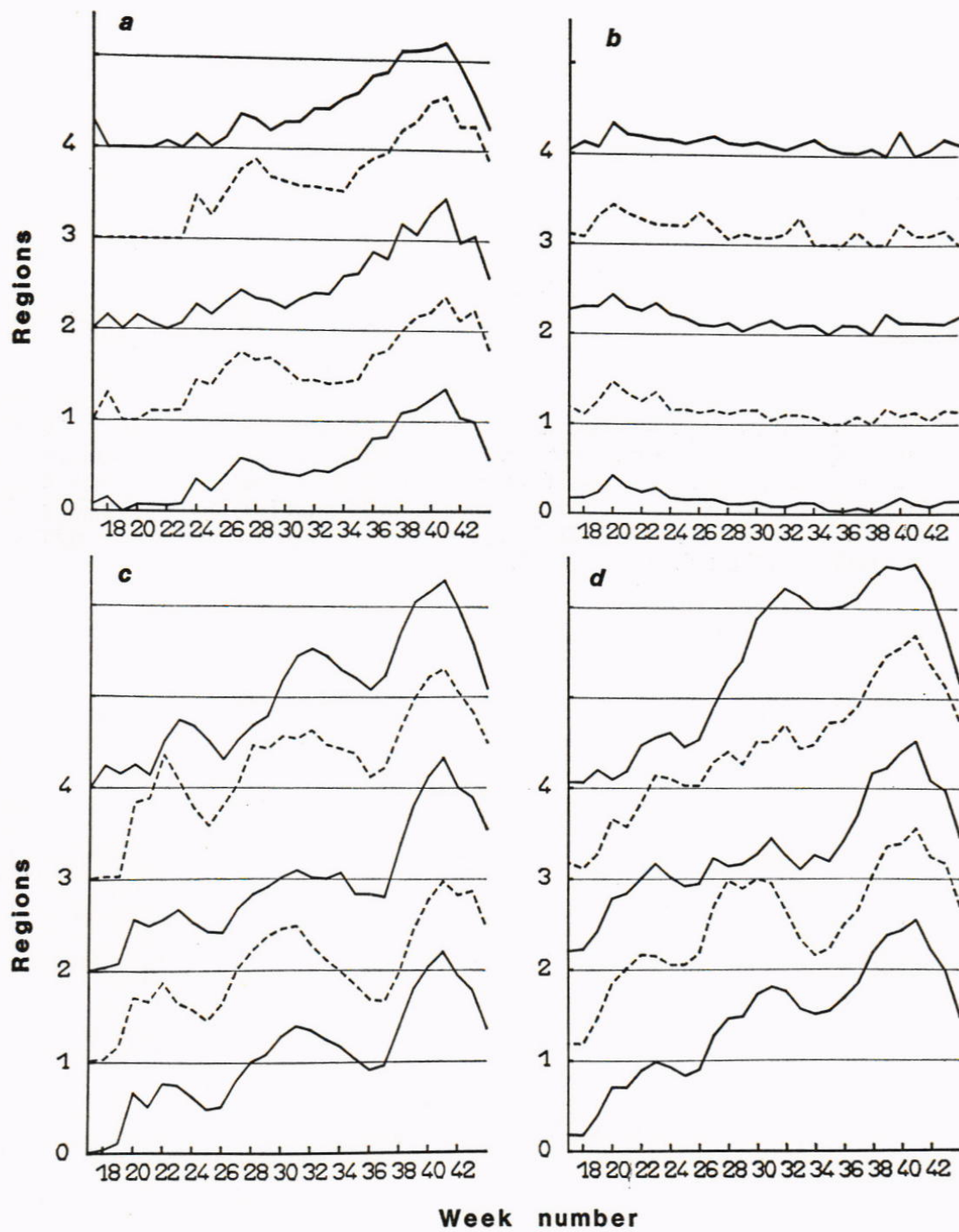


FIG. 9. a, 1506, *Pemphigus* spp.; b, 315, *Myzus ornatus*; c, 111, *Rhopalosiphum insertum*; d, 114, *Rhopalosiphum padi*.

ROTHAMSTED REPORT FOR 1980, PART 2

Figs. 10–14 show the mean seasonal flight period as measured by light traps for 20 species of moths of economic importance. Data are plotted on $\log_{10}$ scale shifted vertically by $\frac{1}{2}$ log intervals. Regions, species and traps used are the same as those in Table 9. Curve 0 is the mean for all areas over 10 years and for 15 sites; 1 is Southern England; 2 is Wales, Central and Northern England; 3 is Scotland (10 years and five stations in each region, see Fig. 2 for stations used).

SYNOPTIC MONITORING FOR MIGRANT INSECT PESTS. I

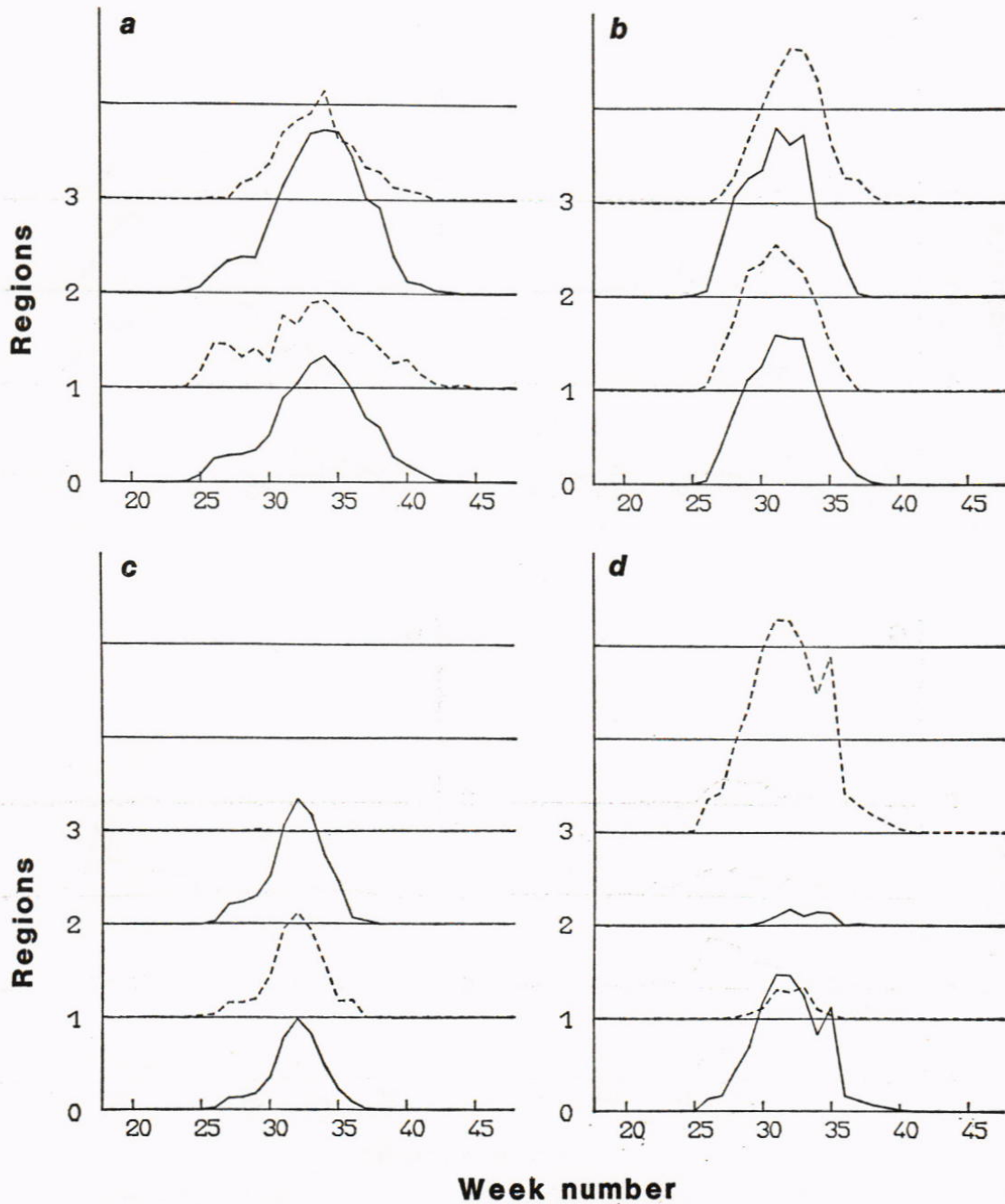


FIG. 10. a, 331, *Noctua pronuba*; b, 456, *Apamea secalis*; c, 889, *Abraxas grossulariata*; d, 378, *Cerapteryx graminis*.

ROTHAMSTED REPORT FOR 1980, PART 2

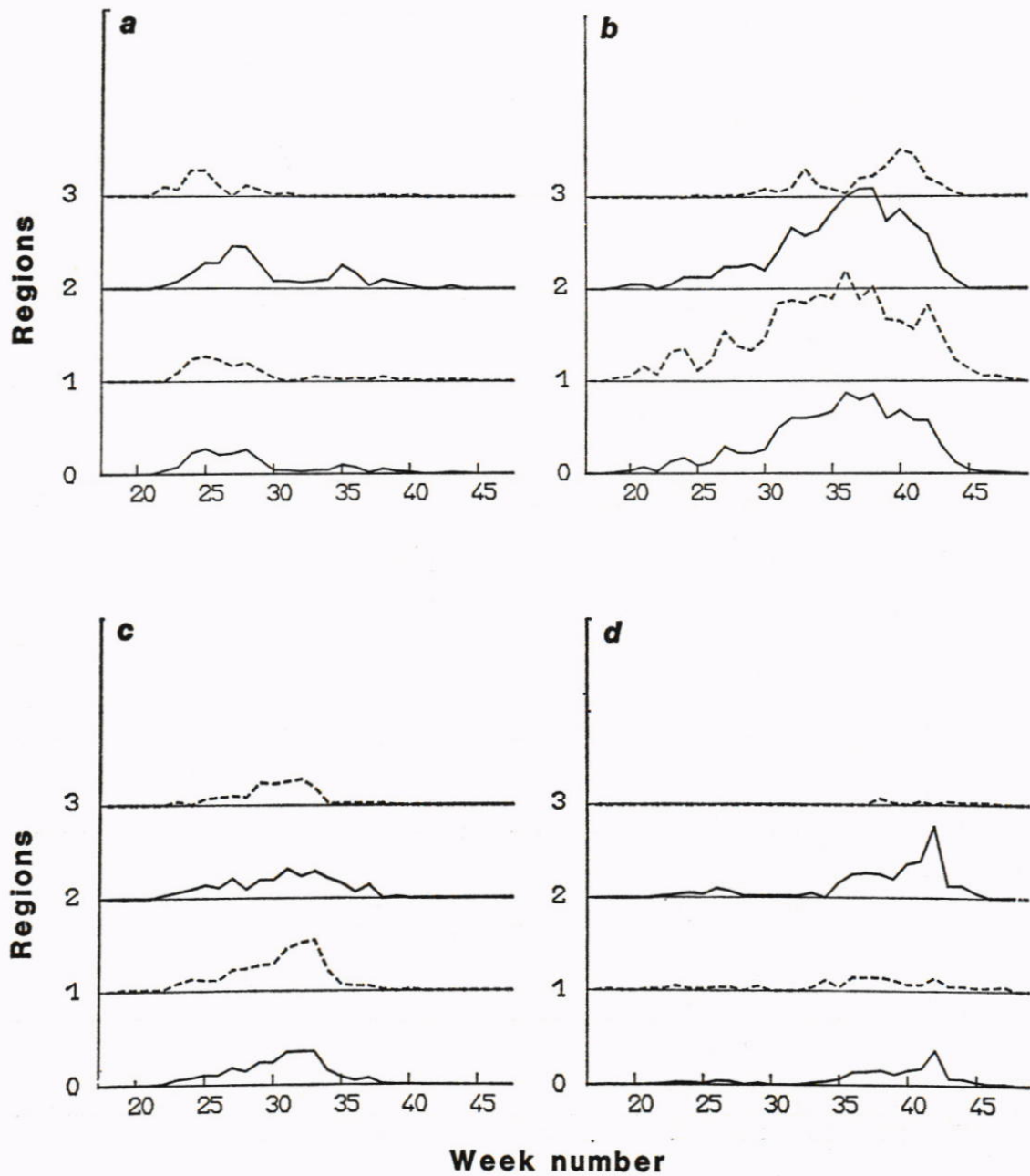


FIG. 11. a, 277, *Agrotis segetum*; b, 635, *Plusia gamma*; c, 345, *Mamestra brassicae*; d, 473, *Phlogophora meticulosa*.

SYNOPTIC MONITORING FOR MIGRANT INSECT PESTS. I

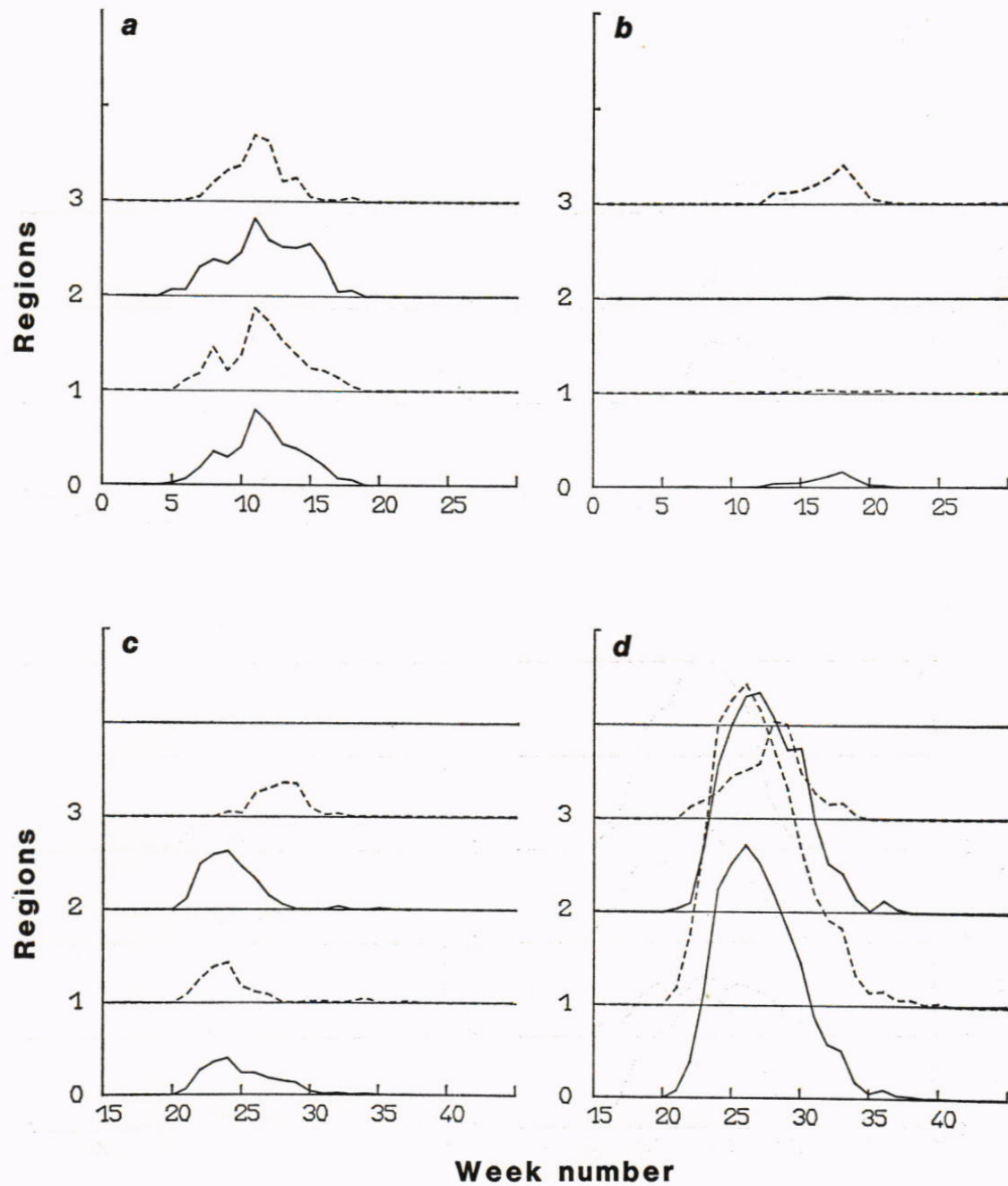


FIG. 12. a, 669, *Alsophila aescularia*; b, 391, *Panolis flammea*; c, 269, *Hepialus lupulina*; d, 285, *Agrotis exclamationis*.

ROTHAMSTED REPORT FOR 1980, PART 2

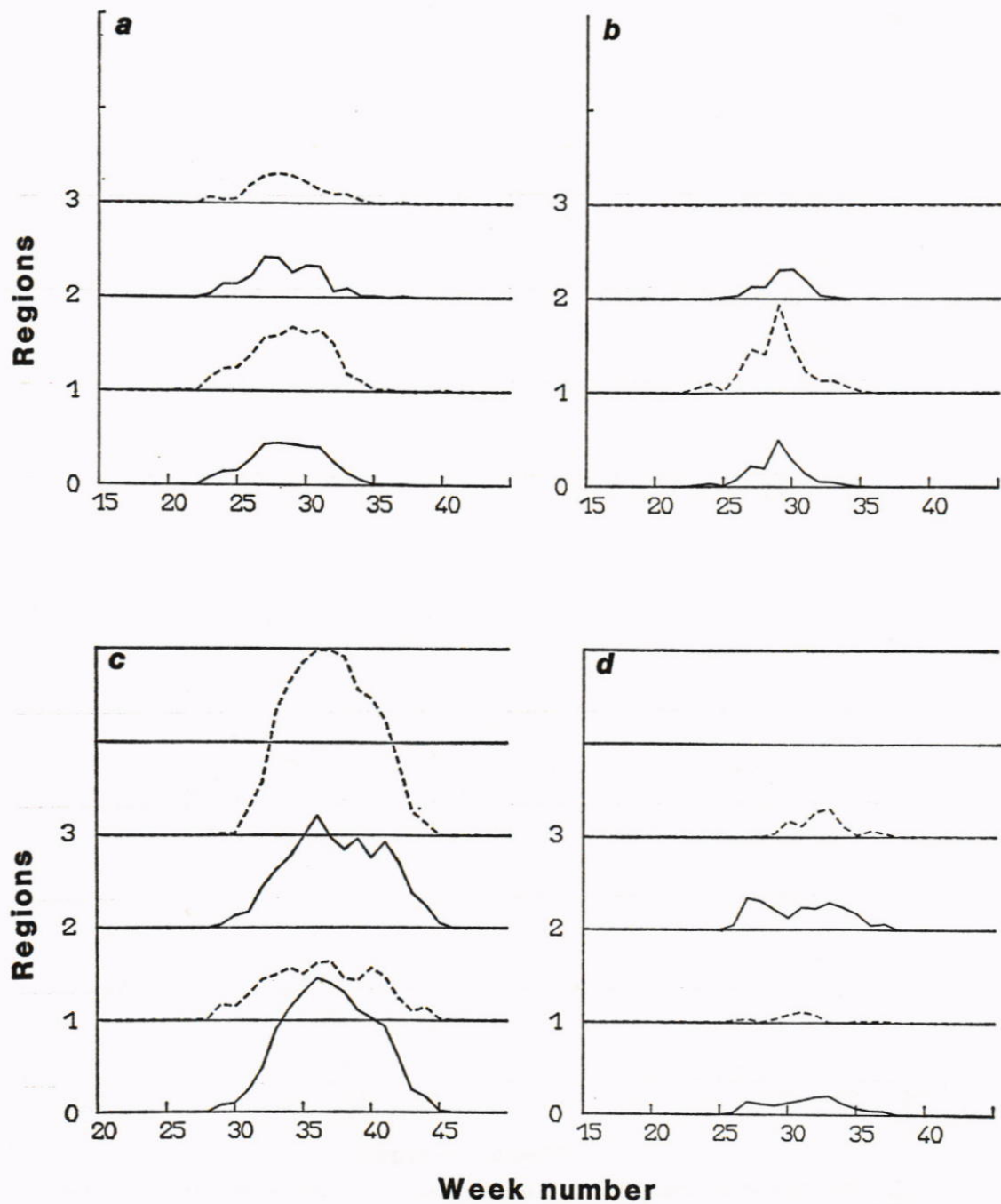


FIG. 13. a, 351, *Diataraxia oleracea*; b, 346, *Melanchra persicariae*; c, 488, *Gortyna micacea*; d, 273, *Euxoa nigricans*.

SYNOPTIC MONITORING FOR MIGRANT INSECT PESTS. I

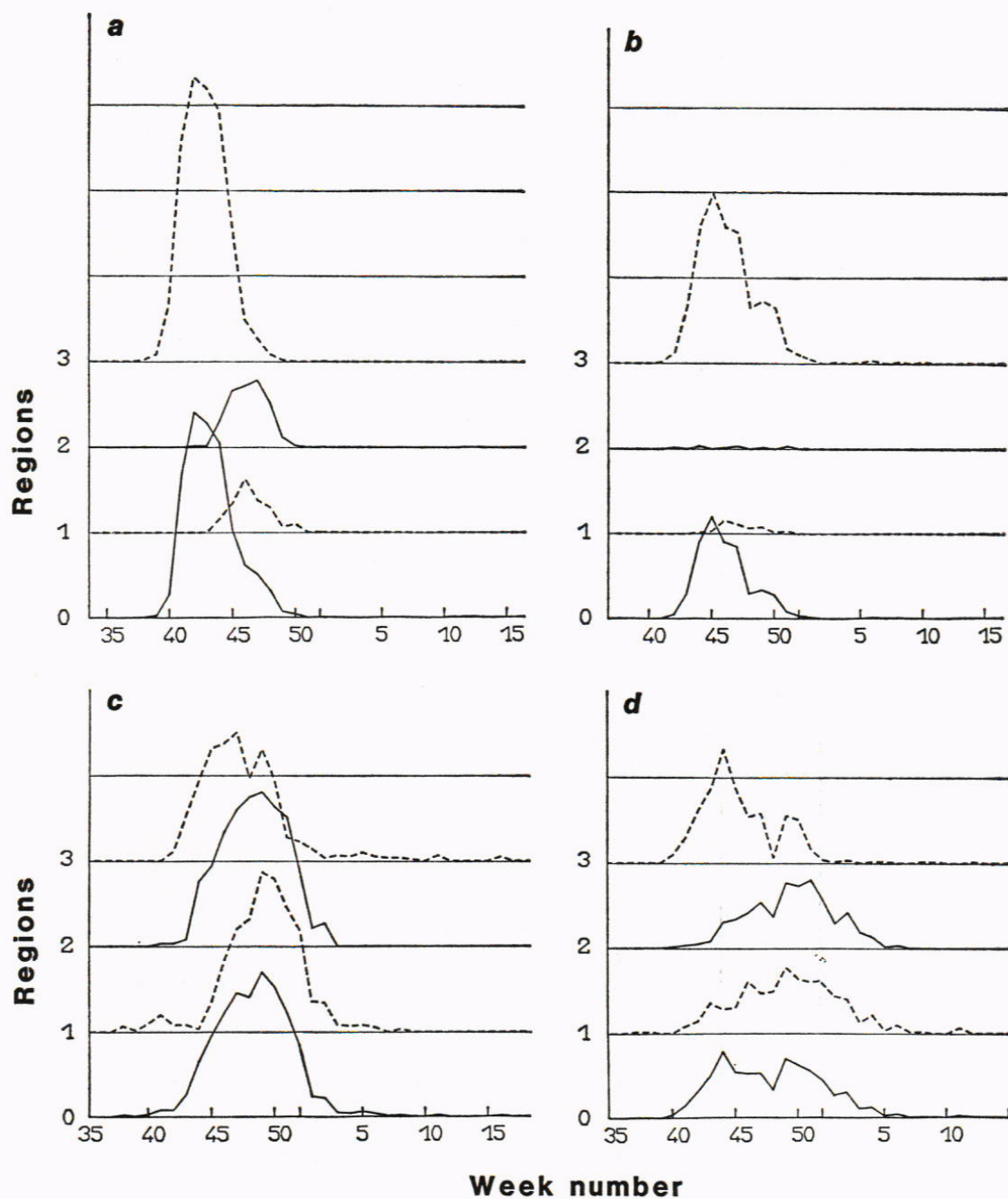


FIG. 14. a, 906, *Erannis aurantiaria*; b, 829, *Operophtera fagata*; c, 828, *Operophtera brumata*; d, 908, *Erannis defoliaria*.

ROTHAMSTED REPORT FOR 1980, PART 2

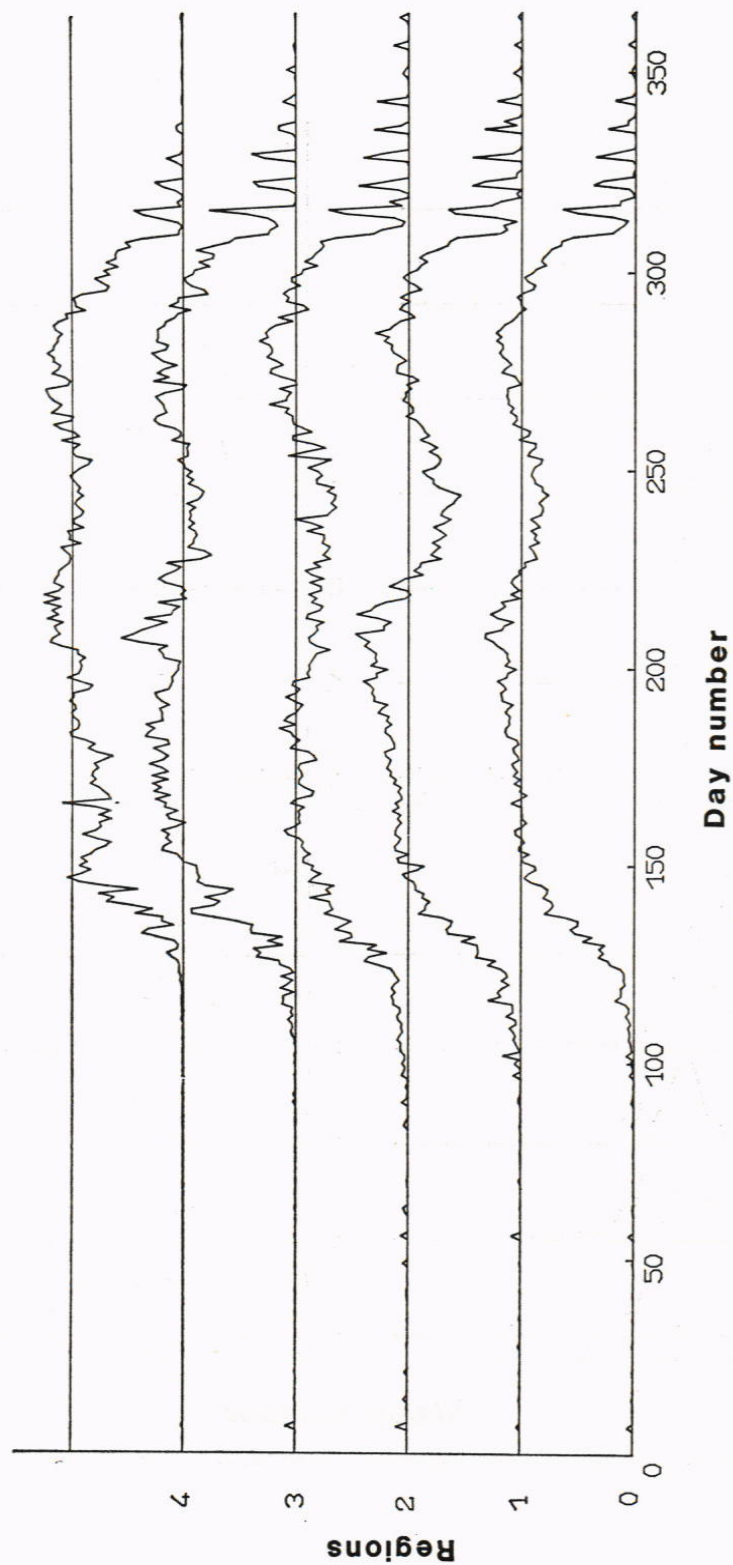


FIG. 15. Mean seasonal cycle of daily total numbers of aphids, on log₁₀ scales shifted vertically at two log intervals. Curve 0 is the mean daily total per station for all of Great Britain over 10 years; 1 is South-east England; 2 is Wales and South-west England; 3 is Midland England; 4 is Northern England and Scotland. See legend to Figs. 3-9 (p. 88).

SYNOPTIC MONITORING FOR MIGRANT INSECT PESTS. I

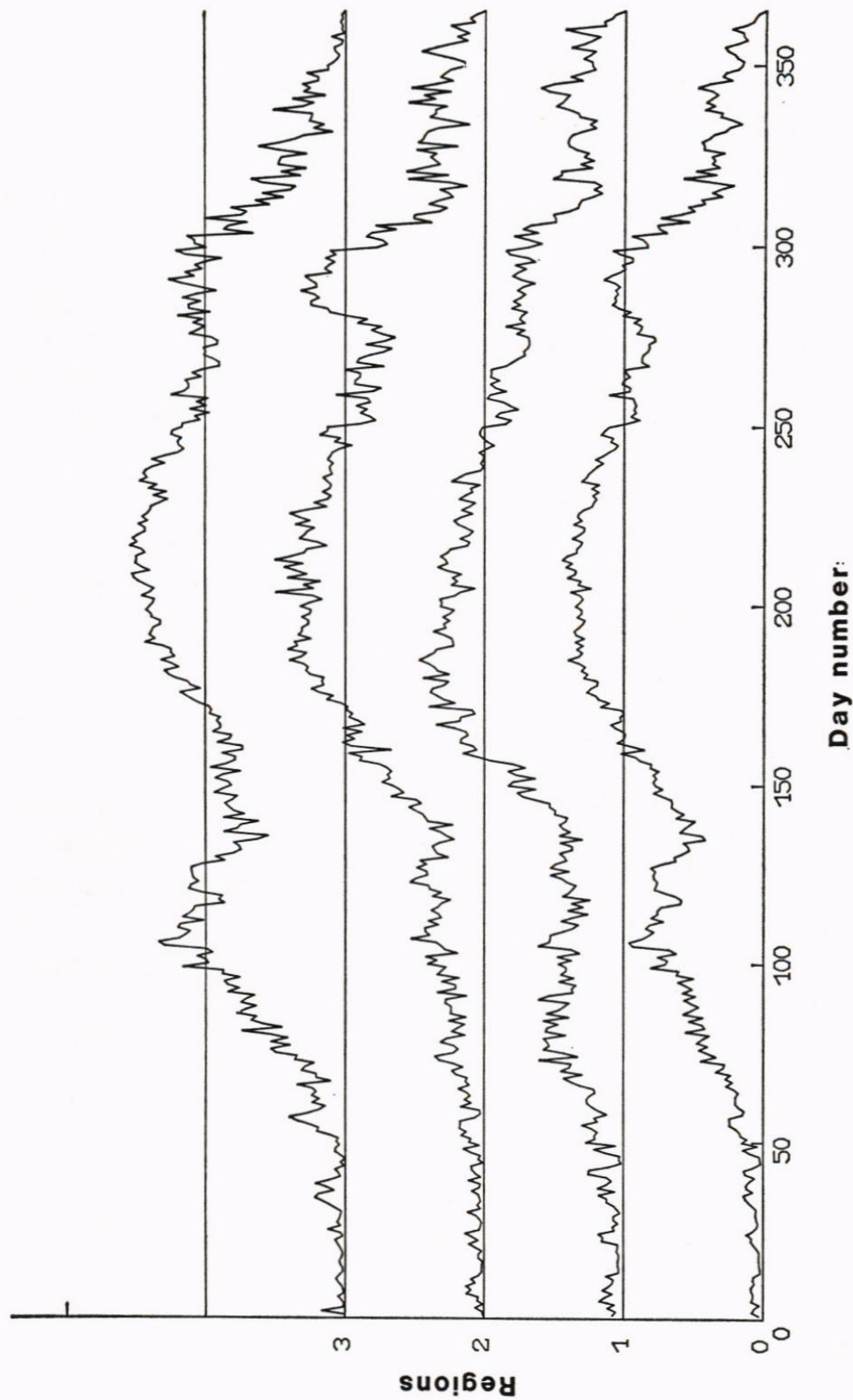


FIG. 16. Mean seasonal cycle of daily total numbers of moths, on $\log_{10}$ scales shifted vertically at one log interval. Curve 0 is the mean daily total per station for all of Great Britain over 10 years; 1 is Southern England; 2 is Wales, Central and Northern England; 3 is Scotland (10 years and five stations in each region; see Fig. 2 for stations used).

ROTHAMSTED REPORT FOR 1980, PART 2

REFERENCES

- BARDNER, R., FRENCH, R. A. & DUPUCH, M. J. (1981) Agricultural benefits of the Rothamsted Insect Survey. *Rothamsted Experimental Station. Report for 1980*, Part 2, 21–39.
- BRADLEY, J. D. & FLETCHER, D. S. (1979) *A recorder's log book or label list of British butterflies and moths*. London: Curwen Books, iv+136pp.
- CARTER, C. I. & COLE, J. (1977) Flight regulation in the green spruce aphid (*Elatobium abietinum*). *Annals of Applied Biology* **86**, 137–151.
- COCHRANE, J. (1980) Meteorological aspects of the numbers and distribution of the rose-grain aphid, *Metopolophium dirhodum* (Wlk.), over south-east England in July 1979. *Plant Pathology* **29**, 1–8.
- DEWAR, A. M., WOIWOD, I. P. & CHOPPIN DE JANVRY, E. (1980) Aerial migrations of the rose-grain aphid, *Metopolophium dirhodum* (Wlk.), over Europe in 1979. *Plant Pathology* **29**, 101–109.
- EASTOP, V. F. & HILLE RIS LAMBERS, D. (1976) *Survey of the World's Aphids*. The Hague: W. Junk, 573 pp.
- HEIE, O. E., PHILIPSEN, H. & TAYLOR, L. R. (1981) Synoptic monitoring for migrant insect pests in Great Britain and Western Europe. II. The species of alate aphids sampled at 12·2 m by Rothamsted Insect Survey suction trap at Tåstrup, Denmark, between 1971–76. *Rothamsted Experimental Station. Report for 1980*, Part 2, 105–114.
- HESLOP, I. R. P. (1964) *Revised indexed check-list of the British Lepidoptera*. Library Edition. Burnham-on-Sea: Heslop, vi+145 pp.
- KLOET, G. S. & HINCKS, W. D. (1964) *A Check List of British Insects* (2nd edition) Part 1. *Small orders and Hemiptera*. (Handbook for the identification of British insects XI, 1.) London: Royal Entomological Society, 119 pp.
- KLOET, G. S. & HINCKS, W. D. (1972) *A Check List of British Insects* (2nd edition) Part 2. *Lepidoptera* (Handbook for the identification of British insects XI, 2) London: Royal Entomological Society, 153 pp.
- SOUTH, R. (1961) *Moths of the British Isles*. Edited and revised by H. M. Edleston, D. S. Fletcher & R. J. Collins. London & New York: Frederick Warne. 1st series 427 pp, 2nd series 379 pp.
- TAYLOR, L. R. (1973) Monitor surveying for migrant insect pests. *Outlook on Agriculture*, **7**, 109–116.
- TAYLOR, L. R. (1974) Monitoring change in the distribution and abundance of insects. *Rothamsted Experimental Station. Report for 1973*, Part 2, 202–239.
- TAYLOR, L. R. (1977a) Aphid forecasting and the Rothamsted Insect Survey. *Journal of the Royal Agricultural Society of England* **138**, 75–97.
- TAYLOR, L. R. (1977b) Migration and the spatial dynamics of an aphid, *Myzus persicae*. *Journal of Animal Ecology* **46**, 411–423.
- TAYLOR, L. R. (1979) The Rothamsted Insect Survey; an approach to the theory and practice of synoptic pest forecasting in agriculture. In: *Movements of highly mobile insects: concepts and methodology in research*. Ed. G. G. Kennedy & R. L. Rabb. Raleigh, North Carolina: North Carolina State University, Chapter 10, pp. 148–185.
- TAYLOR, L. R. & FRENCH, R. A. (1970) Rothamsted Insect Survey (First Annual Summary). *Rothamsted Experimental Station. Report for 1969*, Part 2, 168–184.
- TAYLOR, L. R. & FRENCH, R. A. (1980) Rothamsted Insect Survey (Eleventh Annual Summary). *Rothamsted Experimental Station. Report for 1979*, Part 2, 111–137.
- TAYLOR, L. R. & PALMER, J. M. P. (1972). Aerial sampling. In: *Aphid technology*. Ed. H. F. Van Emden. London & New York: Academic Press, Chapter 6, 189–234 pp.
- TAYLOR, L. R., WOIWOD, I. P. & TAYLOR, R. A. J. (1979) The migratory ambit of the hop and its significance in aphid population dynamics. *Journal of Animal Ecology* **48**, 955–972.
- WAY, M. J., CAMMELL, M. E., TAYLOR, L. R. & WOIWOD, I. P. (1981) The use of egg counts and suction trap samples to forecast the infestation of spring-sown field beans, *Vicia faba*, by the black bean aphid, *Aphis fabae*. *Annals of Applied Biology* **98**, 21–34.
- WILLIAMS, C. B. (1948) The Rothamsted light trap. *Proceedings of the Royal Entomological Society of London (A)* **23**, 80–85.