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ROTHAMSTED
RESEARCH

Rothamsted Experimental Station Report for 1969 Part 2



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Rothamsted Insect Survey

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Rothamsted Insect Survey

L. R. TAYLOR and R. A. FRENCH

Suction traps

Three new traps operated in 1969, at the Rosewarne Experimental Horticultural Station, Camborne, in Cornwall, England, at the Welsh Plant Breeding Station, Plas Gogerddan, Nr. Aberystwyth, Wales, and at the Department of Agriculture and Fisheries for Scotland, East Craigs, Edinburgh 12, Scotland. The weekly bulletins listing 11 trap counts of 34 species, or groups, of aphids of economic interest was maintained with only one hiatus, during the third and fourth weeks of July when each week comprised only four days because full catches were too large to count in time to be included in the bulletin. This year the airflow characteristics of the trap were investigated and next year the volumetric air sample will be halved during July and August to lessen the risk of similar oversampling. The converse problem, that of increasing the sample size during April and May to increase sensitivity when incoming migrants are infesting crops, has proved to be less tractable because of the internal resistance of the trap at high air speeds; another attempt will be made to solve this problem during the coming season. It is hoped to complete the east/west transect next year with traps near Exeter, Bristol and Wageningen in Holland.

These tables are given here to publish records quickly, the final table being completed just in time for press. It may be possible to comment on them in Part 1 of the Report which is compiled later. The tables contain the same species as the bulletins. To save space, counts are given per 4-week period using the 'standard' weeks devised to coincide from year to year for convenience in analysis; the bulletin weeks are 'working' weeks from Monday through Sunday, chosen for convenience in despatching and sorting catches. The second trap at Rothamsted, formerly referred to as Rothamsted Farm, has been omitted from both bulletins and table to save space. Its function is entirely experimental and its adds little to the information on distribution on a large scale. A few days have been lost by accident or breakdown but, thanks to the lively co-operation of the operators and other members of staff to whom we are deeply indebted, there are no serious gaps in the record. Zero catches are left blank in the table for simplicity.

Light traps

In the *Rothamsted Report for 1968*, Part 1, 210–213, the annual catch of 26 species of moths of economic interest from light traps at 32 sites in Great Britain during 1967, and for some of these sites in 1966 and 1965 were tabulated. The catches of the same 26 species at sites in 1968 are given in Table 2 and those for 1967 repeated for comparison.

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Many more traps are now in operation, but only those that operated throughout the year are included in the table. Unlike the aphid records, it is not possible to publish these catches in the year they are obtained because most of the identification is done by voluntary workers and hence cannot be done immediately. Light traps give only a relative sample because their efficiency is subject to the behavioural response of the insect, so the catches of different species cannot be compared until the relative efficiency of the trap for the species has been assessed. At present, only the differences between sites and years can be usefully considered. The sites, which have been numbered sequentially as they began to operate, are arranged in latitude sequence, north to south, in the table. The species have been arranged according to their preferred latitude, north on the left to south on the right. The distribution of some species is erratic, and all are affected by the immediate environment of the trap, which ranges from urban streets through farmland to uncultivated moorland. Nevertheless, the latitudinal limits of some species are clearly defined and this may help to locate likely outbreak areas when we have more seasons' distributions. It is striking that the recognised pest species are not necessarily widespread nor generally common, some species being restricted to a fairly narrow band of latitudes. The spatial distribution of nearly all species in 1968 closely resembles that in 1967, except for *Plusia gamma*, an immigrant, *Gortyna micacea* and *Alsophila aescularia*, all of which were more common in 1968 than in 1967. Dashes indicate missing records; 0s record zero counts.

TABLE 1 *The Rothamsted Insect Survey—Suction Traps* is on pages 170–176.

TABLE 2 *The Rothamsted Insect Survey—Light Traps* is on pages 178–185.

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TABLE 1(a)

The Rothamsted Insect Survey—Suction Traps: 4-weekly total catches of aphids of economic interest reported in the Weekly Bulletin

Week Nos 17–20: 23 April–20 May

Sites	Dundee	Edinburgh	Newcastle	High Mowthorpe	Aberystwyth	Brooms Barn	Rothamsted	Silwood Park	Zeeland	Wye, Kent	Rosewarne
Species											
<i>Acyrtosiphon pisum</i>						1				1	
<i>Aphis fabae</i>										1	
<i>Aphis frangulae</i>									1		
<i>Aphis idaeii</i>											
<i>Aphis nasturtii</i>											
<i>Amphorophora</i> spp.											
<i>Aulacorthum solani</i>								1			
<i>Brachycaudus helichrysi</i>											
<i>Brevicoryne brassicae</i>											
<i>Cavariella aegopodii</i>									3		
<i>Cinara</i> spp.											
<i>Drepanosiphum platanoidis</i>									1		
<i>Dysaphis plantaginea</i>											
<i>Elatobium abietinum</i>					9	1	1	18		9	
<i>Eriosoma ulmi</i>											
<i>Hyalopterus pruni</i>											
<i>Hyperomyzus lactucae</i>											
<i>Macrosiphum euphorbiae</i>									1	1	
<i>Megoura viciae</i>											
<i>Metapolophium dirhodum</i>											
<i>Metapolophium festucae</i>							3	2	2		
<i>Myzus ascalonicus</i>					2	3	11	5	4	5	5
<i>Myzus ornatus</i>											
<i>Myzus persicae</i>											
<i>Nasonovia ribis nigri</i>											
<i>Pemphigus</i> spp. }											
Prociphilines }											
<i>Phyllaphis fagi</i>								2			
<i>Pentatrachopus fragaefolii</i>											
<i>Phorodon humuli</i>											
<i>Rhopalosiphum insertum</i>									1		
<i>Rhopalosiphum maidis</i>											
<i>Rhopalosiphum padi</i>					2			1		3	2
<i>Sitobion avenae</i>											1
<i>Sitobion fragariae</i>								1			
First aphid caught					May 5	May 4	May 5	May 8	May 4	May 11	May 5

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TABLE 1(b)

The Rothamsted Insect Survey—Suction Traps: 4-weekly total catches of aphids of economic interest reported in the Weekly Bulletin

Week Nos 21–24: 21 May–17 June

Sites	Dundee	Edinburgh	Newcastle	High Mowthorpe	Aberystwyth	Brooms Barn	Rothamsted	Silwood Park	Zealand	Wye, Kent	Rosewarne
Species											
<i>Acyrtosiphon pisum</i>						4	2	9	5	2	1
<i>Aphis fabae</i>		1	1	2		2	11	30		7	5
<i>Aphis frangulae</i>									1		
<i>Aphis idaei</i>											
<i>Aphis nasturtii</i>								2		2	
<i>Amphorophora</i> spp.						1		4		2	
<i>Aulacorthum solani</i>					2	6		2	2	3	14
<i>Brachycaudus helichrysi</i>		3			121	11	300	370	5	147	61
<i>Brevicoryne brassicae</i>	1										
<i>Cavariella aegopodii</i>	1	1		3	44	412	597	1073	121	183	21
<i>Cinara</i> spp.				1			5	1			
<i>Drepanosiphum platanoidis</i>											
<i>Dysaphis plantaginea</i>						3	5	2			
<i>Elatobium abietinum</i>	13	3	38	3	211	5	45	160		171	12
<i>Eriosoma ulmi</i>	1					8	22	21	15	13	
<i>Hyalopterus pruni</i>					4		35	6	21	2	9
<i>Hyperomyzus lactucae</i>					6	4	12	28	3	4	3
<i>Macrosiphum euphorbiae</i>								7		2	2
<i>Megoura viciae</i>							1	2		1	
<i>Metapolophium dirhodum</i>		2			2		1	13	1	3	10
<i>Metapolophium festucae</i>					3	2	2	16	5	3	12
<i>Myzus ascalonicus</i>		2	1	2	7	5	13	24	8	18	5
<i>Myzus ornatus</i>								1			
<i>Myzus persicae</i>					1		1			1	3
<i>Nasonovia ribis nigri</i>	1				2			8	2		1
<i>Pemphigus</i> spp. } Prociphilines }									2		
<i>Phyllaphis fagi</i>	5	14	14	3		4	4	23	2	3	4
<i>Pentatrichopus fragaefolii</i>											
<i>Phorodon humuli</i>					10	13	227	150		91	1
<i>Rhopalosiphum insertum</i>	1				4		3	2	6		3
<i>Rhopalosiphum maidis</i>	2				2				1		
<i>Rhopalosiphum padi</i>	6	27	2	10	108	72	175	93	8	40	46
<i>Sitobion avenae</i>					2	2	14	35	3	17	14
<i>Sitobion fragariae</i>						14	11	79		24	21
First aphid caught	May 26	Jun 5	Jun 7	May 25							

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TABLE 1(c)

The Rothamsted Insect Survey—Suction Traps: 4-weekly total catches of aphids of economic interest reported in the Weekly Bulletin

Week Nos 25–28: 18 June–15 July

Sites	Dundee	Edinburgh	Newcastle	High Mowthorpe	Aberystwyth	Brooms Barn	Rothamsted	Silwood Park	Zeeland	Wye, Kent	Rosewarne
Species											
<i>Acyrtosiphon pisum</i>	1		1	3		80	13	45	56	71	1
<i>Aphis fabae</i>		4	1	6	7	133	106	416	268	608	3
<i>Aphis frangulae</i>					1	4		15	4	21	
<i>Aphis idaeii</i>							2	1		1	
<i>Aphis nasturtii</i>						2	2	13	6	10	
<i>Amphorophora</i> spp.			1			5	2	5		16	
<i>Aulacorthum solani</i>		1			2	5	3	2		5	1
<i>Brachycaudus helichrysi</i>	1	2	2	2	2	158	109	176	58	302	5
<i>Brevicoryne brassicae</i>						1			1		1
<i>Cavariella aegopodii</i>	3	6	3	40	2	662	356	274	243	283	3
<i>Cinara</i> spp.	4	6	4	1		15	2	4	2	22	
<i>Drepanosiphum platanoidis</i>	40	69	17	4	10	20	13	39		5	18
<i>Dysaphis plantaginea</i>			1			3	14	17	1	15	
<i>Elatobium abietinum</i>	16	2	58	1	1	1		1			
<i>Eriosoma ulmi</i>	69	43	7	16		201	60	59	9	84	2
<i>Hyalopterus pruni</i>	4	17	17	120	14	1286	1300	1336	403	2284	11
<i>Hyperomyzus lactucae</i>		3			8	67	19	43	39	37	
<i>Macrosiphum euphorbiae</i>					17	3	19	59	13	25	3
<i>Megoura viciae</i>		1	1		1	1	4	9		6	1
<i>Metapolophium dirhodum</i>	24	19	7	9	17	967	128	172	1207	351	19
<i>Metapolophium festucae</i>		1		1		23	15	12	19	21	4
<i>Myzus ascalonicus</i>	1	1				1	4	2	2	1	1
<i>Myzus ornatus</i>		1						2		8	1
<i>Myzus persicae</i>				1	6	76	61	49	309	325	6
<i>Nasonovia ribis nigri</i>			1	2		11	9	12	10	14	
<i>Pemphigus</i> spp. } Prociphilines }			1			2		9	44	5	
<i>Phyllaphis fagi</i>	5	4	15	7	3	91	38	236		46	
<i>Pentatrachopus fragaefolii</i>											
<i>Phorodon humuli</i>		1	1	2		182	167	525	22	978	
<i>Rhopalosiphum insertum</i>		2		19	6	546	1125	1347	164	559	14
<i>Rhopalosiphum maidis</i>	5	4	2	1		14	6	6	20	41	
<i>Rhopalosiphum padi</i>	8	9	22	43	14	275	29	123	286	558	18
<i>Sitobion avenae</i>		2	4	2	34	304	161	402	96	466	19
<i>Sitobion fragariae</i>	3			2		139	142	502	11	232	

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TABLE 1(d)

The Rothamsted Insect Survey—Suction Traps: 4-weekly total catches of aphids of economic interest reported in the Weekly Bulletin

Week Nos 29–32: 16 July–12 August

Species	Dundee	Edinburgh	Newcastle	High Mowthorpe	Aberystwyth	Brooms Barn	Rothamsted	Silwood Park	Zeeland	Wye, Kent	Rosewarne
<i>Acyrtosiphon pisum</i>	17	11	6	108	6	1595	524	150	10	83	2
<i>Aphis fabae</i>	31	191	124	877	102	3846	2177	1006	300	641	63
<i>Aphis frangulae</i>	2		4	7	4	83	41	16	28	35	
<i>Aphis idaei</i>							1				
<i>Aphis nasturtii</i>		1	3	9	4	112	105	30	16	14	1
<i>Amphorophora</i> spp.	1	1				1	2	1			
<i>Aulacorthum solani</i>	1	5	1		1	4					
<i>Brachycaudus helichrysi</i>	12	49	14	23	3	403	107	95	24	39	4
<i>Brevicoryne brassicae</i>	2	3				50	62	8	1	2	14
<i>Cavariella aegopodii</i>	7	36	32	89	1	49	16	6	23	7	
<i>Cinara</i> spp.	2	4	6	2		2	1	2		5	
<i>Drepanosiphum platanoidis</i>	6	25	1	8	8	18	17	47		7	26
<i>Dysaphis plantaginea</i>	1	1	1			6	6	6	1	1	
<i>Elatobium abietinum</i>											
<i>Eriosoma ulmi</i>	24	20	9	4	1	14	5	1		4	1
<i>Hyalopterus pruni</i>	71	198	203	680	57	5366	3518	1476	1108	1857	26
<i>Hyperomyzus lactucae</i>	1	3	7	11	19	90	18	11	10	4	
<i>Macrosiphum euphorbiae</i>	19	70	12	18	62	73	77	82	37	29	1
<i>Megoura viciae</i>		1		3	1	27	20	7		6	1
<i>Metapolophium dirhodum</i>	638	1738	779	1590	39	5617	234	116	2143	36	11
<i>Metapolophium festucae</i>	1		15	28	3	21	5	5	3	4	
<i>Myzus ascalonicus</i>									7		
<i>Myzus ornatus</i>		1						2			
<i>Myzus persicae</i>	32	30	7	22	18	439	127	61	3603	281	4
<i>Nasonovia ribis nigri</i>			1		1	21	7	10	2	4	1
<i>Pemphigus</i> spp. } <i>Prociphilines</i> }	5	3	2		4	7	3	2	28	1	
<i>Phyllaphis fagi</i>						6	1	13		12	
<i>Pentatrachopus fragaefolii</i>											
<i>Phorodon humuli</i>		2		10		614	243	58	12	117	
<i>Rhopalosiphum insertum</i>	39	246	247	960	114	2301	3652	3308	830	1423	45
<i>Rhopalosiphum maidis</i>	66	101	210	68	52	26	19	22	15	44	
<i>Rhopalosiphum padi</i>	603	427	429	1066	46	2803	370	585	3172	249	26
<i>Sitobion avenae</i>	109	293	292	693	278	3970	1916	1701	1284	499	39
<i>Sitobion fragariae</i>	1	11	17	70	3	741	394	253	60	111	11

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TABLE 1(e)

The Rothamsted Insect Survey—Suction Traps: 4-weekly total catches of aphids of economic interest reported in the Weekly Bulletin

Week Nos 33–36: 13 August–9 September

Sites	Dundee	Edinburgh	Newcastle	High Mowthorpe	Aberystwyth	Brooms Barn	Rothamsted	Silwood Park	Zeeland	Wye, Kent	Rosewarne
Species											
<i>Acyrtosiphon pisum</i>	13	3	6	33	6	1	1	2			5
<i>Aphis fabae</i>	612	339	1821	509	266	7	11	5		11	7
<i>Aphis frangulae</i>	2	2		10	9	1			1	1	
<i>Aphis idaeii</i>				4							
<i>Aphis nasturtii</i>											
<i>Amphorophora</i> spp.	1										
<i>Aulacorthum solani</i>											
<i>Brachycaudus helichrysi</i>	98	27	8	15	48	10	64	7		16	17
<i>Brevicoryne brassicae</i>	2				3	7	8	20			5
<i>Cavariella aegopodii</i>	6	1	3	9							
<i>Cinara</i> spp.	4		3	1	1				1		
<i>Drepanosiphum platanoidis</i>	7	9	48	15	7	13	8	39		6	16
<i>Dysaphis plantaginea</i>	1							2			
<i>Elatobium abietinum</i>											
<i>Eriosoma ulmi</i>		2		3			10			2	2
<i>Hyalopterus pruni</i>	194	10	19	152	10	60	51	40	2	110	2
<i>Hyperomyzus lactucae</i>			2		1	1					
<i>Macrosiphum euphorbiae</i>	46	38	1	3	8						
<i>Megoura viciae</i>					1						
<i>Metapolophium dirhodum</i>	33	36	15	51	1						1
<i>Metapolophium festucae</i>		1	3								
<i>Myzus ascalonicus</i>											
<i>Myzus ornatus</i>				1							
<i>Myzus persicae</i>	60	20	4	27	10	1		2	2	4	3
<i>Nasonovia ribis nigri</i>				4							
<i>Pemphigus</i> spp. } Prociphilines }	12	4	28	40	69	16	3	14	2	6	4
<i>Phyllaphis fagi</i>		1									
<i>Pentatrachopus fragaefolii</i>											
<i>Phorodon humuli</i>	1		1							6	1
<i>Rhopalosiphum insertum</i>	137	270	1584	1300	100	30	52	44		60	79
<i>Rhopalosiphum maidis</i>	1	1	2	3	12	4				2	
<i>Rhopalosiphum padi</i>	446	260	1004	405	48	24	7	19	21	25	97
<i>Sitobion avenae</i>	183	103	84	318	81	30	26	31	4	35	25
<i>Sitobion fragariae</i>	6	5	11	24	2		2	1	1	1	2

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TABLE 1(f)

The Rothamsted Insect Survey—Suction Traps: 4-weekly total catches of aphids of economic interest reported in the Weekly Bulletin

Week Nos 37–40: 10 September–7 October

Species	Sites										
	Dundee	Edinburgh	Newcastle	High Mowthorpe	Aberystwyth	Brooms Barn	Rothamsted	Silwood Park	Zealand	Wye, Kent	Rosewarne
<i>Acyrtosiphon pisum</i>	1				4			2	2	7	5
<i>Aphis fabae</i>	180	60	93	1	112	12	2	7	3	98	19
<i>Aphis frangulae</i>					2	2					
<i>Aphis idaeii</i>											
<i>Aphis nasturtii</i>											
<i>Amphorophora</i> spp.											
<i>Aulacorthum solani</i>											
<i>Brachycaudus helichrysi</i>	21	62	6	3	68	25	44	20	1	1	18
<i>Brevicoryne Brassicae</i>	7			1		1	17	8		40	11
<i>Cavariella aegopodii</i>			5	1	2	1				2	
<i>Cinara</i> spp.			1								
<i>Drepanosiphum platanoidis</i>	21	33	23	13	8	3	10	4		4	63
<i>Dysaphis plantaginea</i>						10	9	35	2	28	2
<i>Elatobium abietinum</i>											
<i>Eriosoma ulmi</i>	3	1		1		14	10	12	3	35	6
<i>Hyalopterus pruni</i>	192	4		2		6	3	16	7	9	1
<i>Hyperomyzus lactucae</i>	2				5	2	2	2	2	16	1
<i>Macrosiphum euphorbiae</i>	9	4			1						
<i>Megoura viciae</i>											
<i>Metapolophium dirhodum</i>	10	4	2		2					4	
<i>Metapolophium festucae</i>		1			1						1
<i>Myzus ascalonicus</i>					6						
<i>Myzus ornatus</i>						1					
<i>Myzus persicae</i>	24	10		2	60	8	13	11	5	161	19
<i>Nasonovia ribis nigri</i>					17	1	1	6		3	1
<i>Pemphigus</i> spp. }	54	51	30	5	142	372	79	43	110	240	21
<i>Prociphilines</i>											
<i>Phyllaphis fagi</i>											
<i>Pentatrachopus fragaefolii</i>											
<i>Phorodon humuli</i>						1		10		1473	
<i>Rhopalosiphum insertum</i>	469	613	1242	183	3337	284	181	355	31	450	244
<i>Rhopalosiphum maidis</i>	11	8	9		24	1	2	2	2	6	
<i>Rhopalosiphum padi</i>	2456	1063	1402	151	2333	985	380	1082	816	3766	393
<i>Sitobion avenae</i>			4	1	10			5		12	5
<i>Sitobion fragariae</i>	1		1		8				2	3	

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TABLE 1(g)

The Rothamsted Insect Survey—Suction Traps: 4-weekly total catches of aphids of economic interest reported in the Weekly Bulletin

Week Nos 41–44: 8 October–4 November

Sites	Dundee	Edinburgh	Newcastle	High Mowthorpe	Aberystwyth	Brooms Barn	Rothamsted	Silwood Park	Zeeland	Wye, Kent	Rosewarne
Species											
<i>Acyrtosiphon pisum</i>					2				4	5	
<i>Aphis fabae</i>	31	15	6	3	38	18	16	10	6	38	10
<i>Aphis frangulae</i>											
<i>Aphis idaei</i>										1	
<i>Aphis nasturtii</i>											
<i>Amphorophora</i> spp.											
<i>Aulacorthum solani</i>						4				7	4
<i>Brachycaudus helichrysi</i>	6	8	2	3		13	21	10	4	20	6
<i>Brevicoryne brassicae</i>	13		1		1	1	12	22	1	26	9
<i>Cavariella aegopodii</i>	2	1	2		5	3	1		1	4	1
<i>Cinara</i> spp.		1	2				1	2		4	
<i>Drepanosiphum platanoidis</i>	23	27	3	18	23	5	18	21	1	3	10
<i>Dysaphis plantaginea</i>		2	3	3		2	8	13		9	11
<i>Elatobium abietinum</i>											
<i>Eriosoma ulmi</i>	15	31	18	3		16	22	6	5	28	1
<i>Hyalopterosus pruni</i>	1					5	1	3	1	4	
<i>Hyperomyzus lactucae</i>	2	1	3	2	6	5	10	3		75	
<i>Macrosiphum euphorbiae</i>	2	1			9		1	1		7	
<i>Megoura viciae</i>											
<i>Metapolophium dirhodum</i>	12	11			7	1	1	3	5	48	2
<i>Metapolophium festucae</i>		2	2		7	1		1		3	
<i>Myzus ascalonicus</i>		1			10		2	2	1	2	2
<i>Myzus ornatus</i>							1				
<i>Myzus persicae</i>	38	48	6	11	130	65	44	48	46	331	27
<i>Nasonovia ribis nigri</i>		1		1	24	5	7	3		9	3
<i>Pemphigus</i> spp. }	170	159	275	36	55	1294	414	402	95	1027	46
Prociphilines }											
<i>Phyllaphis fagi</i>		1									2
<i>Pentatrichopus fragaefolii</i>											
<i>Phorodon humuli</i>			1			1				67	
<i>Rhopalosiphum insertum</i>	2490	3134	3271	741	13317	1804	1057	1724	394	5304	1730
<i>Rhopalosiphum maidis</i>	4	5			7	3	4	1		5	3
<i>Rhopalosiphum padi</i>	3558	3987	2040	558	6431	3293	1758	2942	3176	9575	352
<i>Sitobion avenae</i>	2	2			12	3	17	9	2	55	7
<i>Sitobion fragariae</i>	6	6	4		217	8	7	58	10	188	24

Table 2

*The Rothamsted Insect Survey—Light Traps: two years' records of the moths
of economic interest (1967 and 1968)*

See pages 178–185

M

ROTHAMSTED REPORT FOR 1969, PART 2

TABLE
The Rothamsted Insect Survey—Light Traps: two years'

Pest Species	Year	89 Sandwick	57 Ardross	58 Newton	49 Fort Augustus	38 Killiecrankie	29 Rannoch	60 Aros	48 Kindrogan	47 Dundee	82 Dunblane	97 Rowardennan	98 Auchencruive
<i>Gortyna micacea</i> Rosy Rustic	1967	—	132	136	63	15	70	39	50	7	—	—	—
	1968	140	297	104	82	89	145	228	171	32	97	3	18
<i>Bupalus piniaria</i> Bordered white	1967	—	0	—	2	0	0	0	0	0	—	—	—
	1968	0	0	2	6	0	0	0	0	0	0	0	0
<i>Panolis flammea</i> Pine Beauty	1967	—	0	0	5	38	29	0	0	0	—	—	—
	1968	0	0	5	9	0	4	0	0	0	0	0	0
<i>Cerapteryx graminis</i> Antler Moth	1967	—	18	26	83	114	111	87	24	7	—	—	—
	1968	348	13	29	194	18	78	342	101	9	35	79	13
<i>Erannis aurantiaria</i> Scarce Umber	1967	—	19	1	36	15	86	0	1	0	—	—	—
	1968	0	32	3	103	37	146	2	23	0	0	17	0
<i>Operophtera fagata</i> Northern Winter Moth	1967	—	3	0	4	10	146	0	0	0	—	—	—
	1968	0	6	5	16	20	136	0	0	1	0	22	0
<i>Apamea sordens</i> Rustic Shoulder Knot	1967	—	0	0	0	1	0	0	4	8	—	—	—
	1968	0	1	0	3	3	0	0	0	3	3	0	1
<i>Gortyna flavago</i> Frosted Orange	1967	—	0	0	0	0	0	0	0	0	—	—	—
	1968	0	0	4	0	4	0	0	0	2	0	0	0
<i>Mamestra brassicae</i> Cabbage Moth	1967	—	0	0	0	0	0	0	0	0	—	—	—
	1968	0	0	0	0	0	0	0	0	8	5	0	0
<i>Noctua pronuba</i> Large Yellow Underwing	1967	—	0	16	3	35	0	13	0	5	—	—	—
	1968	0	4	20	4	35	0	5	20	14	24	10	12
<i>Diataraxia oleracea</i> Bright-line Brown-eye	1967	—	0	13	0	2	0	6	0	1	—	—	—
	1968	0	0	13	0	0	0	8	0	2	2	0	6
<i>Euxoa nigricans</i> Garden Dart	1967	—	0	0	0	0	0	0	0	0	—	—	—
	1968	0	0	1	0	0	4	0	1	1	1	0	0
<i>Apamea secalis</i> Common Rustic	1967	—	1	35	22	3	0	34	0	11	—	—	—
	1968	0	0	100	22	6	0	15	0	21	40	1	68

ROTHAMSTED INSECT SURVEY

2(a)

records of the moths of economic interest (1967 and 1968)

	100 Carlisle	39 Chester le Street	72 Castletown, I.O.M.	45 Malham Tarn	40 Lancaster	68 Harrogate	10 Bradford	85 Prestwich	35 Bangor	77 Maentwrog	79 Shardlow	61 Sutton Bonington	Year	Pest Species
—	3	—	0	7	39	24	—	1	—	—	—	—	1967	<i>Gortyna micacea</i>
10	4	64	0	7	44	17	4	0	7	30	3	1968	Rosy Rustic	
—	0	—	0	0	0	0	—	0	—	—	—	—	1967	<i>Bupalus piniaria</i>
0	0	0	0	0	0	0	0	0	0	0	0	0	1968	Bordered white
—	0	—	0	0	0	0	—	0	—	—	—	—	1967	<i>Panolis flammea</i>
0	0	0	0	0	0	0	0	0	0	0	0	0	1968	Pine Beauty
—	0	—	17	0	2	0	—	3	—	—	—	—	1967	<i>Cerapteryx graminis</i>
2	0	7	24	1	0	0	0	5	98	6	0	0	1968	Antler Moth
—	0	—	1	0	0	0	—	0	—	—	—	—	1967	<i>Erannis aurantiaria</i>
0	0	0	47	0	3	0	0	1	87	0	1	0	1968	Scarce Umber
—	1	—	10	0	0	0	—	0	—	—	—	—	1967	<i>Operophtera fagata</i>
0	0	0	18	0	0	0	0	0	105	0	0	0	1968	Northern Winter Moth
—	0	—	1	0	0	2	—	0	—	—	—	—	1967	<i>Apamea sordens</i>
1	7	0	1	2	1	3	6	0	0	0	8	2	1968	Rustic Shoulder Knot
—	1	—	0	0	4	10	—	0	—	—	—	—	1967	<i>Gortyna flavago</i>
1	0	0	0	1	2	1	0	0	0	0	0	5	1968	Frosted Orange
—	11	—	0	1	1	5	—	11	—	—	—	—	1967	<i>Mamestra brassicae</i>
1	19	0	0	2	2	15	11	29	0	5	2	2	1968	Cabbage Moth
—	3	—	8	16	13	9	—	83	—	—	—	—	1967	<i>Noctua pronuba</i>
26	8	38	6	13	17	16	2	46	7	41	10	26	1968	Large Yellow Underwing
—	3	—	0	2	4	2	—	0	—	—	—	—	1967	<i>Diataraxia oleracea</i>
1	4	18	0	5	4	6	4	4	1	13	32	31	1968	Bright-line Brown-eye
—	2	—	0	0	1	0	—	0	—	—	—	—	1967	<i>Euxoa nigricans</i>
1	3	0	0	0	0	0	1	0	0	0	0	0	1968	Garden Dart
—	29	—	0	22	29	17	—	45	—	—	—	—	1967	<i>Apamea secalis</i>
7	18	66	0	27	31	4	5	44	2	191	28	162	1968	Common Rustic

ROTHAMSTED REPORT FOR 1969, PART 2

TABLE
The Rothamsted Insect Survey—Light Traps: two years'

Pest Species	Year	23 St. Ives	88 Brooms Barn	18 Flatford Mill	31 Dunmow	1 Rothamsted (Barnfield)	34 Rothamsted (Allotments)	22 Rothamsted (Geescroft)	87 Writtle	17 Dale Fort	73 Orierton	90 Isleworth
<i>Gortyna micacea</i> Rosy Rustic	1967	—	—	6	1	5	27	1	—	—	19	—
	1968	1	2	23	17	2	0	1	4	6	99	0
<i>Bupalus piniaria</i> Bordered white	1967	—	—	0	0	0	0	0	—	0	0	—
	1968	0	0	0	0	0	0	0	0	0	0	0
<i>Panolis flammea</i> Pine Beauty	1967	—	—	0	0	0	0	0	—	0	0	—
	1968	0	0	0	0	0	0	0	0	0	0	0
<i>Cerapteryx graminis</i> Antler Moth	1967	—	—	0	0	0	1	0	—	0	4	—
	1968	0	0	0	0	0	0	0	0	0	22	0
<i>Erannis aurantiaria</i> Scarce Umber	1967	—	—	0	0	1	0	8	—	0	—	—
	1968	0	0	2	0	0	0	28	0	0	0	0
<i>Operophtera fagata</i> Northern Winter Moth	1967	—	—	0	0	0	0	0	—	0	0	—
	1968	0	0	0	0	0	0	0	0	0	0	0
<i>Apamea sordens</i> Rustic Shoulder Knot	1967	—	—	0	0	0	6	0	—	0	0	—
	1968	2	5	0	0	4	1	0	7	0	0	0
<i>Gortyna flavago</i> Frosted Orange	1967	—	—	5	0	1	4	1	—	0	10	—
	1968	0	0	4	6	2	0	3	3	1	22	3
<i>Mamestra brassicae</i> Cabbage Moth	1967	—	—	1	7	0	0	0	—	1	1	—
	1968	9	1	9	2	1	0	1	3	1	0	6
<i>Noctua pronuba</i> Large Yellow Underwing	1967	—	—	3	1	5	8	112	—	3	7	—
	1968	2	6	4	4	7	9	72	31	6	4	4
<i>Diataraxia oleracea</i> Bright-line Brown-eye	1967	—	—	4	7	3	3	0	—	10	1	—
	1968	4	6	10	7	4	4	2	31	39	0	1
<i>Euxoa nigricans</i> Garden Dart	1967	—	—	0	0	0	1	1	—	0	0	—
	1968	0	0	0	0	0	0	0	6	0	0	0
<i>Apamea secalis</i> Common Rustic	1967	—	—	25	17	17	21	21	—	37	44	—
	1968	18	20	65	16	21	9	29	43	28	29	4

ROTHAMSTED INSECT SURVEY

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records of the moths of economic interest (1967 and 1968)

	16 Mortimer	93 Newton St. Loe	69 Wisley	46 Alice Holt	62 Wye	92 Nettlecombe Court	33 Dungeness	76 Iwerne Minster	74 Cullompton	78 Ringwood	67 Slapton Ley	102 Helston	Year	Pest Species
	1	—	6	14	2	—	10	—	—	—	20	—	1967	<i>Gortyna micacea</i>
	4	6	8	0	7	7	20	8	2	8	9	72	1968	Rosy Rustic
	0	—	0	0	0	—	0	—	—	—	0	—	1967	<i>Bupalus piniaria</i>
	0	0	0	0	0	0	0	0	0	0	0	0	1968	Bordered white
	0	—	0	1	0	—	0	—	—	—	0	—	1967	<i>Panolis flammea</i>
	1	0	0	0	0	0	0	0	0	0	0	0	1968	Pine Beauty
	0	—	1	3	0	—	0	—	—	—	0	—	1967	<i>Cerapteryx graminis</i>
	0	0	0	3	0	0	3	0	0	0	0	1	1968	Antler Moth
	6	—	16	16	0	—	0	—	—	—	0	—	1967	<i>Erannis aurantiaria</i>
	7	0	3	10	0	2	0	1	0	12	0	0	1968	Scarce Umber
	0	—	11	0	0	—	0	—	—	—	0	—	1967	<i>Operophtera fagata</i>
	0	0	3	22	0	0	0	0	0	0	0	0	1968	Northern Winter Moth
	0	—	2	0	0	—	5	—	—	—	0	—	1967	<i>Apamea sordens</i>
	0	1	1	0	3	0	2	0	0	0	0	0	1968	Rustic Shoulder Knot
	0	—	0	0	0	—	1	—	—	—	2	—	1967	<i>Gortyna flavago</i>
	0	1	2	2	7	4	5	4	0	0	1	0	1968	Frosted Orange
	1	—	0	0	0	—	1	—	—	—	8	—	1967	<i>Mamestra brassicae</i>
	1	13	0	0	1	0	7	3	12	0	6	30	1968	Cabbage Moth
	16	—	3	5	7	—	0	—	—	—	17	—	1967	<i>Noctua pronuba</i>
	43	17	20	18	14	8	6	34	9	2	1	10	1968	Large Yellow Underwing
	1	—	3	0	1	—	1	—	—	—	10	—	1967	<i>Diataraxia oleracea</i>
	2	3	6	0	9	7	11	4	12	0	5	0	1968	Bright-line Brown-eye
	0	—	0	0	0	—	0	—	—	—	0	—	1967	<i>Euxoa nigricans</i>
	0	0	0	0	0	0	0	0	0	0	0	0	1968	Garden Dart
	9	—	30	4	12	—	16	—	—	—	47	—	1967	<i>Apamea secalis</i>
	46	96	64	12	7	29	49	16	15	6	12	0	1968	Common Rustic

ROTHAMSTED REPORT FOR 1969, PART 2

TABLE
*The Rothamsted Insect Survey—Light traps: two years**

Pest Species	Year	89 Sandwick	57 Ardross	58 Newton	49 Fort Augustus	38 Killiecrankie	29 Rannoch	60 Aros	48 Kindrogan	47 Dundee	82 Dunblane	97 Rowardennan	98 Auchencruive
<i>Melanchnra persicariae</i> Dot Moth	1967	—	0	0	0	0	0	0	0	0	—	—	—
	1968	0	0	0	0	0	0	0	0	0	0	0	0
<i>Operophtera brumata</i> Winter Moth	1967	—	14	5	35	77	43	10	19	2	—	—	—
	1968	3	52	10	28	21	15	12	68	3	2	97	1
<i>Abraxas grossulariata</i> Magpie Moth	1967	—	0	0	0	0	0	0	0	0	—	—	—
	1968	0	0	0	0	0	0	1	0	0	0	0	0
<i>Agrotis segetum</i> Turnip Moth	1967	—	0	0	0	0	0	0	0	0	—	—	—
	1968	0	0	1	0	0	0	0	0	0	0	0	0
<i>Erannis defoliaria</i> Mottled Umber	1967	—	3	1	42	20	16	0	33	2	—	—	—
	1968	0	9	8	47	5	9	0	119	1	0	75	0
<i>Phlogophora meticulosa</i> Angle Shades	1967	—	0	0	0	0	0	0	0	0	—	—	—
	1968	0	0	0	0	0	1	1	0	0	0	0	0
<i>Alsophila aescularia</i> March Moth	1967	—	2	4	0	1	0	1	0	0	—	—	—
	1968	0	4	10	2	0	0	1	0	1	1	198	0
<i>Hepialus humuli</i> Ghost Swift	1967	—	0	0	1	2	2	0	0	0	—	—	—
	1968	0	1	0	0	1	1	0	2	0	3	0	1
<i>Hepialus lupulina</i> Common Swift	1967	—	0	0	0	0	0	0	0	0	—	—	—
	1968	0	0	0	0	0	0	0	0	2	0	2	0
<i>Agrotis ipsilon</i> Dark Sword Grass	1967	—	1	1	0	0	0	0	0	0	—	—	—
	1968	0	1	1	0	0	0	0	0	0	0	0	0
<i>Euproctis chrysorrhoea</i> Brown Tail	1967	—	0	0	0	0	0	0	0	0	—	—	—
	1968	0	0	0	0	0	0	0	0	0	0	0	0
<i>Agrotis exclamationis</i> Heart and Dart	1967	—	0	0	1	18	0	0	1	1	—	—	—
	1968	0	0	3	0	22	0	0	0	6	4	0	3
<i>Plusia gamma</i> Silver Y	1967	—	0	0	1	0	0	0	1	0	—	—	—
	1968	4	1	3	3	2	1	4	3	0	1	0	1

ROTHAMSTED INSECT SURVEY

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records of the moths of economic interest (1967 and 1968)

	100 Carlisle	39 Chester le Street	72 Castletown, I.O.M.	45 Malham Tarn	40 Lancaster	68 Harrogate	10 Bradford	85 Prestwich	35 Bangor	77 Maentwrog	79 Shardlow	61 Sutton Bonington	Year	Pest Species
	—	0	—	0	1	1	0	—	0	—	—	7	1967	<i>Melanchra persicariae</i>
	0	0	0	0	0	1	1	2	0	3	11	8	1968	Dot Moth
	—	1	—	30	0	11	0	—	1	—	—	9	1967	<i>Operophtera brumata</i>
	1	0	1	68	0	2	0	0	0	78	2	4	1968	Winter Moth
	—	47	—	0	1	13	105	—	3	—	—	3	1967	<i>Abraxas grossulariata</i>
	0	18	11	0	1	28	59	2	0	3	9	7	1968	Magpie Moth
	—	0	—	0	0	0	0	—	0	—	—	0	1967	<i>Agrotis segetum</i>
	0	0	1	0	0	1	0	0	1	0	0	5	1968	Turnip Moth
	—	0	—	4	0	4	0	—	0	—	—	0	1967	<i>Erannis defoliaria</i>
	0	0	14	18	0	5	0	0	0	1844	3	0	1968	Mottled Umber
	—	2	—	0	1	0	1	—	6	—	—	0	1967	<i>Phlogophora meticulosa</i>
	0	0	21	0	1	2	4	0	13	8	6	0	1968	Angle Shades
	—	0	—	0	0	6	0	—	0	—	—	2	1967	<i>Alsophila aescularia</i>
	0	0	0	0	0	5	0	0	0	65	5	6	1968	March Moth
	—	0	—	0	1	1	2	—	0	—	—	3	1967	<i>Hepialus humuli</i>
	0	1	0	0	3	0	0	0	0	0	2	1	1968	Ghost Swift
	—	0	—	0	0	40	4	—	0	—	—	9	1967	<i>Hepialus lupulina</i>
	1	1	0	0	1	9	0	0	0	0	77	24	1968	Common Swift
	—	0	—	0	0	0	2	—	0	—	—	0	1967	<i>Agrotis ipsilon</i>
	1	0	9	0	0	1	0	0	4	8	0	0	1968	Dark Sword Grass
	—	0	—	0	0	0	0	—	0	—	—	0	1967	<i>Euproctis chrysorrhoea</i>
	0	0	0	0	0	0	0	0	0	0	0	0	1968	Brown Tail
	—	5	—	0	2	13	0	—	16	—	—	37	1967	<i>Agrotis exclamationis</i>
	7	5	59	0	15	20	0	6	25	2	314	121	1968	Heart and Dart
	—	24	—	3	7	14	10	—	1	—	—	3	1967	<i>Plusia gamma</i>
	8	47	60	12	5	13	8	3	7	13	15	14	1968	Silver Y

ROTHAMSTED REPORT FOR 1969, PART 2

TABLE
The Rothamsted Insect Survey—Light Traps: two years'

Pest Species	Year	23 St. Ives	88 Brooms Barn	18 Flatford Mill	31 Dunmow	1 Rothamsted (Barnfield)	34 Rothamsted (Allotments)	22 Rothamsted (Geescroft)	87 Writtle	17 Dale Fort	73 Orierton	90 Isleworth
<i>Melanchra persicariae</i> Dot Moth	1967	—	—	3	25	6	1	1	—	3	3	—
	1968	1	11	3	34	3	0	0	6	9	1	0
<i>Operophtera brumata</i> Winter Moth	1967	—	—	5	0	2	1	114	—	6	6	—
	1968	0	1	11	2	2	1	107	0	3	10	10
<i>Abraxas grossulariata</i> Magpie Moth	1967	—	—	8	13	10	43	123	—	74	23	—
	1968	7	3	20	28	9	1	96	1	183	54	5
<i>Agrotis segetum</i> Turnip Moth	1967	—	—	0	1	0	3	2	—	0	0	—
	1968	6	14	0	0	6	5	3	61	0	0	0
<i>Erannis defoliaria</i> Mottled Umber	1967	—	—	2	0	0	0	50	—	1	7	—
	1968	0	1	2	0	0	0	48	0	0	6	0
<i>Phlogophora meticulosa</i> Angle Shades	1967	—	—	12	0	0	2	7	—	13	4	—
	1968	3	3	27	2	0	2	5	2	12	2	1
<i>Alsophila aescularia</i> March Moth	1967	—	—	6	0	0	0	11	—	0	9	—
	1968	3	4	23	6	4	1	35	6	1	6	0
<i>Hepialus humuli</i> Ghost Swift	1967	—	—	0	0	3	1	1	—	0	1	—
	1968	0	0	2	0	3	0	7	0	0	1	0
<i>Hepialus lupulina</i> Common Swift	1967	—	—	1	1	12	18	3	—	23	2	—
	1968	39	1	8	3	9	0	12	7	7	1	0
<i>Agrotis ipsilon</i> Dark Sword Grass	1967	—	—	0	0	0	0	1	—	3	1	—
	1968	0	1	2	0	0	0	0	0	9	2	0
<i>Euproctis chrysorrhoea</i> Brown Tail	1967	—	—	0	1	0	0	0	—	0	0	—
	1968	0	0	0	0	0	0	0	0	0	0	0
<i>Agrotis exclamationis</i> Heart and Dart	1967	—	—	11	57	33	19	14	—	29	8	—
	1968	93	83	33	105	66	33	24	599	27	32	6
<i>Plusia gamma</i> Silver Y	1967	—	—	23	2	5	15	8	—	20	10	—
	1968	12	16	21	4	4	4	31	73	48	30	0

ROTHAMSTED INSECT SURVEY

2(d)

records of the moths of economic interest (1967 and 1968)

											Year	Pest Species	
16	93	69	46	62	92	33	76	74	78	67	102		
Mortimer	Newton St. Loe	Wisley	Alice Holt	Wye	Nettlecombe Court	Dungeness	Iwerne Minster	Cullompton	Ringwood	Slapton Ley	Helston		
2	—	2	1	8	—	0	—	—	—	49	—	1967	<i>Melanchra persicariae</i>
2	0	2	0	14	0	0	3	1	0	12	0	1968	Dot Moth
84	—	15	40	13	—	0	—	—	—	9	—	1967	<i>Operophtera brumata</i>
34	0	25	12	0	44	0	15	11	8	9	1	1968	Winter Moth
83	—	2	1	9	—	8	—	—	—	24	—	1967	<i>Abraxas grossulariata</i>
215	13	1	0	7	18	4	28	56	3	10	223	1968	Magpie Moth
1	—	0	1	0	—	3	—	—	—	0	—	1967	<i>Agrotis segetum</i>
0	0	0	0	1	5	2	0	4	0	0	4	1968	Turnip Moth
24	—	16	29	1	—	0	—	—	—	1	—	1967	<i>Erannis defoliaria</i>
24	5	21	19	0	15	0	4	1	11	2	2	1968	Mottled Umber
1	—	4	3	0	—	0	—	—	—	3	—	1967	<i>Phlogophora meticulosa</i>
4	3	2	0	3	25	1	7	3	1	4	5	1968	Angle Shades
0	—	26	7	7	—	0	—	—	—	19	—	1967	<i>Alsophila aescularia</i>
6	4	7	10	3	6	0	9	6	5	15	0	1968	March Moth
1	—	3	5	1	—	0	—	—	—	4	—	1967	<i>Hepialus humuli</i>
1	0	2	5	1	0	0	0	1	0	1	2	1968	Ghost Swift
9	—	1	1	1	—	39	—	—	—	0	—	1967	<i>Hepialus lupulina</i>
19	0	2	2	23	0	55	2	2	2	1	0	1968	Common Swift
1	—	0	1	1	—	3	—	—	—	2	—	1967	<i>Agrotis ipsilon</i>
0	1	1	0	0	12	1	0	1	1	1	8	1968	Dark Sword Grass
0	—	0	0	0	—	32	—	—	—	0	—	1967	<i>Euproctis chrysorrhoea</i>
0	0	0	0	0	0	83	0	0	0	0	0	1968	Brown Tail
4	—	28	23	34	—	84	—	—	—	97	—	1967	<i>Agrotis exclamationis</i>
30	57	66	48	361	56	139	19	25	0	44	68	1968	Heart and Dart
12	—	77	16	12	—	24	—	—	—	60	—	1967	<i>Plusia gamma</i>
26	155	112	37	45	119	22	132	120	2	35	30	1968	Silver Y