GMS News

Early Summer 2018

Weeks 10-18

Contents

Editorial – Norman Lowe

It is getting close to the time when we need to organise the 2019 GMS Annual Conference. A suggestion was made that perhaps we might arrange something somewhere around the north west part of England. Usually I take the initiative to get things started but this year I haven't been able to for reasons that I won't weary you with.

So…do people want a full national conference? If so, where and most importantly is there a volunteer or team to get the ball rolling? Or, would we prefer to think of something different such as a number of local meetings around the country? Please give this some thought and let me have any suggestions at my usual email address norman@enviro-consulting.com or alternatively drop a line to Helen and Stephen Passey at gardenmothscheme@gmail.com

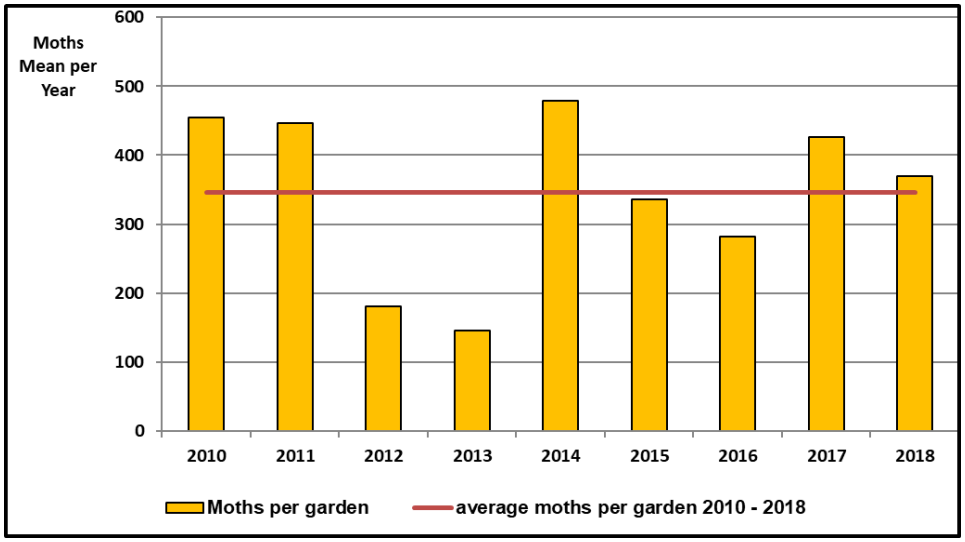
Overview GMS 2018 2nd Quarter – Evan Lynn

After a poor winter followed by a cold wet spring, temperatures rose in May and June to give us hours of prolonged sunshine, but alas along with some very cold nights which depressed the numbers of moths being caught. For many this has been a glorious time but the effect on nature has not been quite so kind, with drought conditions severely stressing both plants and animals.

Yearly Comparisons

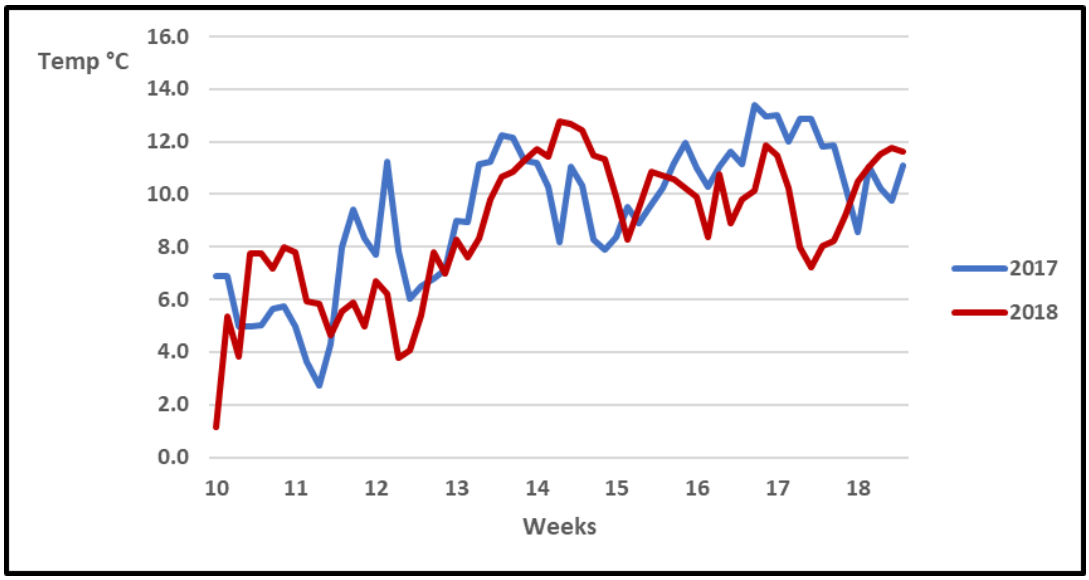
The hot days and cold nights in May did little to encourage foraging moths, resulting in an appreciable drop in moth numbers compared to the same time last year (2017) – see Fig 1.

Fig 1. GMS 2010 - 2018 Q2. Mean Quarterly Moth Numbers



I was intrigued by the drop in 2018 moth numbers from 2017 and so I compared the mean minimum temperatures for these two years. (Fig 2). The 2017 temperatures exceeded those of 2018 on 35 out of 61 days

Fig 2. GMS 2010 - 2018 Q2. Mean Minimum Temperatures for 2017 & 2018



Since Fig 1 applies to the whole GMS area I made a comparison of the individual regions for 2017 & 2018 to find out where this drop occurred (Fig 3). Apart from Wales and Ireland all regions showed a reduction in mean numbers.

Fig 3. GMS 2018 Q2. Mean Regional Quarterly Moth Numbers for 2017 & 2018

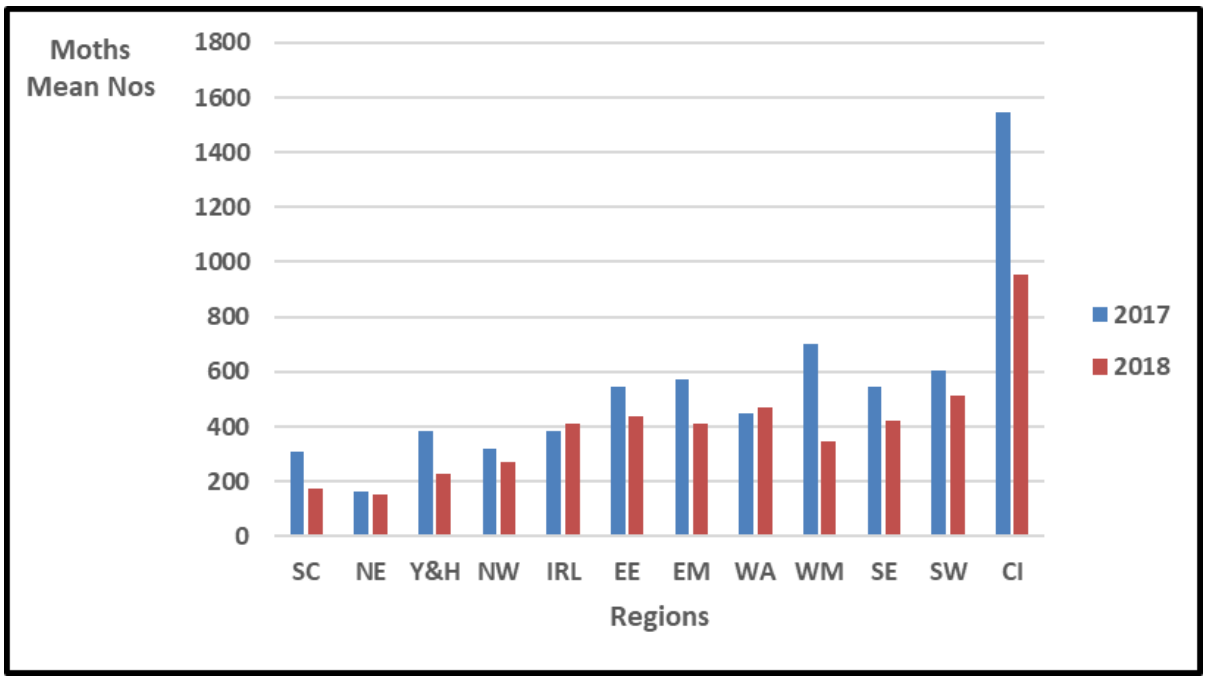


Table 1 shows the percentage change in mean numbers per region. One problem with using the mean is that the number of recorders from year to year is not constant. Greater or larger numbers of recorders, each with more or fewer moths can give misleading results so I have also included the actual loss or gain in moth numbers. While the Channel Islands shows a drop of 38% the total number of moths increased by 360 but the number of recorders doubled giving a lower mean. Conversely, Ireland showed a percentage increase though fewer moths were recorded as the recorders this year decreased by two.

Table 1. GMS Q2. Regional Percentage Change 2017 & 2018

Region	SC	NE	Y&H	NW	IRL	EE	EM	WA	WM	SE	SW	CI
% change	-43	-7	-40	-15	8	-19	-28	5	-51	-22	-15	-38
Diff in moths	-1000	-564	-3313	-1038	-103	-4032	-1400	3273	-9550	-8560	-8934	360

Temperature and Catches

Figures 4 and 5 show that the cold nights in the first four weeks of the quarter affected catches, resulting in a small number of moths and a lot of empty traps.

Fig 4. GMS 2018 Q2. Minimum Temperatures and Total Moth Catches

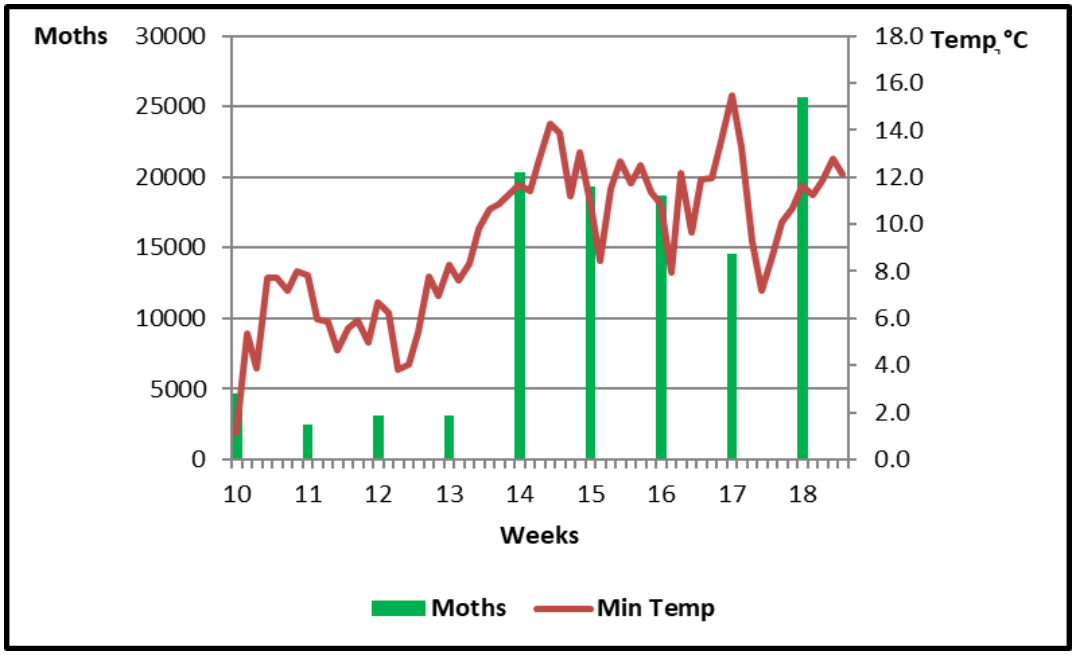
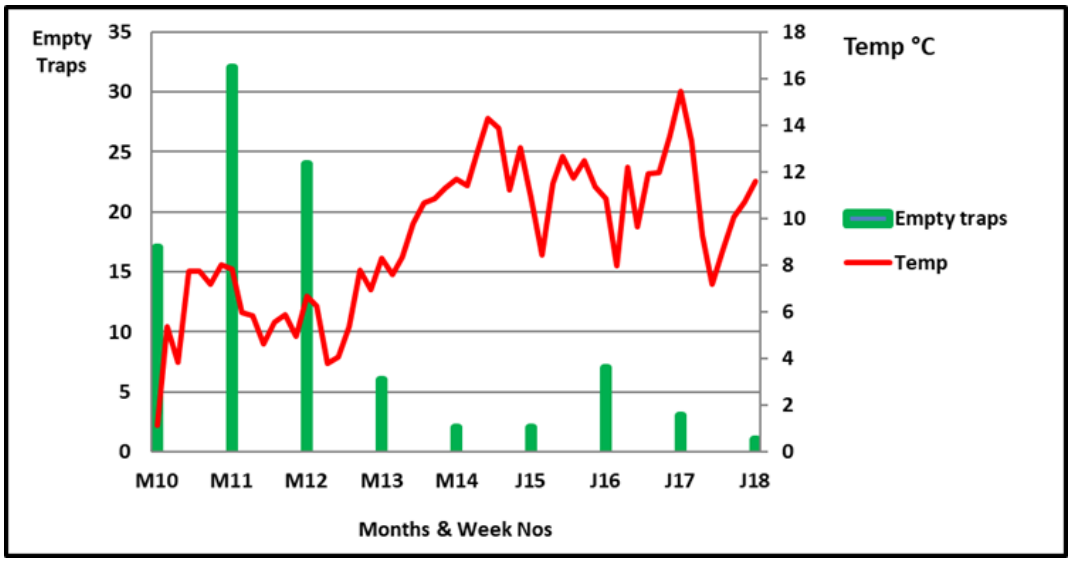
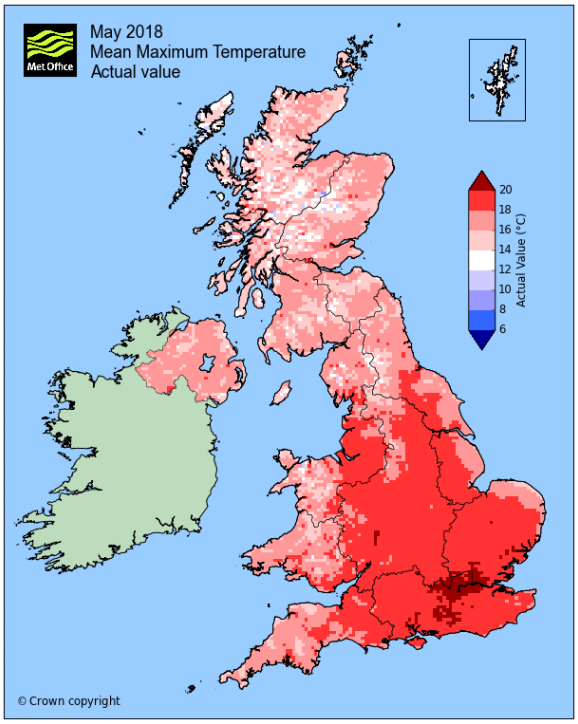


Fig 5. GMS 2018 Q2. Minimum Temperatures and Number of Empty Traps



May was very warm and sunny during the day in some parts of the UK though parts of the east coast were cool and cloudy due to the winds coming off the North Sea resulting from the jet stream forming an “omega “pattern which maintained a blocking high pressure over Western Europe. June followed with a slack weather system trapped by areas of low and high pressure. There was a brief interruption with the remains of Hurricane Chris bringing in heavy rain and strong winds to the west coast in mid-June. The hot weather also increased the number of thunderstorms in the South in May and this activity then shifted northwards during June. Figs 6 & 7 show the maximum average temperatures and lightning summaries for this quarter.

Fig 6. Mean Daily Maximum Temperatures for May & June 2018 (with permission of the Meteorological Office).



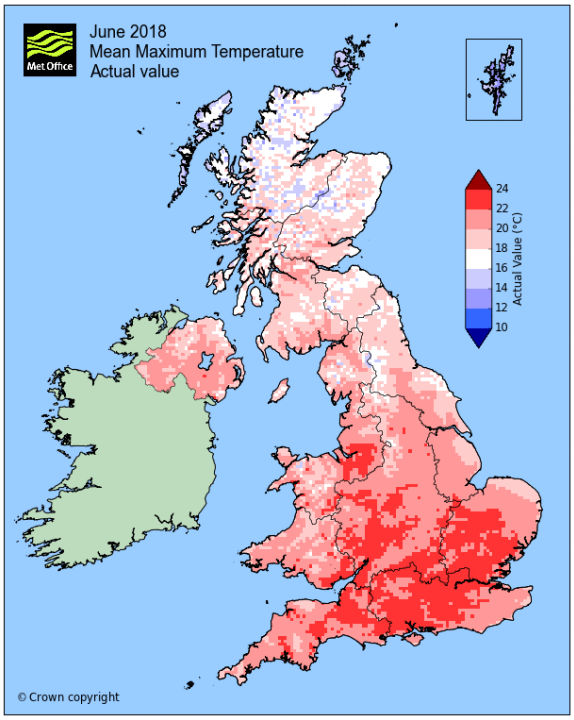
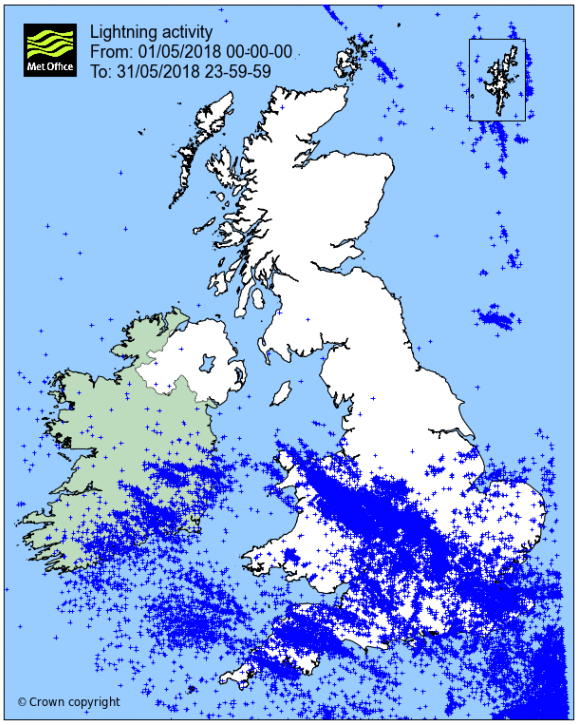
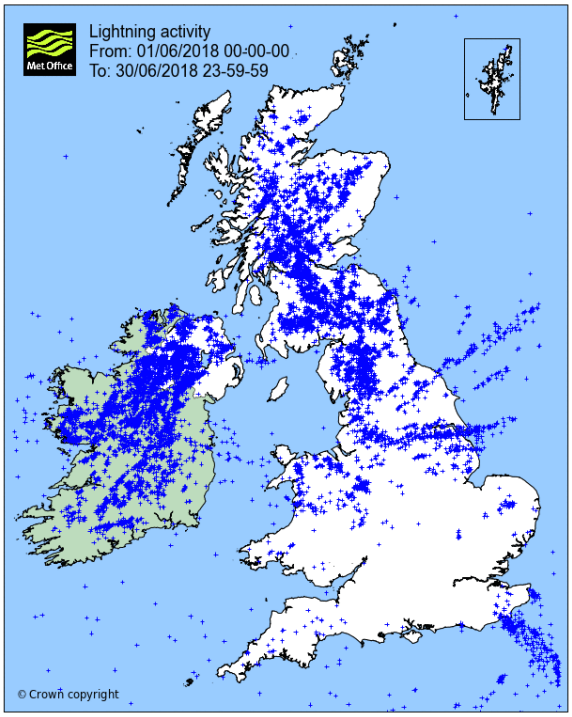


Fig 7. Lightning Activity for May & June 2018 (with permission of the Meteorological Office).

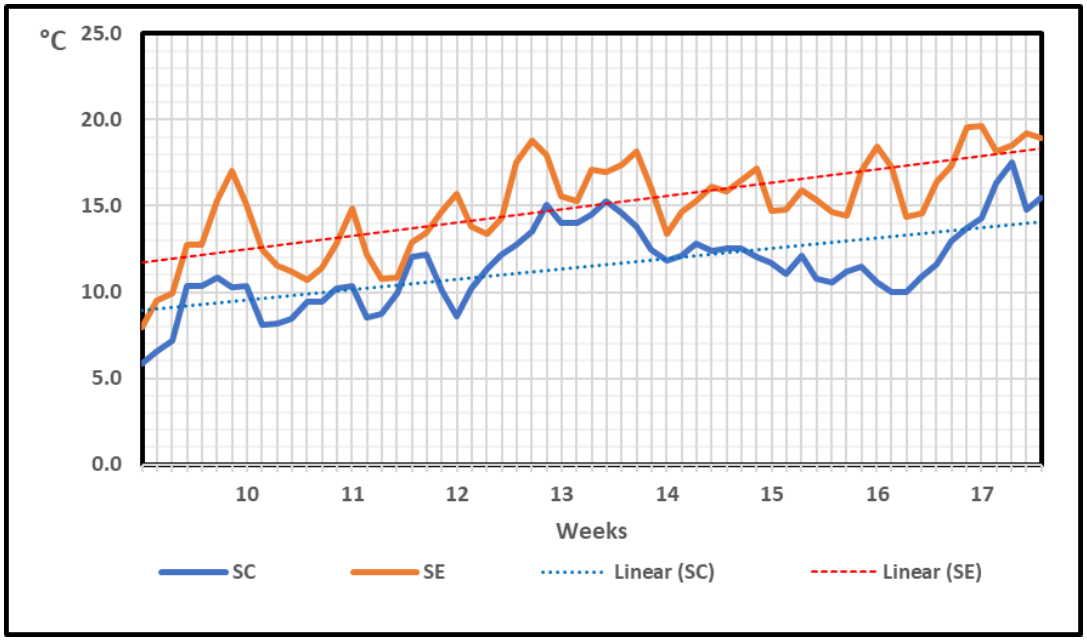




Regional Comparisons

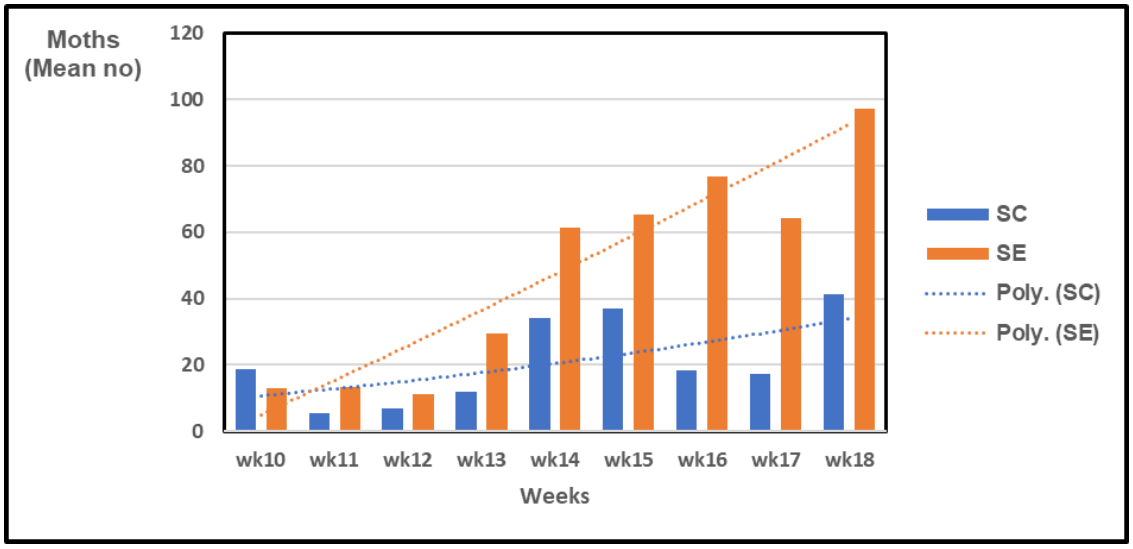
Following on from the temperature differences shown in Figures 4 and 5 I have chosen to compare Scotland with the South East of England this quarter. Figure 8 shows the average temperatures for the two regions. After a cold start the two temperatures steadily rise, albeit at different levels. As expected, the Scottish temperatures shown here are lower than the south east. However, some of the weather stations are on the coast and their temperatures may have been further depressed by the sea fog, or haar, which affected much of the coast during this time. When I was in Aberdeen in May I watched the temperature quickly drop several degrees as the fog rolled inland.

Fig 8. GMS 2018 Q2. Average Temperatures for Scotland and the South East



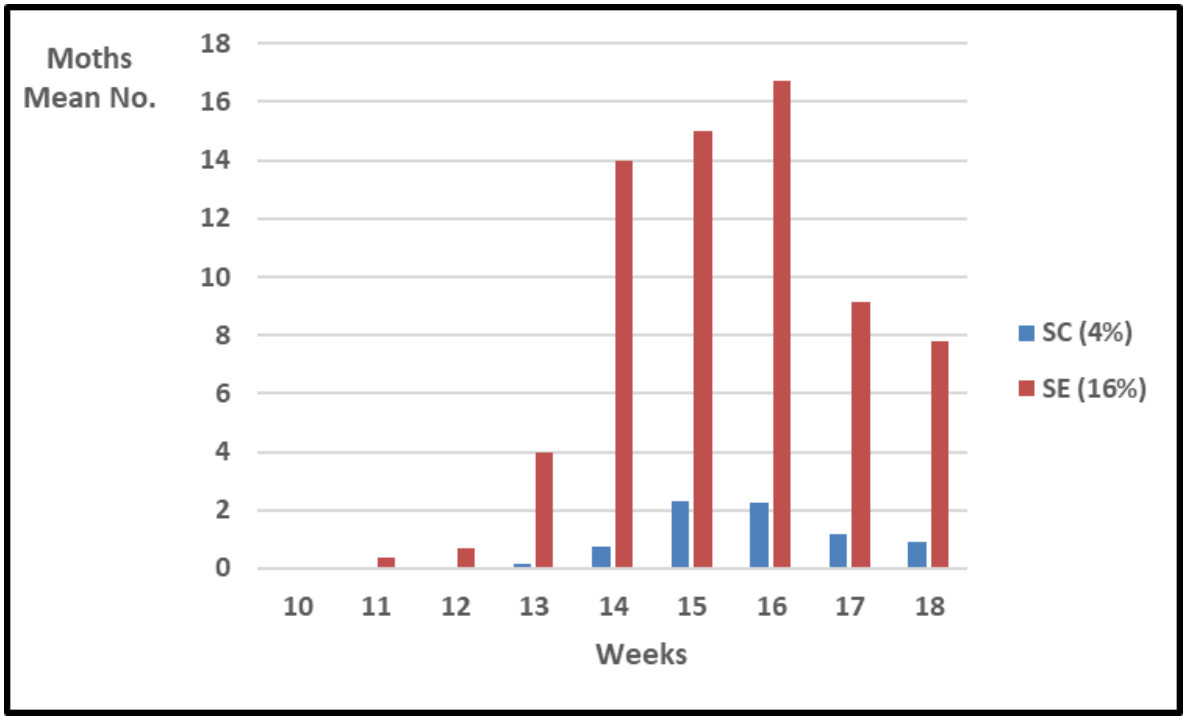
While the temperature trendlines (Fig 8) diverge slightly, those for the mean number of moths (Fig 9) show a wide separation.

Fig 9. GMS 2018 Q2. Moth Catches in Scotland and the South East



Although temperature is no doubt a factor, the abundance of individual species in one region compared with another helps to augment this difference. For instance, Figure 10 shows the mean numbers for the Heart and Dart, which is the South East's most abundant moth accounting for 16% of the total but which only ranks second in Scotland accounting for only 4% of the moths recorded.

Fig 10. GMS 2018 Q2. Mean Number of Heart and Dart in Scotland and the South East



The Heart and Dart – everyone's favourite?

Statistics

Figure 1 showed that the mean number of moths was down from last year for many species. Table 2 shows the differences in the core species between the two years. Some of the reductions will come as no surprise to many of you. The Large Yellow Underwing which normally crowds out the egg boxes has been notable by its paucity dropping to position number 17 from 9 last year. Also, there has been a significant decrease in the numbers of Garden Grass-veneer falling from second place to seventh. In contrast, the Buff and White Ermines have had a good year and the Hebrew Character is now in the top 20, possibly due to its later flight period this year.

The last two columns show for each species the total number of moths recorded and the maximum found on one night in a single trap. So somebody somewhere had 210 Heart and Darts in their trap at once!

Table 2. GMS Q2 2018. Top 20 Core Species

Position			Mean per Trap		Mean change		2018	
2017	2018		2017	2018			No. of moths	Max per trap
1	1	Heart and Dart	48.7	49.1	0.4		1274	210
11	2	Buff Ermine	9	10.1	1.1		787	29
3	3	Uncertain/Rustic agg.	15.2	9.6	-5.6		406	48
6	4	Marbled Minor agg.	11	8.5	-2.5		670	29
8	5	Flame Shoulder	10.3	8.2	-2.2		857	20
16	6	White Ermine	6.6	8	1.4		653	43
2	7	Garden Grass-veneer	16.7	7.9	-8.8		454	105
5	8	Light Brown Apple Moth	11.2	7.7	-3.5		743	35
10	9	Riband Wave	9.7	7.6	-2.2		506	42
12	10	Brimstone Moth	7.6	7.4	-0.2		832	63
13	11	Small Magpie	6.9	7.2	0.3		663	30
22	12	Treble Lines	4.6	6.4	1.8		368	31
43	13	Hebrew Character	2.6	6.3	3.7		436	44
18	14	Elephant Hawk-moth	5.3	6.2	0.9		548	44
17	15	Bright-line Brown-eye	6.1	5.9	-0.3		628	34
7	16	Dark Arches	10.8	5.8	-5		460	71
9	17	Large Yellow Underwing	10.1	5.8	-4.4		607	43
4	18	Flame	12.1	5.6	-6.4		539	42
15	19	Common Marbled Carpet	6.6	5.5	-1.1		644	35
25	20	Setaceous Hebrew Character	4.1	5.4	1.3		335	69
	315	Gardens 2018						
	357	Gardens 2017						

Breaking these figures down into regions, Table 3 shows the mean number of the top ten moths for each region with some doing better than others. The Heart and Dart mentioned earlier takes pole position in all but Scotland and the North East where it is in second place but in the Channel Islands it drops to fourth position. Here the Diamond Back Moth takes first place.

Table 3. GMS Q2 2018. Top 10 Regional Core Species

Scotland (24)	Mean	North East (22)	Mean	North West (41)	Mean
Hebrew Character	10.8	Hebrew Character	12	Heart and Dart	27.9
Heart and Dart	7.5	Heart and Dart	9.5	Buff Ermine	10.7
Pale-shouldered Brocade	6.4	Clouded Drab	6.1	Riband Wave	8
Small Square-spot	6.2	Large Yellow Underwing	6	Flame Shoulder	8
Flame Shoulder	6	White Ermine	5.7	Brimstone Moth	6.7
Brimstone Moth	5.5	Common Quaker	4.7	Ingrailed Clay	6.5
White Ermine	5.3	Silver-ground Carpet	4.5	Large Yellow Underwing	6.3
Common Quaker	5	Poplar Hawk-moth	3.5	Bee Moth	5.8
Silver-ground Carpet	4.3	Light Brown Apple Moth	3.1	Garden Grass-veneer	5.3
Double Square-spot	3.8	Bee Moth	3	Straw Dot	5.1
Yorks & Humber (14)	**Mean**	**Ireland (22)**	**Mean**	**East of England (33)**	**Mean**
Heart and Dart	27.3	Heart and Dart	27.7	Heart and Dart	69.3
Buff Ermine	10.2	White Ermine	18.4	Treble Lines	19.9
Straw Dot	9.5	Clouded-bordered Brindle	17	Uncertain/Rustic agg.	16.8
Small Magpie	8.1	Brimstone Moth	14.6	Marbled Minor agg.	15.8
Large Yellow Underwing	6.7	Small Square-spot	13.5	Garden Grass-veneer	13
Light Brown Apple Moth	6.6	Light Brown Apple Moth	13	Set Hebrew Character	11.8
Flame Shoulder	5.3	Hebrew Character	11.4	Cinnabar	9.2
Brimstone Moth	5.1	Dusky Brocade	9.5	Heart and Club	8.6
White Ermine	5.1	Buff Ermine	9.4	Dark Arches	8.5
Uncertain/Rustic agg.	4.9	Flame Shoulder	8.7	White Ermine	7.4
East Midlands (34)	**Mean**	**West Midlands (21)**	**Mean**	**Wales (43)**	**Mean**
Heart and Dart	68.9	Heart and Dart	57.9	Heart and Dart	64
Uncertain/Rustic agg.	16.3	Uncertain/Rustic agg.	12.6	Buff Ermine	21.6
Small Magpie	14.4	Middle-barred Minor	12	White Ermine	17.3
Light Brown Apple Moth	14.3	Buff Ermine	10.6	Flame Shoulder	14.7
Set Hebrew Character	14	Garden Grass-veneer	10.4	Flame	12.6
Brimstone Moth	10.8	Light Brown Apple Moth	10	Treble Lines	11.3
Dark Arches	10.6	Riband Wave	9.6	Hebrew Character	10.9
Riband Wave	10.4	Dark Arches	9	Marbled Minor agg.	10.1
Bright-line Brown-eye	10.4	Marbled Minor agg.	8.8	Elephant Hawk-moth	10
Marbled Minor agg.	9.8	Common Footman	8.7	Garden Grass-veneer	9.3
South East (35)	**Mean**	**Southwest (26)**	**Mean**	**Channel Islands (2)**	**Mean**
Heart and Dart	66.3	Heart and Dart	76.2	Diamond-back Moth	179.5
Uncertain/Rustic agg.	16.8	Uncertain/Rustic agg.	19.1	Orange Footman	118.5
Middle-barred Minor	11.9	Buff Ermine	13.8	Marbled Minor agg.	32
Buff Ermine	11.6	Small Magpie	13.3	Heart and Dart	20
Garden Grass-veneer	10.8	Marbled Minor agg.	13	White Ermine	18.5
Light Brown Apple Moth	10.8	Common Marbled Carpet	12.9	Shuttle-shaped Dart	18
Riband Wave	9.4	Riband Wave	12.7	Ingrailed Clay	17.5
Dark Arches	9.3	Straw Dot	12.6	Vine's Rustic	16
Marbled Minor agg.	8.7	Flame	12.4	Hebrew Character	14
Common Footman	8.5	Flame Shoulder	11.9	Flame Shoulder	14

Table 4 below compares the records received from each region for the quarter. The minimum and maximum moth numbers both within and between regions over the nine-week period vary considerably, yet with some similarities, possibly reflecting location, type of trap and/or the individual micro climates. The number of gardens per region varies between 2 and 43 while the trapping effort (moth trap nights) is remarkably consistent showing the goodwill and enthusiasm of the recorders. The third table shows the preferred night for trapping. It is always hoped that people will trap on the Friday but work, social and family commitments have to be allowed for to maintain their interest.

Table 4. GMS Q2 2018. Recorder Statistics

Region	Gardens	Moths				Moth Trap Nights		
		Total	Mean	Min	Max	Possible	Actual	Percent
SC	24	4207	175	21	365	216	206	95.4
NE	22	3367	153	31	485	198	185	93.4
Y&H	14	3191	228	39	595	126	123	97.6
NW	41	11168	272	4	552	369	342	92.7
IRL	22	9063	412	17	2023	198	192	97.0
EE	33	14474	439	100	1349	297	283	95.3
EM	34	14007	412	55	908	306	290	94.8
WA	43	20226	470	76	1492	387	374	96.6
WM	21	7241	345	49	1137	189	183	96.8
SE	35	14818	423	30	1444	315	299	94.9
SW	26	13335	513	128	1687	234	219	93.6
CH	2	1908	954	617	1291	18	18	100

Night?	Tues	Wed	Thurs	Fri	Sat	Sun	Mon
Days	49	78	275	1719	352	146	77
Percent	1.82	2.89	10.20	63.76	13.06	5.42	2.86

Silver Y

The thunderstorm activity this quarter, as shown by lightning activity in Figure 7, is often the precursor for migrations of moths from the continent, swept upwards by the up draughts and then deposited over here in the down draughts. The Silver Y has been seen in large numbers all over the country, though this is not especially shown by the light traps since the moth is mainly a day flier. I have not caught any this quarter but saw over 20 nectaring in our neighbour's bee garden one evening. On a recent David Brown moth course, we were told of large swarms coming in over the east coast. Figure 11 shows the numbers of Silver Y trapped with their peak in week 14 (01/06), though they can be recorded in most months of the year.

Fig 11. GMS 2018 Q2. Silver Y Catches

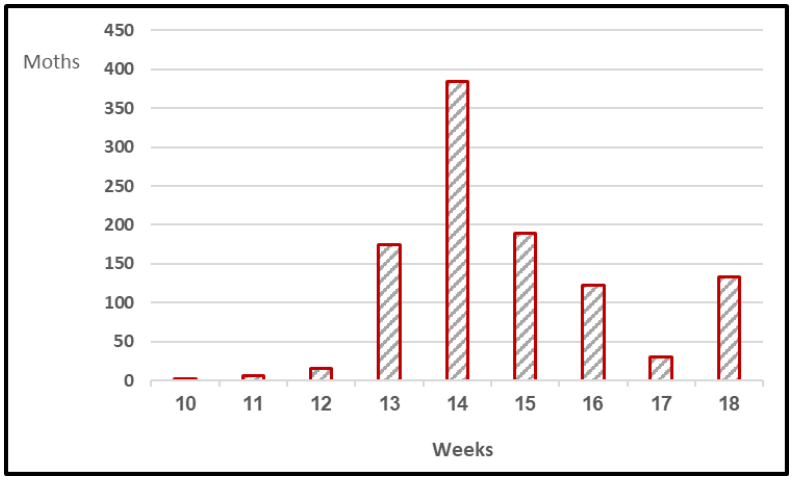


Figure 12 shows the mean number of moths caught in each region together with the maximum caught at any one time. Since I was looking at a species which not everyone caught I have only used the mean of the number of successful recorders instead of the regional totals as shown in Table 5.

Fig 12. GMS 2018. Q2 Mean Regional Number of Silver Y and Maximum Catch

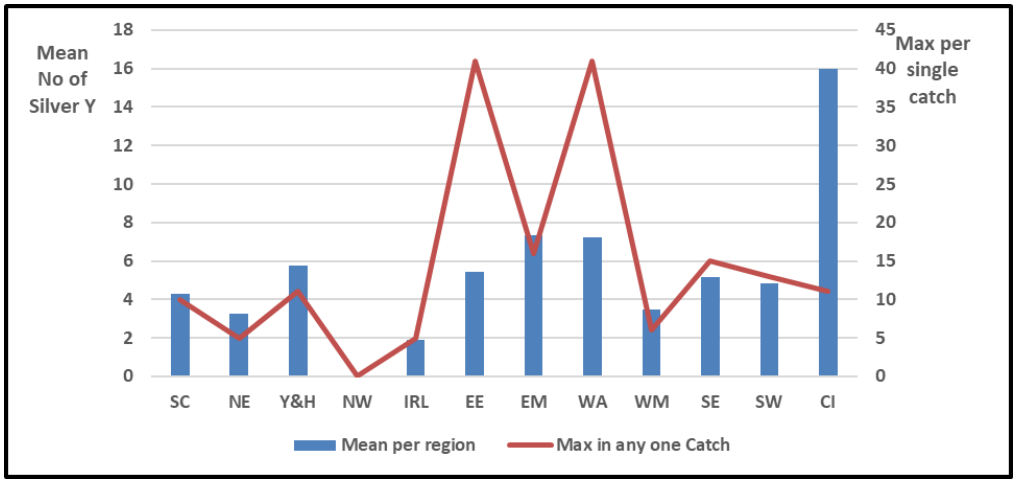


Table 5 GMS 2018 Number of Silver Y Recorders per Region

	SC	NE	Y&H	NW	IRL	EE	EM	WA	WM	SE	SW	CI
Total recorders	24	22	14	41	22	33	34	43	21	34	26	2
Silver Y recorders	14	11	9	25	19	28	25	29	15	27	22	2
Percentage	58	50	64	61	86	85	74	67	71	79	85	100

Pastures new bring new moths aplenty – Stephen Howarth

Judging by the recorders in the part of the country for which I'm the GMS co-ordinator, Warwickshire and Worcestershire, moth recorders don't move house very often. Perhaps that makes me relatively unusual, as I've just moved for the second time since I joined the GMS way back in 2006. The first move was just a few miles (I even stayed in the same 10km grid square) but this time it was to an entirely different part of the country – Lincolnshire.

One big uncertainty before we moved was whether I would catch any moths. The new garden was similar to the old one – in a village location – but without the bonus of an adjacent ancient woodland like the old one. I needn't have worried. As I write in early July, it is just under five months since we moved and the species count has been running well ahead of the average from my old address virtually all year and numbers have been good too.

On top of that, there are plenty of moths here which I never caught in over eight years at our previous place. I guess it is not surprising that the range of moths is different from one place to another but it does make opening up the trap that bit more exciting. So far, I've caught nearly 30 species which would have been new to the garden list at the old place, with about a dozen completely new to me.

One of the first was doubly special, a Dotted Chestnut, which turned out to be a first for Lincolnshire too. I don't suppose that kind of luck can continue but it was certainly a nice way to start off. Although it's a species which has been expanding its range and so was expected to make it to the county, it is still nice to be the first to catch one.

As the new house is on the edge of the fens, it is perhaps no surprise that some of the other new moths have been wetland species – Cream-bordered Green Pea, Ringed China-mark and *Brachmia inornatella* being examples. However, some are just widespread species which just managed to elude me at the old address, such as Red Chestnut, Yellow Horned, Blotched Emerald and, perhaps best of all, Privet Hawk Moth, of which I've now caught three.

Funnily enough, I'm yet to catch a Poplar Hawk Moth, though. That is one of a few commoner species where I was before which I haven't seen so far, even though we are well into their flight seasons. Ingrailed Clay, Small Rivulet and Mottled Beauty are others which I'm still waiting for. On the other hand, some species are clearly much commoner here. Already, I've caught over 300 Setaceous Hebrew Characters, for example, more than the total over eight years in Warwickshire, where I caught an average of only 38 per year. It will be interesting to see whether they and other species which are more numerous here are just having good years everywhere.

Overall, then, any fears I had about moving to a new region have well and truly been allayed. In fact, from a mothing point of view the move has definitely worked out well. Hopefully, there will be many more new moths to discover, especially if the good weather continues.

So how do you arrange your eggboxes? – Norman Lowe

We all know that everyone has their own ideas about how best to catch moths in their traps. I'm often asked about this and I generally advise siting the trap in a sheltered place preferably near

a hedge. But what kind of trap? - what kind of bulb? Answers on a postcard (or preferably by email) for another article in another issue.

One question that no-one seems to ask is “how do you arrange the eggboxes?”. But, when gathered around traps over the years, it does seem that everyone has their own magic formula that they stick to. They fall into two categories:

1. Only a few eggboxes because it’s necessary to give as much flying space as possible for the trapped moths
2. Pack in lots of eggboxes to give the moths a good variety of places to hide and rest.

I follow the second formula in my Skinner trap and in the interests of consistency always use 26 eggboxes, using only the sides that the eggs actually sit in, not the flat tops. And I arrange them in rows of 3,3,4,3 on each side of the trap. That’s my recipe. What do other people do?

Crossword 10 Solution - Nonconformist

Y	E	L	L	O	W	S	H	E	L	L			U	M	B	E	R
A				C			E		A			P		A			
R	H	I	Z	E	D	R	A		R		P	E	A	R	L	Y	
R				L			T		G			A		B			M
O	L	D		L	I	G	H	T	E	M	E	R	A	L	D		O
W				A			R		W			L		E			T
P	S	I		T			U		A		M			D			H
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U	D	E	A				T		N		G		E	G	G	A	R
M					C	R	I	M	S	O	N		R		R		
E	X	I	G	U	A		C		C		A	N	A	N	I	A	
			R		B				O				L		O		A
G			E		B		M	O	T	T	L	E	D		P		D
O	F		Y	E	A	R		L		I		A		L	I	M	E
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Tailpiece - Norman Lowe

This is the section where I traditionally thank people for their efforts and encourage everyone to think about what they might be able to contribute. You might have noticed that this edition has contributions from rather fewer people than usual and apart from Stephen’s piece we are down to our usual suspects, Evan, Nonconformist (yes, I managed to complete the crossword this time) and me! So, please think about penning something, now that the summer blizzard of moths is over. Send anything to me at norman@enviro-consulting.com

Communications & Links.

GMS Website - http://www.gardenmoths.org.uk/ - the Communications section gives information on the regional coordinators; the Downloads section provides access to Identification Guides, Annual Reports and Newsletters, as well as all the regional recording forms and instructions.

Facebook Page - https://www.facebook.com/GardenMothScheme - we now have over 1100 'Likes'!

Facebook Group - https://www.facebook.com/groups/438806469608527/ - currently with more than 2200 Members (not all active GMS participants) – open membership – all recording forms, instructions and micro-moth identification guides are available in the Files section

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MapMate is a biological recording system designed for enthusiasts to record, map, analyse and share their natural history sightings. It was originally developed for moth recording and has now expanded to include most of the UK fauna and flora. It is being used by some 20,000 individuals and institutions in the UK including very large groups like the RSPB and the Botanical Society of the British Isles.
www.mapmate.co.uk

MapMate continues to support the GMS by providing software and support for the GMS database, and for that we are very grateful.