GMS News

Early Summer 2015

Weeks 10-18

Contents

Editorial – Norman Lowe

Last March we had a very successful Annual Conference at the Chiltern Woodland Burial Park, organised by Janet Cheney and her colleagues. The Conference has always been very important to GMS and so we need to start thinking about the next one. **We would like to hear from anyone who would like to be part of an organising team or who might suggest a suitable venue** - perhaps this time we might consider somewhere in the North Midlands, though this wouldn't rule out somewhere else if that works. So if anyone fancies volunteering please contact either me, or Heather, or your Area Co-ordinator. We can provide plenty of support but we do need a venue and a local contact person.

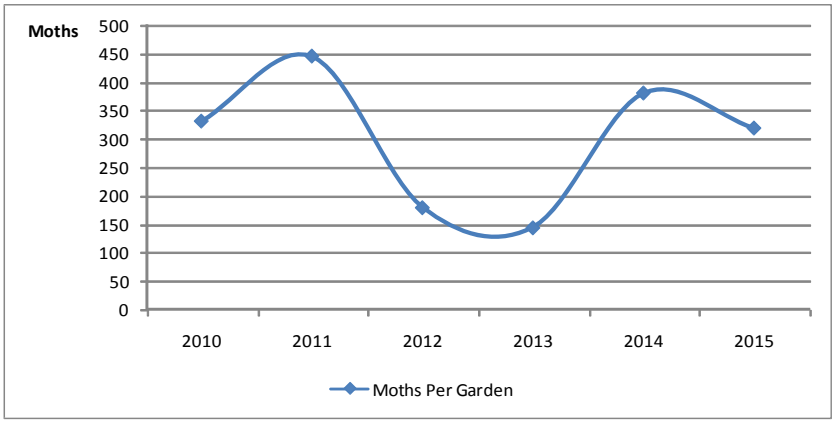
You'll see that the content of the newsletter has been compiled by the "usual suspects" – Evan with his analysis, "Nonconformist" with his crossword solution, and Heather and I. So come on, let's hear from someone else. I'd very much like to have anything related to moths – it's always good to hear a new angle on things. And there have been good number of moths during the summer so plenty to talk about.

But we have, I think, still managed to produce something of interest for most people. Evan points out that the quarter was actually quite good for species numbers and Heather tells us how to improve a garden in the only way that really matters, making it better for moths. "Nonconformist" gives us some respite from trying to solve last month's crossword and I fill in as best I can as usual!

Overview GMS 2015 2nd Quarter – Evan Lynn

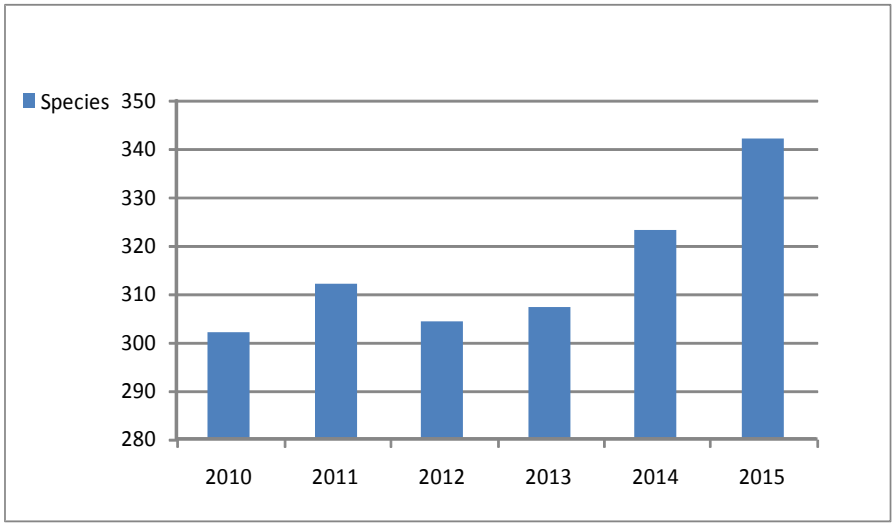
Results for this quarter were from 290 gardens compared with 354 the year before. This second quarter has continued on from the first with low numbers of moths caught initially and gradually increasing as the weeks rolled by. The weather slowly improved, though it wasn't a smooth process by any means. Certainly for us it was a mixture of cold and warm days and nights. The graph of the moths caught per garden shows a slight fall compared to last year and lower than the 2011 optimum. It is a somewhat unreliable result as not all records were sent in to date. By the time the final results are analysed at the end of the year it will probably be reasonably close to that of last year.

Figure 1 GMS 2nd Quarter 2010 – 2015 Moths Per Garden



Alternatively, one can look at the number of species as shown in Fig. 2 This graph mirrors the above showing a recovery over the last two years. 2014 seems to have been a good year for species diversity. The larger number of species in this year's quarter seems to indicate this but with the added complication of new species being added to the recording lists for each region.

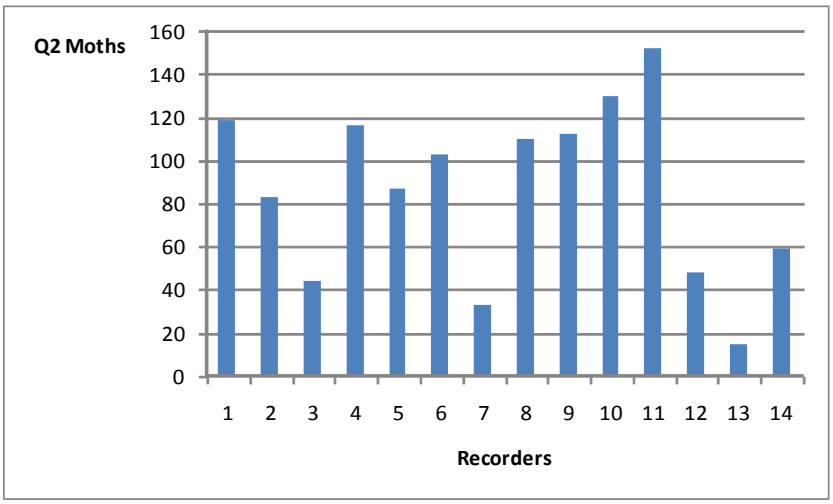
Figure 2 GMS 2nd Quarter 2010 – 2015 Number of Species



Judging by comments received from some of the Regional Co-ordinators this quarter, the number of moths recorded are lower than expected. For example, fig. 3 shows the number

of moths caught by the 14 recorders in Scotland. The highest number of moths caught by one recorder was 152 and the lowest was 14.

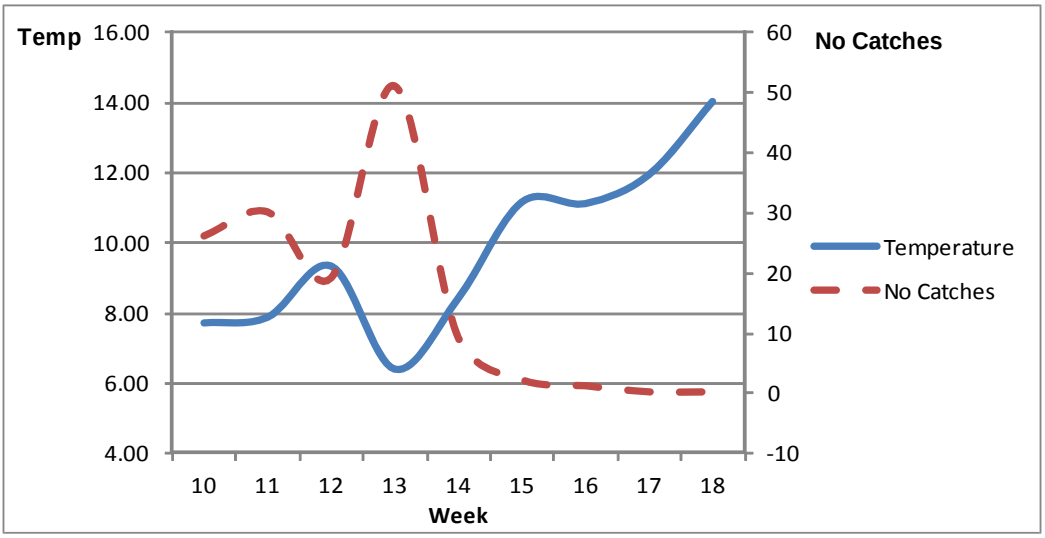
Figure 3 GMS 2nd Quarter 2015 Total Number of Moths caught For Each Garden in Scotland



One of the reasons for the poor catches may lie with the continuing number of cold days and nights experienced through parts of the country. Although there seems to be a rough correlation with the number of empty traps and lower temperatures, other factors such as windy and moonlit nights may also be relevant.

Looking at the number of "No Catches", the situation did not improve until halfway through the quarter when the weather became more seasonal in some parts of the country. Of all the regions, only the Channel Islands had a presence recorded for each week.

Figure 4. GMS 2nd Quarter No Catches with Night-time Temperatures



When the night time temperatures rose as the season progressed there appeared to be a corresponding rise in the number of moths caught (Fig. 5) as shown by the blue line.

Figure 5. GMS 2nd Quarter Number of Moths with Night Time Temperatures

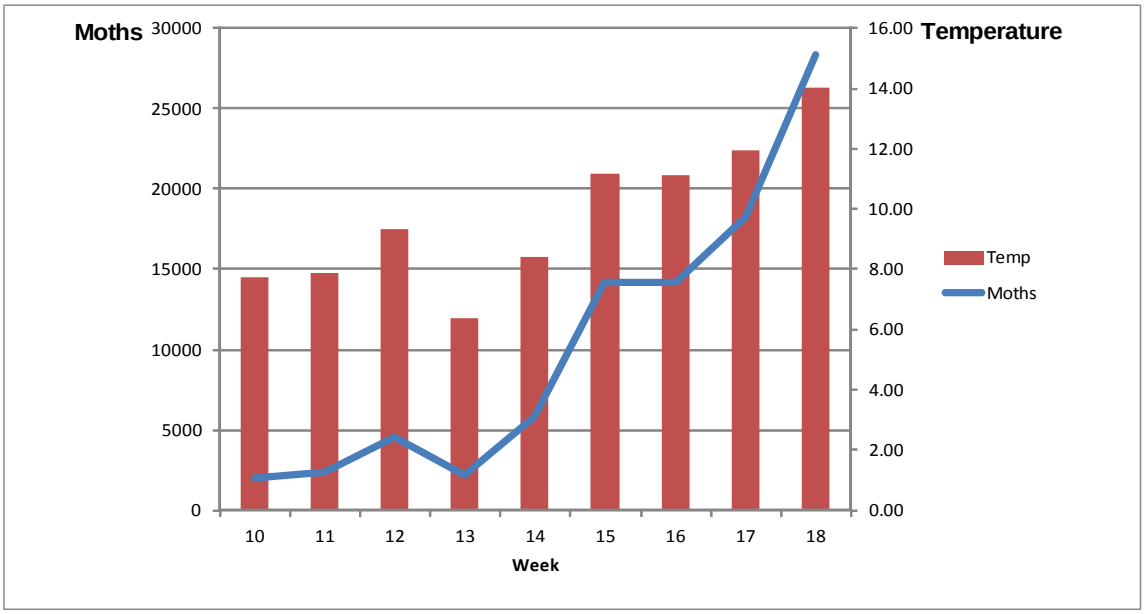


Table 1 below lists the top 20 moths for this quarter. It shows a significant negative percentage change for most moths with only the Garden Grass-veneer, the Uncertain/Rustic agg. and the Straw Dot showing significant positive increases.

Table 1 GMS 2nd Quarter 2014 – 2015 Comparison of Moths Per Garden

2015 position	Species	2015 Mean per Trap	2014 Mean per Trap	% change
1	Heart and Dart	59.6	59.5	0%
2	Garden Grass-veneer	13.1	7.1	85%
3	Buff Ermine	9.1	10.5	-13%
4	Flame Shoulder	8.3	10.9	-24%
5	Small Square-spot	8.2	7.9	4%
6	Marbled Minor agg.	8.1	11.1	-27%
7	Uncertain/Rustic agg.	7.4	2.3	221%
8	White Ermine	7.1	8.5	-17%
9	Light Brown Apple Moth	7	10.6	-34%
10	Flame	6.1	10.2	-40%
11	Dark Arches	6	9.9	-39%
12	Treble Lines	5.9	6.2	-4%
13	Riband Wave	5.4	5.3	1%
14	Brimstone Moth	5.3	8.3	-36%
15	Straw Dot	4.1	2.9	43%
16	Elephant Hawk-moth	4.1	3.9	6%
17	Large Yellow Underwing	3.9	4.1	-4%
18	Bright-line Brown-eye	3.9	6.2	-36%
19	Heart and Club	3.7	4	-7%
20	Common Marbled Carpet	3.7	8.5	-57%

A different picture may emerge once all the results have been collected. Also, as Norman Lowe alluded to in his recent report, this is just a snapshot of this quarter and does not fairly depict species that emerge earlier or later than normal. One interesting feature that he mentions is that some species, for example the Small Square-spot, had a 98% increase in Wales whereas over the whole country it actually only had an increase of 4%.

The Heart & Dart is on the top of the list for this quarter and many people will remember that they recorded this moth in most weeks. Certainly for us, it has gone from being an occasional visitor in past years to being one of the most regular and numerous moths in our trap.

To this end I have compiled a graph of the numbers of Heart & Dart caught this quarter from 2010 to 2015 depicted by the thick orange line. It would appear that despite it being the most abundant moth in most regions this quarter it can be seen that it has had better years. All the years seem to be fairly concurrent as would be expected but this year's flight time lags slightly behind some other years. The 2014 year starts about the same time but rapidly increases and then abruptly tails off while the 2015 year after a slow start continues at a steady level. This could be indicative of the lateness of the spring and summer this year- a fact that gardeners keep on telling me when complaining about their marrows!

I was quite surprised at this result judging by the numbers being caught in our local area. However, it would seem to fall in line with this year's general pattern of a high diversity of moth species but low numbers as experienced by many recorders.

Figure 6. GMS 2nd Quarter 2010-2015 Heart & Dart

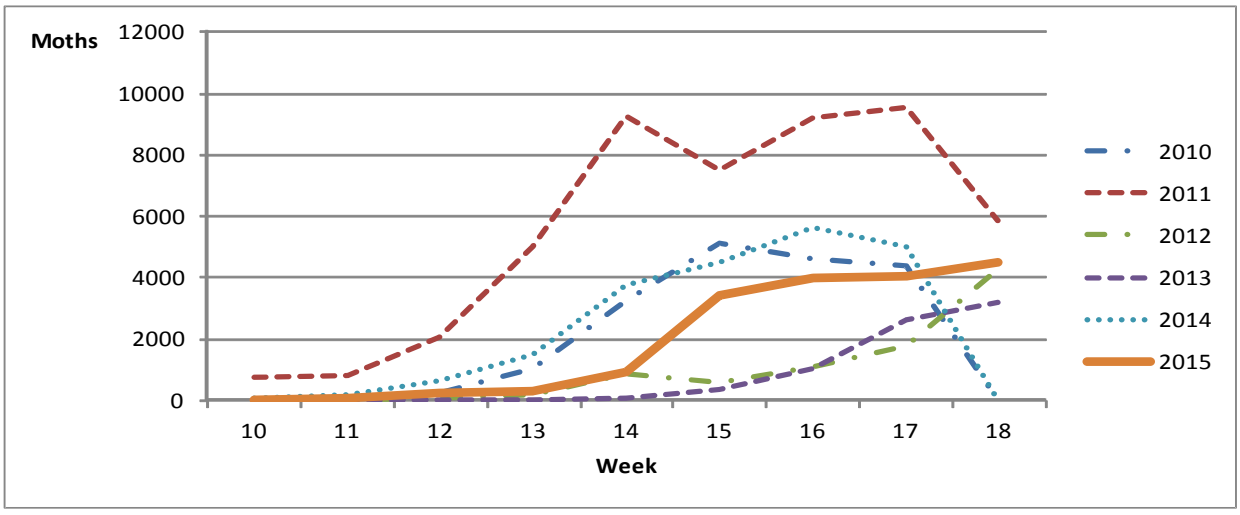


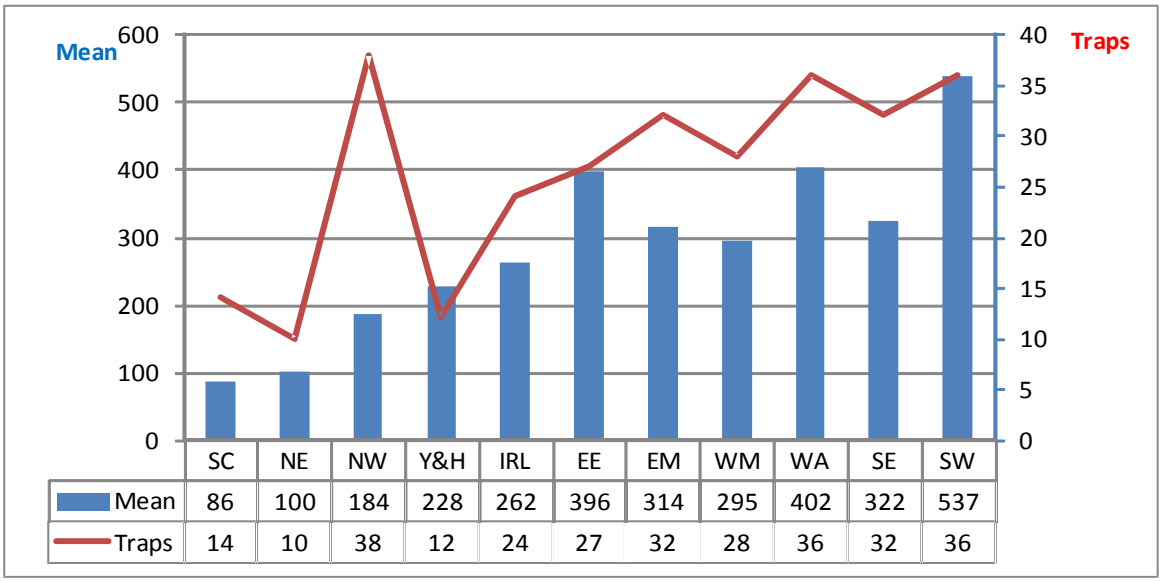
Table 2 below shows the Top 10 for each of the 12 regions, this time including the single Channel Islands garden. Not surprisingly, Heart and Dart claims top spot in most regions, apart from Scotland where it was fifth and Channel Islands where it was pipped by Light Brown Apple Moth. And in all of the England & Wales regions apart from Yorkshire and Humberside Heart and Dart was more than twice as frequent as the next on the list. Buff Ermine was present in 8 of the 12 Top 10's, missing out in the extreme north and south, Scotland, SE and SW England and Channel Islands.

Table 2 GMS 2nd Quarter Regional Top 10 Species (no. in Brackets are the no. of gardens)

Scotland (14)	Mean	North East (10)	Mean	North West (38)	Mean
White Ermine	9.4	Heart and Dart	21.8	Heart and Dart	39.8
Clouded-bordered Brindle	4.9	Lt Brown Apple Moth	6.3	Flame Shoulder	8.1
Silver-ground Carpet	4.6	Silver-ground Carpet	4.1	Buff Ermine	7.8
Heart and Dart	3.6	Buff Ermine	3.2	Ingrailed Clay	6.1
Flame Shoulder	3.4	Garden Carpet	3.1	Bee Moth	5.9
Pale-shouldered Brocade	3.4	Scalloped Hazel	3	Brimstone Moth	5.6
Broom Moth	2.6	White Ermine	2.8	Lt Brown Apple Moth	5.6
Dusky Brocade	2.4	Bee Moth	2.5	Small Square-spot	5.6
Hebrew Character	2.1	Large Yellow Underwing	2.3	Flame	5.8
Garden Carpet	1.9	Double Square-spot	2.3	Marbled Minor agg.	6.1
Yorks & Humber (12)	Mean	Ireland (24)	Mean	East England (27)	Mean
Heart and Dart	22.4	Heart and Dart	27.3	Heart and Dart	62
Straw Dot	13.1	Small Square-spot	16.8	Marbled Minor agg.	19.1
Buff Ermine	11.6	White Ermine	13.8	Treble Lines	17.9
Small Square-spot	11.6	Buff Ermine	10.4	Garden Grass-veneer	15.5
Flame Shoulder	8.3	Bright-line Brown-eye	8	Set Hebrew Character	10.6
Uncertain/Rustic agg.	7.2	Brimstone Moth	8	Uncertain/Rustic agg.	10.4
Garden Grass-veneer	5.2	Flame Shoulder	7.4	Heart and Club	8.4
Marbled Minor agg.	4.9	Lt Brown Apple Moth	6.8	Dark Arches	8
Light Brown Apple Moth	4.6	Cinnabar	6.5	Buff Ermine	7.8
Silver-ground Carpet	4.6	Elephant Hawk-moth	6	Flame	7.2
East Midlands (32)	Mean	West Midlands (28)	Mean	Wales (36)	Mean
Heart and Dart	64	Heart and Dart	55.5	Heart and Dart	100.9
Uncertain/Rustic agg.	11.7	Buff Ermine	14.5	White Ermine	17.7
Marbled Minor agg.	11.3	Uncertain/Rustic agg.	11.5	Garden Grass-veneer	16.7
Light Brown Apple Moth	11	Small Square-spot	10.8	Flame Shoulder	13.3
Garden Grass-veneer	9.8	Flame Shoulder	10.2	Buff Ermine	12.5
Buff Ermine	9.3	Straw Dot	9.4	Flame	11.9
Riband Wave	8.9	Marbled Minor agg.	8.6	Treble Lines	9.1
Dark Arches	8.5	Garden Grass-veneer	6.6	Uncertain/Rustic agg.	7.5
Set Hebrew Character	7.3	Light Brown Apple Moth	6.1	Buff-tip	7.1
Brimstone Moth	6.4	White Ermine	5.8	Hebrew Character	7.1
South East (32)	Mean	South West (36)	Mean	Channel Islands (1)	Mean
Heart and Dart	58.9	Heart and Dart	105.8	Lt Brown Apple Moth	49
Garden Grass-veneer	20	Garden Grass-veneer	36	Heart and Dart	40
Light Brown Apple Moth	11.7	Small Square-spot	22.9	Marbled Minor agg.	36
Heart and Club	10.5	Uncertain/Rustic agg.	17.1	Shuttle-shaped Dart	31
Riband Wave	8.9	Flame Shoulder	14.8	Bright-line Brown-eye	27
Dark Arches	8.7	Marbled Minor agg.	13.5	Clouded Border	26
Marbled Minor agg.	6.5	Treble Lines	13.2	Peppered Moth (Light)	24
Treble Lines	6.3	Flame	12.3	Brimstone Moth	23
Bee Moth	5.7	Large Yellow Underwing	11.2	Ingrailed Clay	20
Crambus pascuella	5.6	Dark Arches	11.1	Garden Grass-veneer	18

Although the total number of moths increased as the season progressed, some regions fared worse overall than others as shown in Fig. 7. The Channel Islands are not included with just one garden recording 1121 moths of 117 species. The blue histogram represents the mean number of moths caught per region using the left hand axis. The red line graph shows the number of traps per region using the right hand axis.

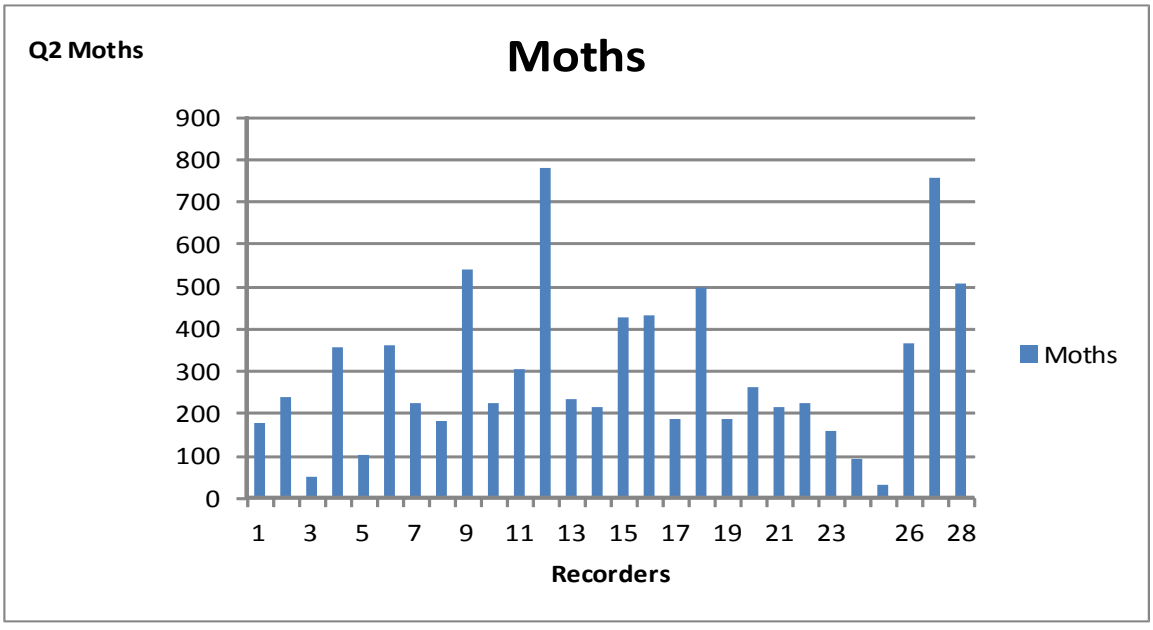
Figure 7. GMS 2nd Quarter 2015 Mean No. of Moths Per Region



	SC	NE	NW	Y&H	IRL	EE	EM	WM	WA	SE	SW
Mean	86	100	184	228	262	396	314	295	402	322	537
Traps	14	10	38	12	24	27	32	28	36	32	36

The use of the mean may be a useful tool in producing a comparable result. It, on the other hand, hides the highs and lows or the pleasures and disappointments when opening the moth traps in the morning. The earlier histogram of Scottish recorders showed this range. Another example is in the West Midlands where both large and small catches were recorded over the period of the Quarter.

Figure 8. GMS 2nd Quarter 2015 West Midlands (28 recorders)



This final table shows the totals taken from the Q2 column on the record sheet for all gardens. I have compiled the minimum and maximum totals for each region as well as the mean of all its gardens which allows a useful comparison between regions. Please note that the Channel Islands has only one garden but its maximum of one is comparable to the other maximum figures

Table 3 GMS 2nd Quarter 2015 Minimum and Maximum Totals

Regions	Gardens	Min	Max	Mean
SC	14	14	152	86
NE	10	35	231	106
Y&H	12	65	617	228
NW	38	28	441	184
IRL	24	16	912	262
EE	27	8	1479	396
WM	28	30	779	270
WA	35	99	1092	402
SE	32	93	610	354
SW	36	104	1497	537
CH	1	N/a	1121	N/a

There are several reasons for the different results within a region ranging from altitude and location to the varying microclimates as well as the actual catching device.

If anyone would like a chart or graph showing their favourite, or possibly their least favourite moth, included in our of these reports or have any ideas on what they would like shown please contact Norman Lowe or myself.

A Hedgerow Garden – Heather Young

At least that's what I'm aiming for, sort of. Traditional hedgerows have disappeared from much of our countryside in recent times, yet are incredibly valuable to wildlife; in fact so valuable that according to the Wildlife Trusts, some 130 UK Biodiversity Action Plan (UKBAP) species are associated with them.

The current UKBAP definition of a hedgerow is *"any boundary line of trees or shrubs over 20m long and less than 5m wide, and where any gaps between the trees or shrub species are less that 20m wide. Any bank, wall, ditch or tree within 2m of the centre of the hedgerow is considered to be part of the hedgerow habitat, as is the herbaceous vegetation within 2m of the centre of the hedgerow. All hedgerows consisting predominantly (i.e. 80% or more cover) of at least one woody UK native species are covered by this priority habitat, where each UK country can define the list of woody species native to their respective country. Climbers such as honeysuckle and bramble are recognised as integral to many hedgerows, however they require other woody plants to be present to form a distinct woody boundary feature, as such they are not included in the definition of woody species. The definition is limited to boundary lines of trees or shrubs, and excludes banks or walls without woody shrubs on top of them".*

So, if I allow three sides of my back garden to become one continuous hedgerow, it would definitely be more than 20 metres long. I do have one mature birch tree, and have encouraged the growth of self-seeded native woody species like hazel, alder, ash, willow and

more birch while keeping them under control to avoid my garden reverting completely to woodland. Honeysuckle and bramble do indeed feature heavily, and ivy covers most of the wall and fences. I will have to gradually replace some non-native shrubs, but it is still a work in progress.

There is a rich understorey of native herbaceous plants (otherwise known as weeds), and the odd example of authentic fly-tipping in the form of old tyres and a decrepit wheelbarrow. This part of my garden has birch, hazel, hawthorn, ivy, sycamore (doesn't count as native), Scots pine, bramble, nettle, thistle, dock and rosebay willow herb.

Birds certainly appreciate the thick cover for nesting in and the abundance of food from snails to seeds, and no doubt caterpillars! This year has been poor in the moth trap – it has probably been the coldest, wettest spring and summer that I have seen here – but I have had some very nice visitors, such as Buff-tip, Swallow-tailed Moth, Pebble Prominent and Garden Tiger, all of which would have found suitable plants to deposit their eggs on had they been so inclined, and may even have been born here.

No doubt the neighbours prefer their decking and gravel to my rather messy garden, but I like it, and so does the wildlife.

8 years of GMS moths in my garden - Norman Lowe

Since 2007 I have monitored the numbers of common moths in my mid-Wales garden and a few days go I idly wondered how the various species had fared over that period. So I put together a few tables and charts and the results interested me so much that I thought I'd share them with you.

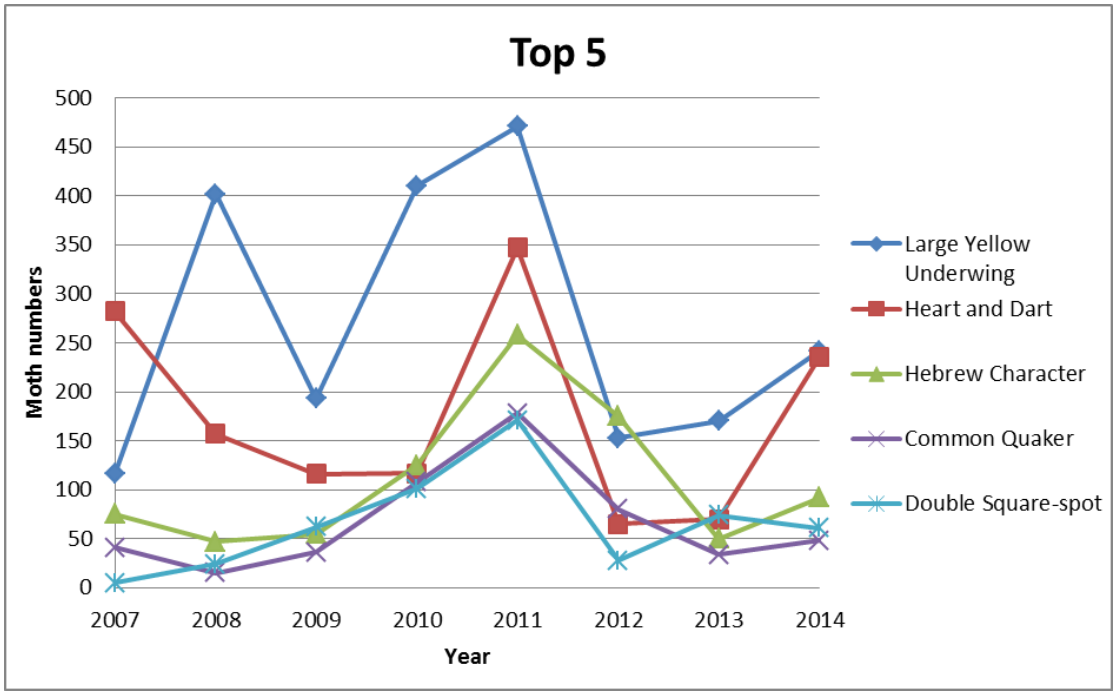
I concentrated on only those 213 species that were on the GMS list for Wales in 2007. Of these I found that at some point in the 8 years I had recorded at least one moth of 184

species. Which meant there were 29 that I never recorded at all, though some of these I had recorded on non-GMS moth nights! And a further 13 had only appeared once.

Turning to the commoner species, I found that I had recorded 140 or more moths of twenty species and these, my Top 20, are shown in the table below. And I suspect that many of you would find that my Top 20 were common in your gardens as well.

	Species	Total number of moths								
		2014	2013	2012	2011	2010	2009	2008	2007	Total
1	Large Yellow Underwing	242	170	153	471	410	193	402	116	2157
2	Heart and Dart	236	70	65	347	117	116	157	282	1390
3	Hebrew Character	92	50	175	258	125	55	47	75	877
4	Common Quaker	48	34	80	178	108	36	15	41	540
5	Double Square-spot	61	74	28	171	101	62	24	5	526
6	Flame Shoulder	97	46	22	50	89	87	45	7	443
7	Dark Arches	73	52	44	106	55	22	57	17	426
8	Lesser BB Yellow Uwing	45	76	38	27	23	29	90	5	333
9	Clouded Drab	29	24	45	92	64	24	16	24	318
10	Common Footman	38	73	19	29	68	23	42	20	312
11	Agriphila tristella	43	102	21	45	52	10	3	9	285
12	Dingy Footman	35	34	36	35	74	29	36	4	283
13	Common Marbled Carpet	21	77	29	18	10	53	36	15	259
14	Brimstone Moth	60	31	12	27	19	22	39	18	228
15	Agriphila straminella	26	34	17	39	63	9	17	2	207
16	Small Quaker	18	3	76	60	18	11	5	15	206
17	Buff Ermine	33	34	18	28	38	15	16	9	191
18	Flame	17	21	20	32	40	22	8	19	179
19	Garden Grass-veneer	57	6	2	30	6	9	17	39	166
20	Small Square-spot	27	4	2	1	22	48	31	11	146

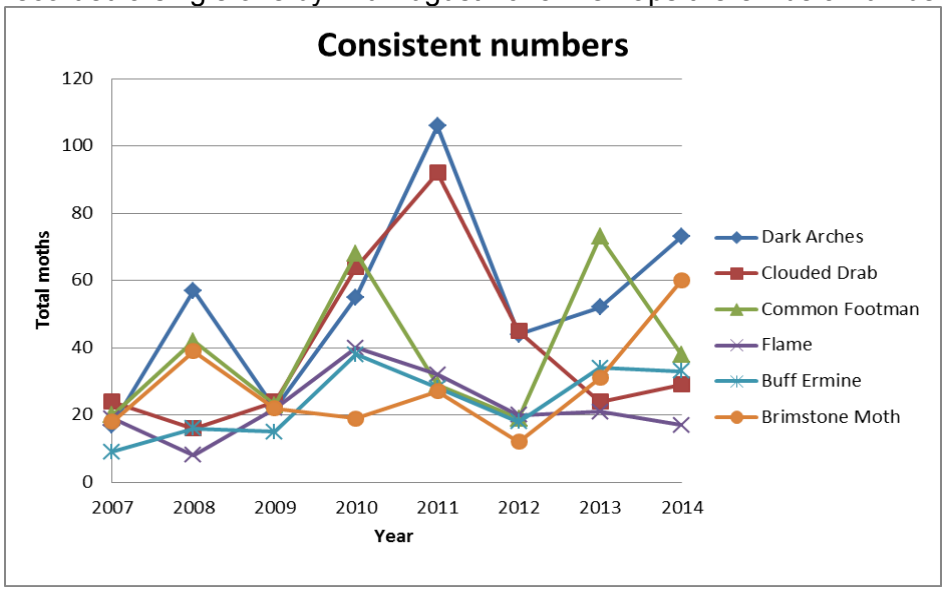
Next I decided to plot a chart of the Top 5 to see how their numbers varied over the period



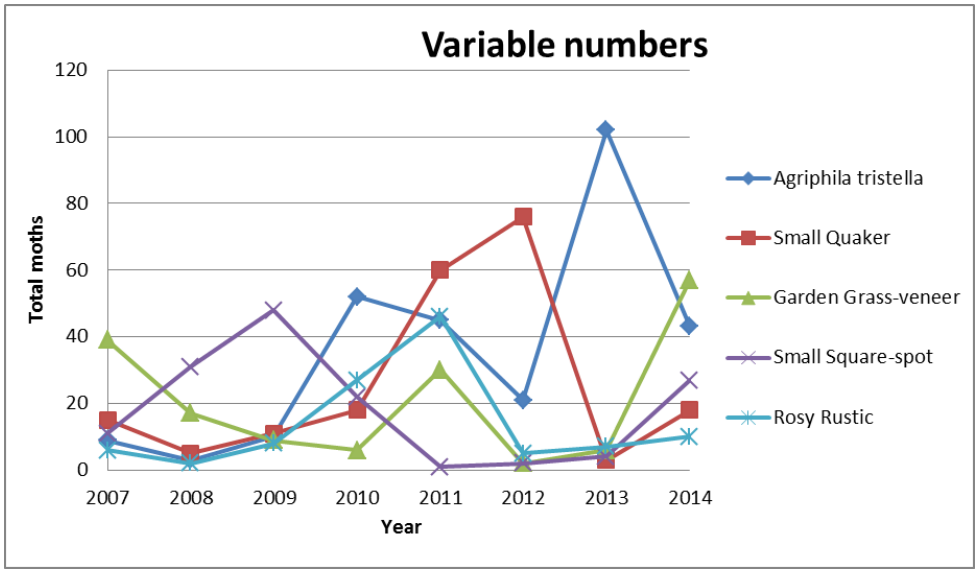
It struck me that some of these species varied more than others from year to year. The three commonest were present in high numbers every year, the ratio of highest number to lowest number being between 4 and 6 in each case, but the other two varied much more; the figures for these being Common Quaker 11.9 and Double-Square-spot 34.2. So I decided to calculate the ratios for the whole Top 20 and these are shown in the next table.

	Species	Highest	Lowest	Ratio
1	Large Yellow Underwing	471	116	4.1
2	Heart and Dart	347	65	5.3
3	Hebrew Character	258	47	5.5
4	Common Quaker	178	15	11.9
5	Double Square-spot	171	5	34.2
6	Flame Shoulder	97	7	13.9
7	Dark Arches	106	17	6.2
8	Lesser BB Yellow Uwing	90	5	18.0
9	Clouded Drab	92	16	5.8
10	Common Footman	73	19	3.8
11	Agriphila tristella	102	3	34.0
12	Dingy Footman	74	4	18.5
13	Common Marbled Carpet	77	10	7.7
14	Brimstone Moth	60	12	5.0
15	Agriphila straminella	63	2	31.5
16	Small Quaker	76	3	25.3
17	Buff Ermine	38	9	4.2
18	Flame	40	8	5.0
19	Garden Grass-veneer	57	2	28.5
20	Small Square-spot	48	1	48.0

I could then plot a chart of the 6 most consistent ones which had a ratio of 6.2 or less. These were Dark Arches, Clouded Drab, Common Footman, Buff Ermine and Flame. Would you agree that these turn up consistently year in, year out in your own garden? However Brimstone Moth is interesting since it reached a maximum of 60 in 2014 but I haven't recorded a single one by mid August 2015. Perhaps there'll be a numbers crash!



Next I looked at the least consistent or most variable ones with ratios of between 25.3 (Small Quaker) and 48 (Small Square-spot). Again, do you find that these sometimes disappear almost completely? And why is Clouded Drab consistent whereas Small Quaker is variable?



Has anyone else looked at their garden records over a period? If so, why not tell us about it?

Crossword solution - Nonconformist

And here's the solution to Crossword 6. I'm afraid that I failed to complete it this time – I got one clue wrong which made an attached word impossible. But I did get the rest right.

G	R	E	A	T	P	R	O	M	I	N	E	N	T		N	U	T
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Tailpiece

This quarter Heather has put together a list of web communications links that you might find useful. Some you'll already know about I'm sure but others might be new to you. So dive in and have a look.

And as always we are most grateful to our loyal sponsors ALS, Atropos and Mapmate and details of their products are listed at the end. Have a look and consider whether thy might have something of interest to you.

Let me know if you have any comments, thoughts or contributions for the next GMS Newsletter. And get in touch if you might be able to help with the next GMS Annual Conference.

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Communications & Links.

Garden Moth Scheme website:
http://www.gardenmoths.org.uk/
For all your GMS contact information; download section for forms, instructions, newsletters and identification guides; links to UKMoths for individual GMS species.

Garden Moth Scheme Facebook Page
https://www.facebook.com/GardenMothScheme
Almost 600 'Likes'; shares general information on the GMS and other moth-related topics.

Garden Moth Scheme Facebook Group
https://www.facebook.com/groups/438806469608527/
Currently 680 members (not all active GMS participants); the best place to post your messages and photos; files section containing forms, instructions, newsletters and identification guides.

Garden Moth Scheme Yahoo Group
https://groups.yahoo.com/neo/groups/Gardenmoths/info
Members-only forum for discussion; files section containing forms, instructions, newsletters and identification guides.

Citizen Science
http://www.moorsforthefuture.org.uk/community-science/surveys

The 'Moors for the Future Partnership' is carrying out some simple surveys of selected species of butterflies, birds and bumblebees across the South Pennines and would welcome participation by anyone living in, or visiting the area – it may be too late for new sightings of Orange-tip or Green Hairstreak this year, but if you have any records in your notebooks, or would like to help next year, check out their website.

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