

GMS News

Early Summer 2025

Weeks 10-18



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Editorial

Welcome to the Early Summer edition of GMS News 2025 covering Garden Moth Scheme records from the Weeks 10 to 18. As most of you will have discovered for yourselves, 2025 has been a much better year for moth numbers than 2024 and Evan's analysis of the results reflects that as he looks at the numbers in relation to those of previous years and in response to the changing weather conditions. This time he also compares numbers from different GMS Regions His chosen moth for this issue is that familiar visitor to our traps, the Buff Ermine.

You will notice that there are fewer articles than usual this time. But I can only include what I receive from you so please do send me your thoughts or stories at micromoth33@gmail.com

Fortunately, we have a very interesting article by Ian White on constructing and using an LED-powered trap. Ian sent me two versions, a brief one and a detailed one and we agreed that just using the shortened piece would leave readers wanting more. So, we decided to go with the full, detailed description of Ian's work. Do let me know if you build one for yourself.

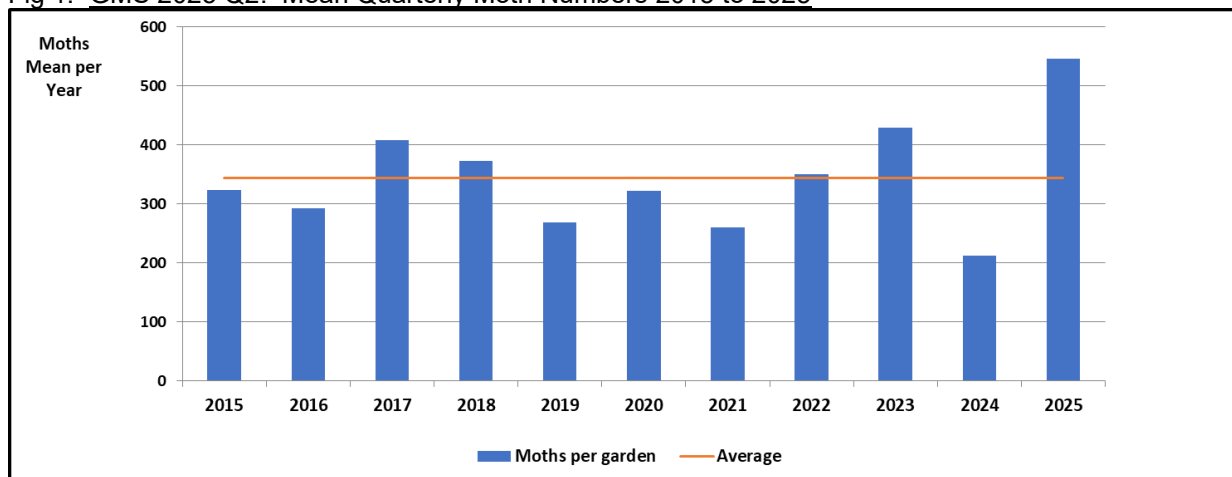
We finish with Puzzle Corner and our usual Communications and Links section.

GMS 2nd Quarter 2025

Evan Lynn

This year's first quarter showed promise following the year that wasn't, but this quarter exceeded all hopes and expectations with a large increase in moths. (fig 1).

Fig 1. GMS 2025 Q2. Mean Quarterly Moth Numbers 2015 to 2025



In England, May was the warmest on record, while it was the third warmest for Ireland, the sixth for Wales, and the seventh for Scotland. The month started hot and dry, with typical thunderstorms following the hot, humid weather. Later, fronts from the Atlantic triggered thunderstorms that brought much-needed rainfall.

June began with low pressure from the Atlantic, bringing unsettled weather before high pressure was re-established. The north was wetter than the south, with heavy showers in Orkney and Cumbria. There was above-average sunshine on the East Coast, while the western side was slightly below average. The sticky, oppressive heat that marked the end of June and the start of July is called swullocking, in case you want to add this to your collection of utterly irrelevant information.

This ongoing heatwave is caused by a large area of high pressure centred over eastern Europe. This causes air to sink and compress, making the heat worse each day. As the high shifts eastward, it drags the heat with it, while the Azores High expands from the southwest, bringing more stable weather to southern parts of the UK.

June 2025 has officially gone down in the record books. England recorded its warmest June on record, while the UK as a whole experienced its second warmest, just behind June 2023. This follows a record-breaking spring and continues a trend of increasingly warm conditions linked to our changing climate.

Besides celebrating our pagan history and watching the sunrise on the summer solstice, a different event was happening over Cumbria and the Borders, with large thunderclouds forming—one of which grew into a supercell, more typical of the American Midwest, and there were reports of hail up to 2 cm in southeast Scotland.

Fig 2. Mean Maximum Temperature for May & June 2025 (with permission of the Met Office).

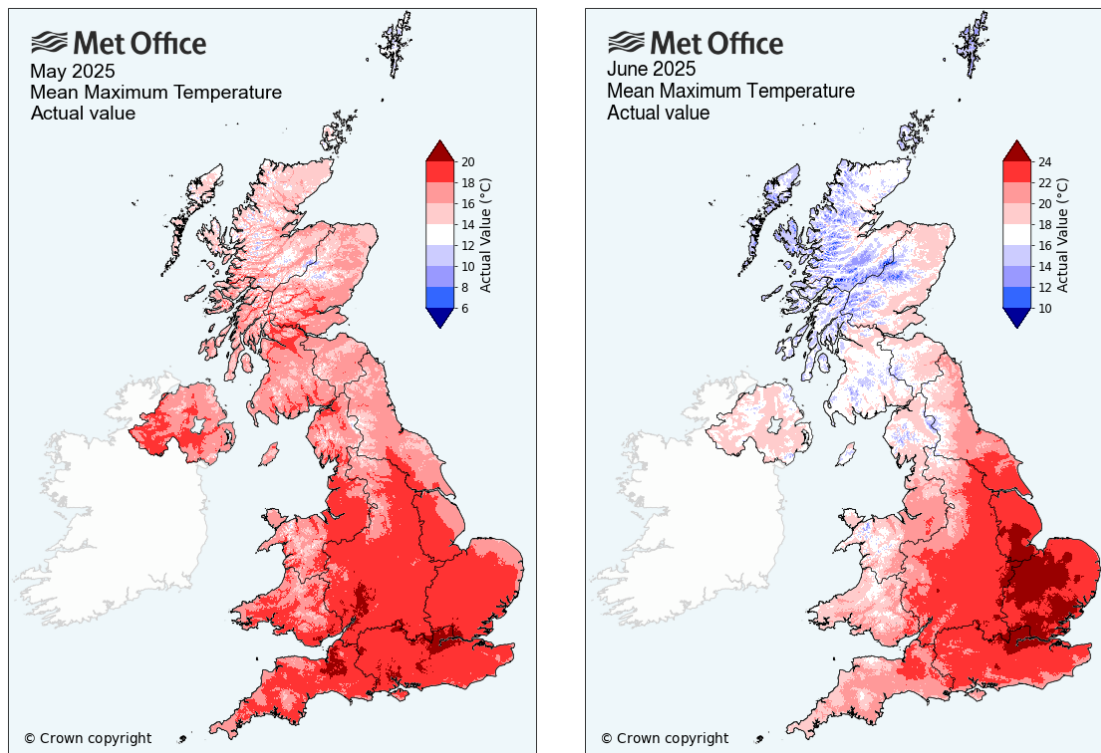


Fig 3. Hours of Sunshine for May & June 2025 (with permission of the Met Office).

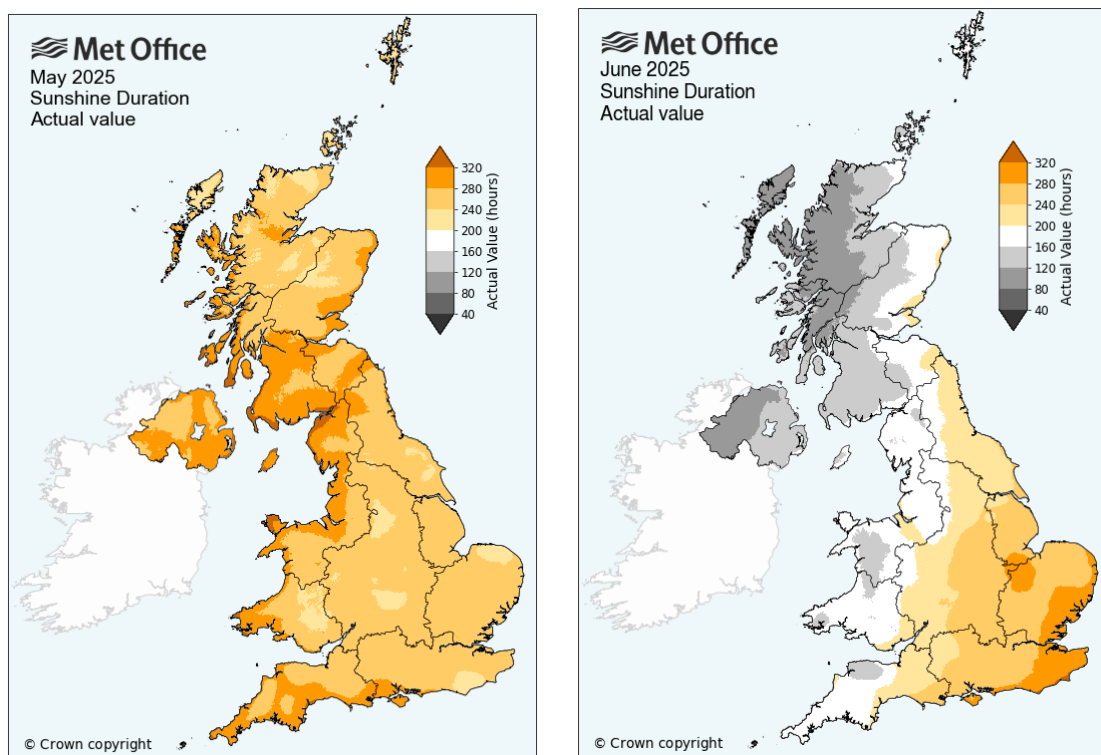


Fig 4. Total Amount of Rainfall for May & June 2025 (with permission of the Met Office).

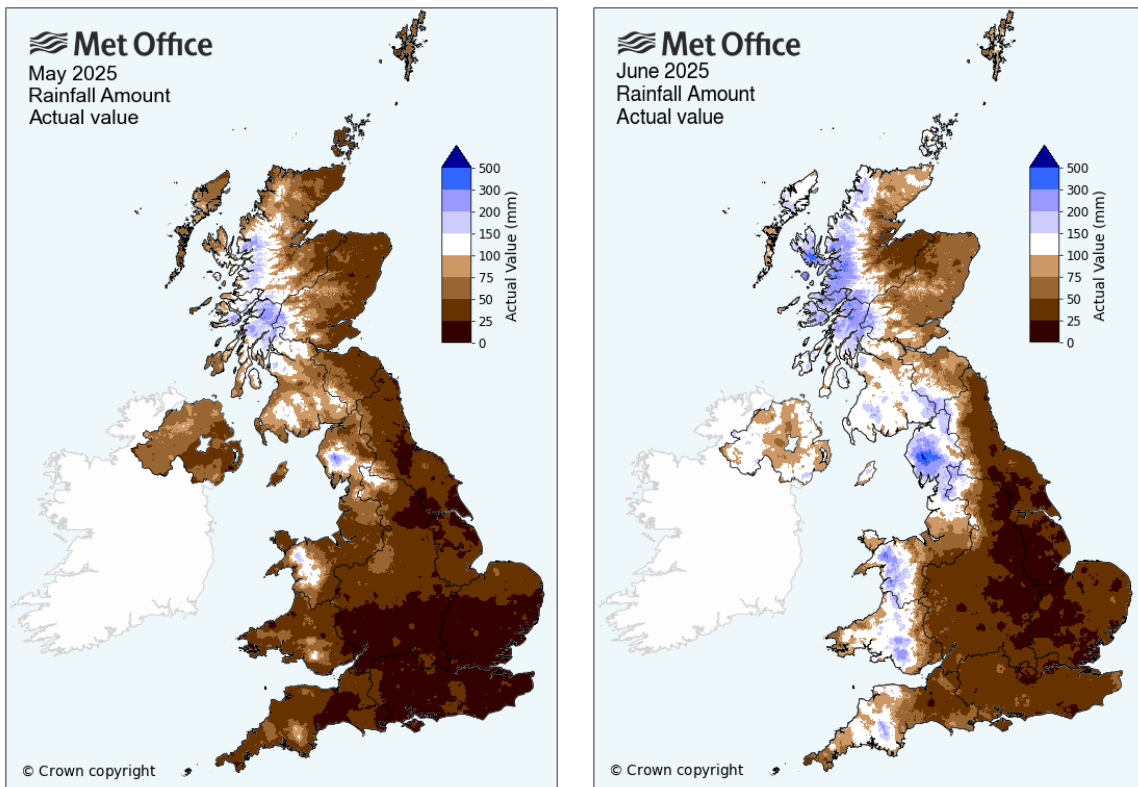
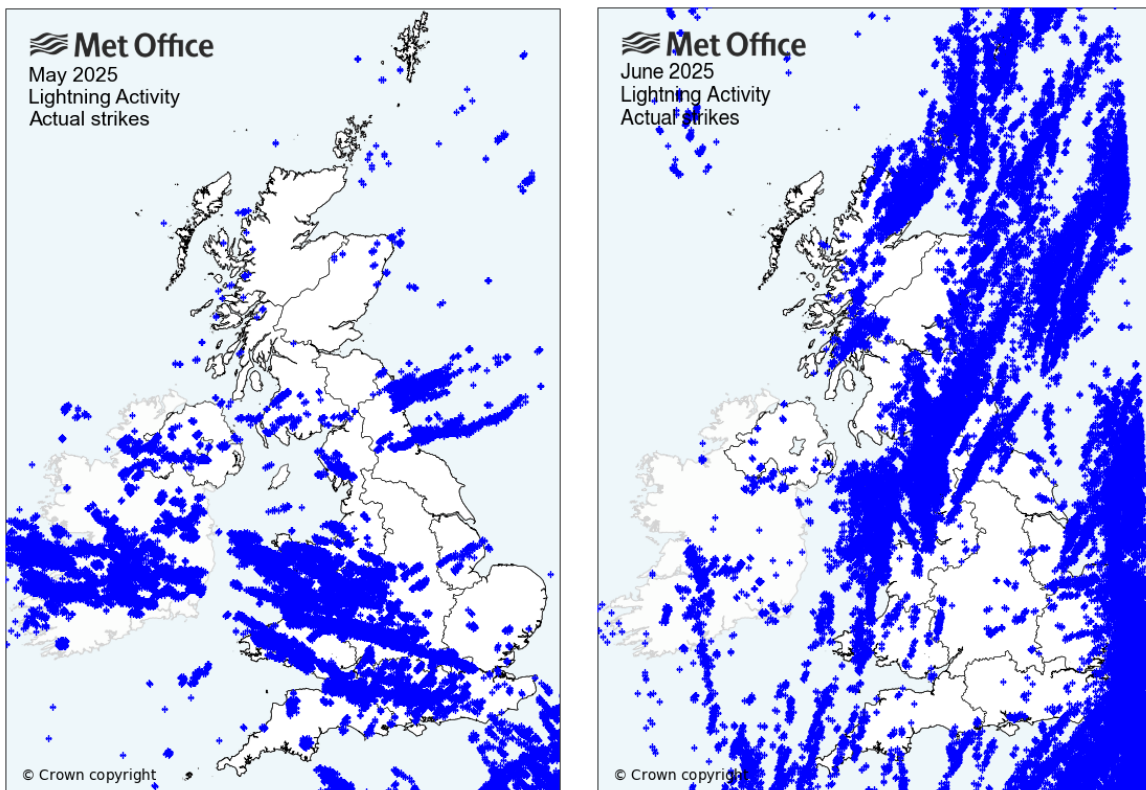


Fig 5. Lightning Activity for May & June 2025 (with permission of the Met Office).



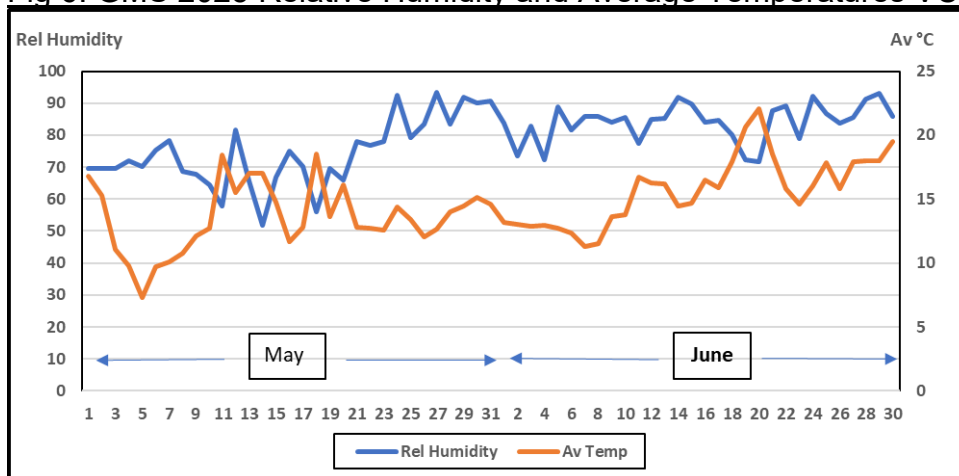
This quarter has also been notable for the number of moths that have not read the memo and are appearing earlier than the textbooks say. Therefore, it is possible some quarter 3 moths are being included in these figures, thereby boosting the figures. A resumé at the end of the year may help to resolve this possibility.

It is not only the moths that are appearing earlier; the newspapers are filled with stories about flying ants. Flying Ant Day typically occurs between the 17th and 24th of July. However, this event has been moved forward due to a combination of high humidity and temperatures. On the first day of July, the Met Office displayed a radar image of a massive cloud of them just north of London. No doubt, these clouds will attract flocks of swifts, swallows, and house martins. Already, Herring Gulls in East Sussex are showing signs of drunkenness after consuming a large number of these ants, which are rich in formic acid.



Here in Mid Wales, we have already had flying ants appearing in our garden in mid-June, brought on by the high humidity, though the temperatures may be lower than further south (fig 6).

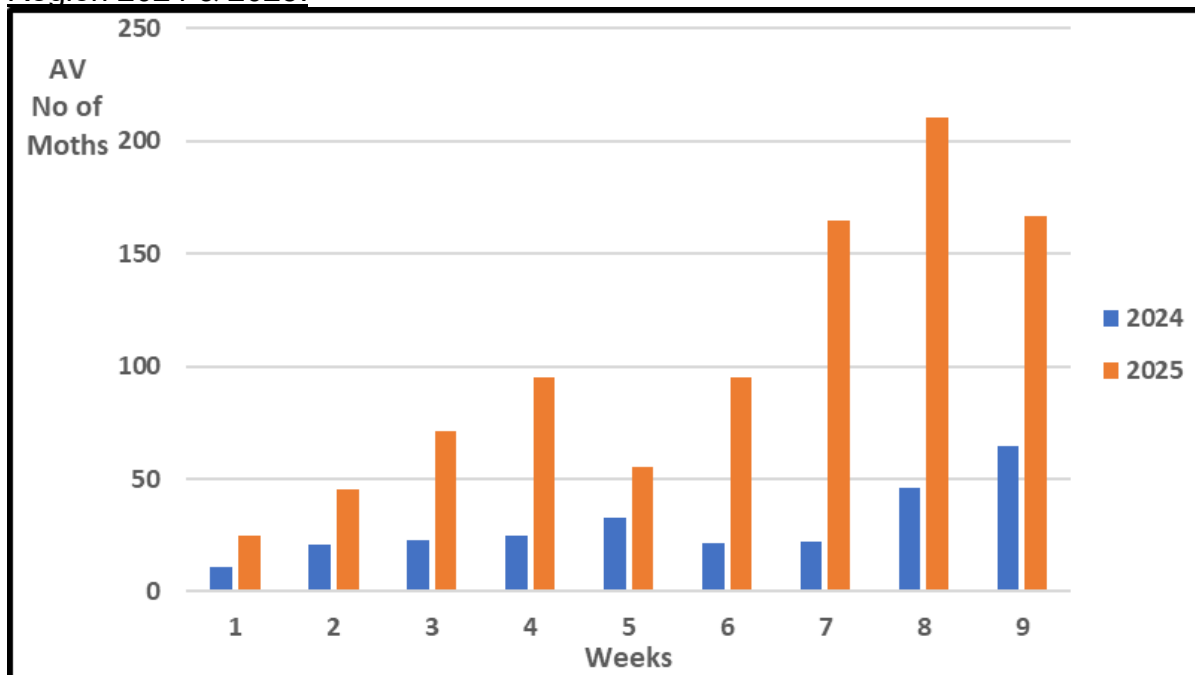
Fig 6. GMS 2025 Relative Humidity and Average Temperatures VC46



Southwest

One of the recorders from the Southwest posed an interesting question. Why were his numbers this quarter, which totalled more than 1000 moths, so much higher than those of the previous year, which yielded only 190 moths? Others also noted that the numbers increased toward the end of this year's quarter. (fig 7).

Fig 7. GMS 2025 Q2. Comparison of the Average Number of Moths – Southwest Region 2024 & 2025.



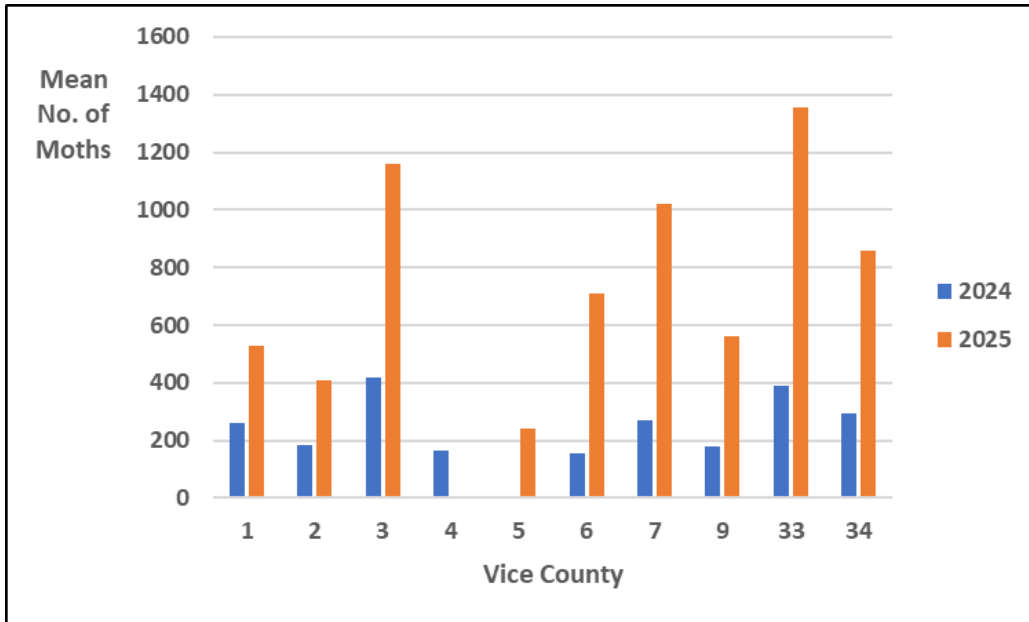
Therefore, like any good bargain, I thought it was too good to be true. I then realised that this year included the "new" regional moths from other regions. Table 1 shows how the numbers have been artificially raised with these new additions.

Table 1 Comparison of the Southwest Moths using the new form

Form	Week 10	Week 11	Week 12	Week 13	Week 14	Week 15	Week 16	Week 17	Week 18
New	654	1188	1853	2476	1441	2467	4284	5474	4337
Old	588	1062	1697	2379	1372	2311	3985	5210	4183

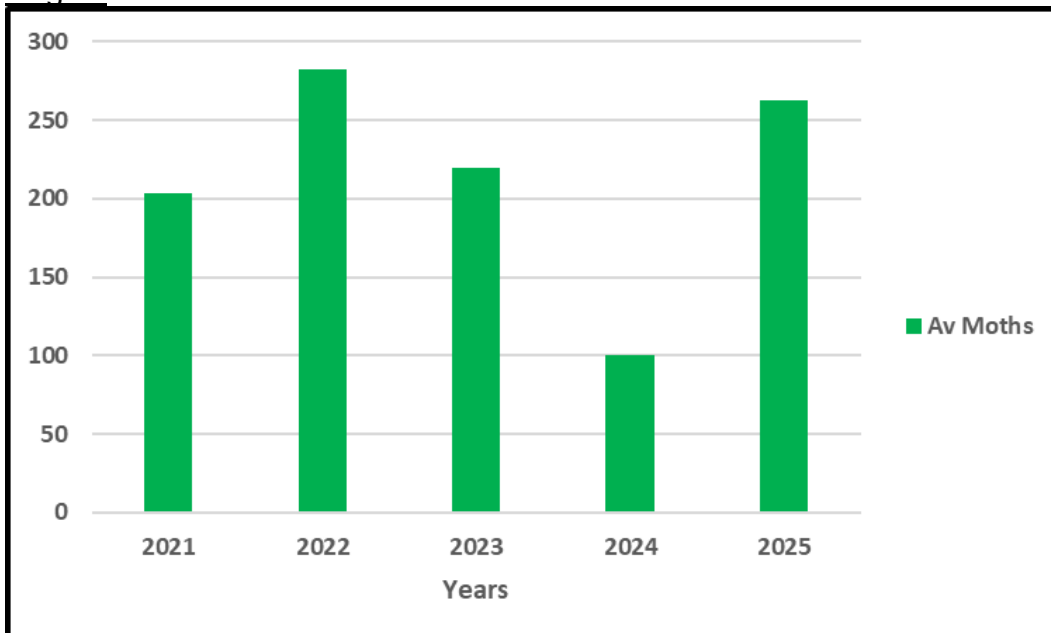
I redid the figures, this time placing them in their respective vice counties (Fig. 8). The absence of moths in VC 4 and 5 is due to the absence of recorders in those years. Despite this statistical challenge, this quarter has undoubtedly been better.

Fig 8. GMS 2025 Q2. Comparison of the Average Number of Moths – Southwest Vice Counties 2024& 2025



I also conducted a brief review of the past few years to determine if this year was an isolated incident, but it appears that last year was truly an anomalous year for insect numbers overall. Often after such a year, there can be a slow increase in moth populations, but it appears to be almost a rebound (fig 9).

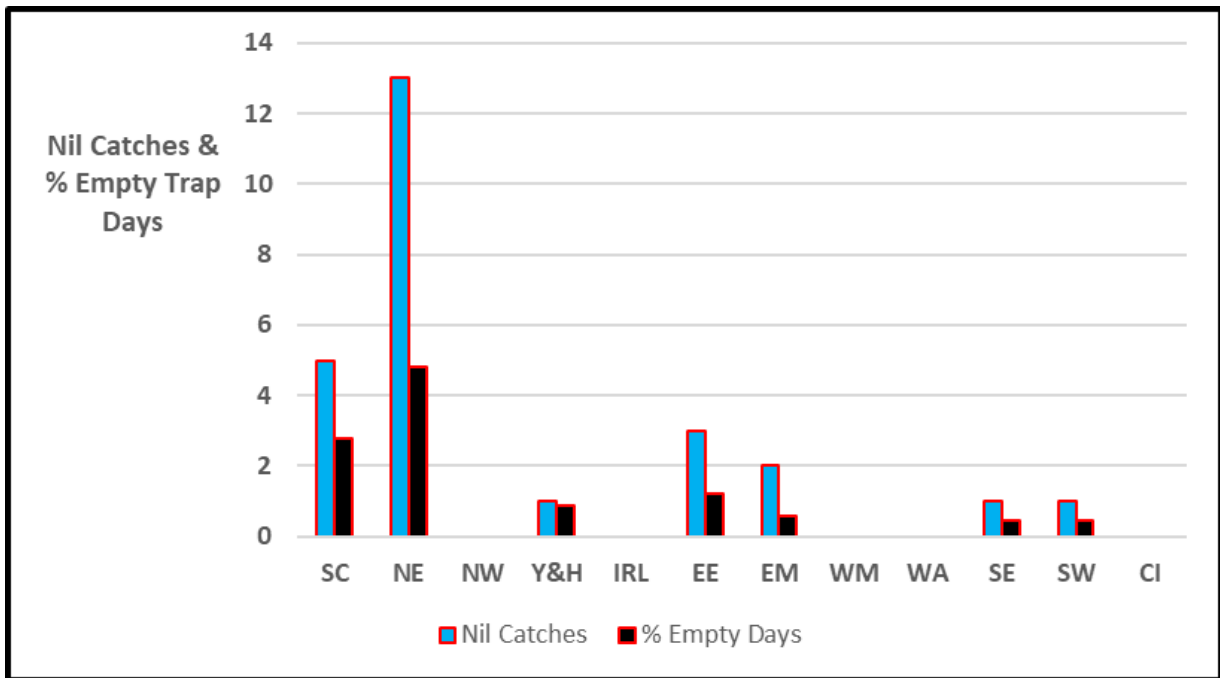
Fig 9. GMS 2025 Q2. The Average Moth Numbers of the Past Five Years – Southwest Region



Regional Comparisons

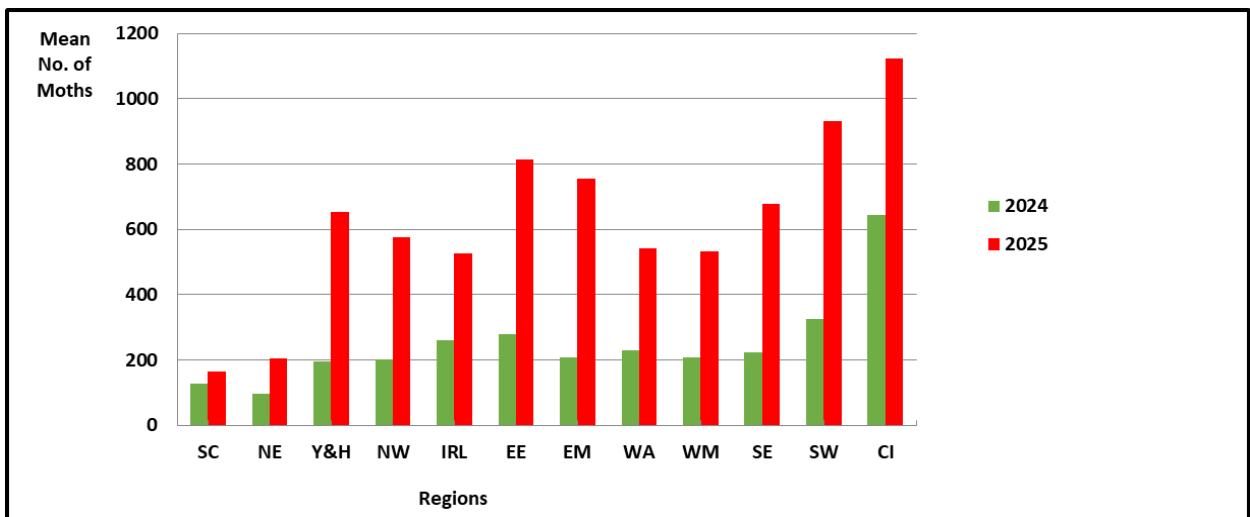
Despite the bumper catches this year, not everyone had moths each week. It certainly appears that the North East had bad luck with their catches, but in fact, the empty traps accounted for less than 5 percent of their recording days (fig. 10).

Fig 10. GMS 2025 Q2. The Number of Empty Traps & their Regional Percentages



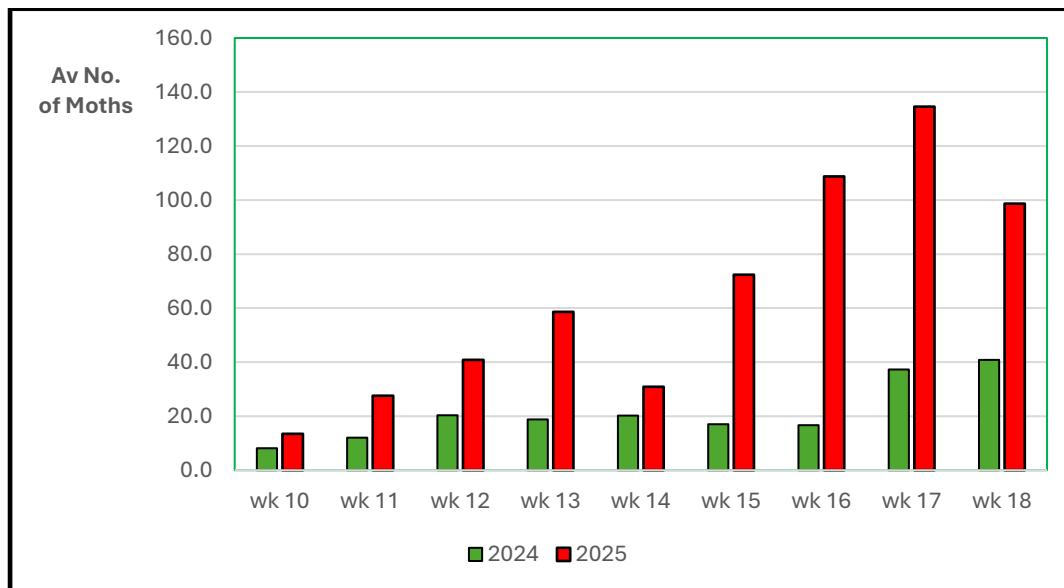
An extension of the South West mothing success is expanded to all regions where there were significant rebounds, except in Scotland and the North East (fig 11). Some of this discrepancy can be explained by the Jetstream, which has been directing the bad weather northwards.

Fig 11. GMS 2025 Q2. The Mean Number of Regional Moths in Both 2024 & 2025



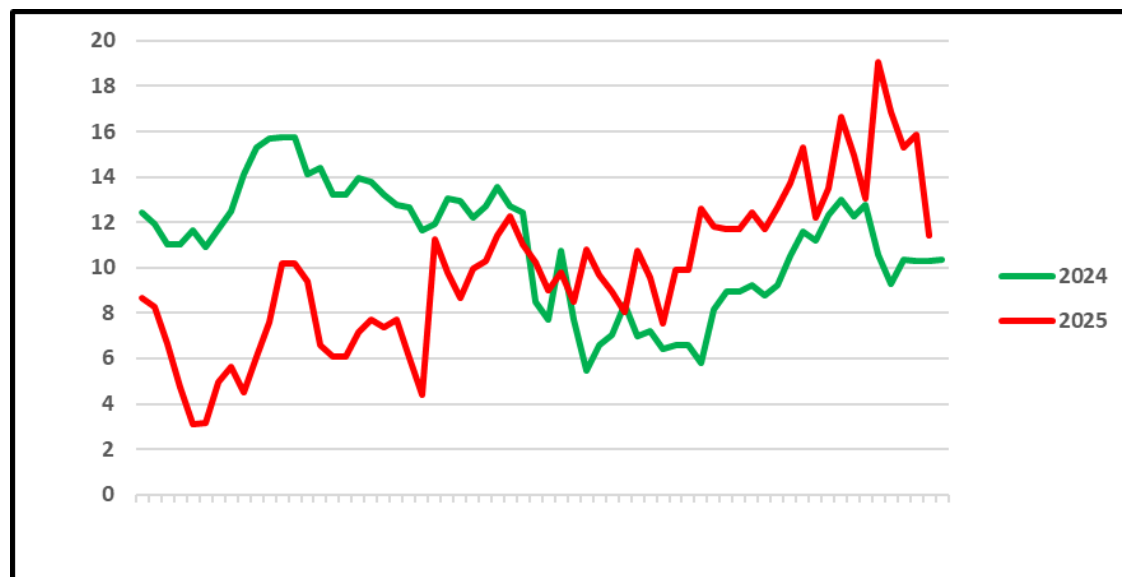
One of the points noted by the South West recorders was that the number of moths increased towards the end of the quarter. This is borne out by the figures, though for some reason the last week dipped slightly (fig 12).

Fig 12. GMS 2025 Q2. The Weekly Mean Number of Moths in Both 2024 & 2025



I thought it was a little strange that the catches dropped significantly in the last week, so I went back to examine my own results to see if there was any pattern. Sure enough, the last two weeks recorded 135 and then 68 moths, with our garden minimum temperatures decreasing from 17.1 to 10.1°C, almost matching the national average (fig 13).

Fig 13. GMS 2025 Q2. Daily Minimum Temperatures 2024 & 2025



Statistics

As mentioned earlier, this year has been much better than last year (table 2). Interestingly, if this table included regional species, the Bird Cherry Ermine would be third. One of the questions the recorder from the Southwest asked was why this year is so much better than last year. I am not exactly sure of a concise answer, but could it be rephrased to ask why everything has done better this year? The hoverflies buzz around the garden, fruit trees are heavy with fruit, and even the wasps are a nuisance.

Table 2. GMS 2025 Q2. Top 20 Core Species

Position .		Top 20 Species	Mean Per Trap			Catching Frequency (%. of gdns)		
2024	2025		2024	2025	Change	2024	2025	Difference
			298 Gardens	282 Gardens				
1	1	Heart and Dart	18.8	50.4	31.54	0.7	97.9	97
4	2	Garden Grass-moth	6.4	34.2	27.84	24.8	82.6	57
12	3	Uncertain/Rustic agg.	4.3	21.9	17.53	0.3	85.1	85
16	4	Large Yellow Underwing	3.4	20.6	17.24	3	97.2	94
6	5	Dark Arches	4.8	17.3	12.48	28.5	94.7	66
15	6	Riband Wave	3.4	15.4	12	74.2	88.3	14
10	7	Marbled Minor agg.	4.6	12.5	7.88	25.5	89	64
24	8	Elephant Hawk-moth	2.1	11.9	9.82	22.8	81.2	58
32	9	Common Footman	1.8	11.1	9.34	34.6	71.6	37
3	10	Buff Ermine	6.5	11.1	4.6	5.7	83.7	78
2	11	Treble Lines	7.2	10.5	3.24	0.3	59.2	59
29	12	Flame	1.9	9.1	7.23	8.7	74.8	66
7	13	Willow Beauty	4.7	9.1	4.34	25.8	81.6	56
13	14	Flame Shoulder	3.9	8.4	4.5	36.2	79.8	44
37	15	Straw Dot	1.6	7.8	6.19	7.4	66.3	59
8	16	Brimstone Moth	4.6	7.7	3.07	42.6	90.4	48
11	17	White Ermine	4.4	7	2.69	13.8	72.7	59
44	18	White-banded Grass-moth	1.4	6.9	5.56	10.7	43.6	33
9	19	Common Marbled Carpet	4.6	5.9	1.34	36.6	87.2	51
18	20	Set Hebrew Character	2.9	5.9	2.16	41.3	59.2	18

Bringing the top 20 chart down to the regional level, this chart shows the ten core moths for the last quarter (Table 3). In his Northwest newsletter, Mike Cook says that this was the best quarter since 2012.

Table 3. GMS 2025 Q2. Regional Top 10 Core Moths

Scotland (22)			North East (32)			North West (32)		
	Mean	%		Mean	%		Mean	%
Garden Grass-moth	11.9	7.2	Large Yellow Underwing	21.9	10.8	Large Yellow Underwing	53.6	4.7
Heart and Dart	9.8	5.9	Heart and Dart	17.9	8.8	Heart and Dart	52.0	4.5
Middle-barred Minor	7.3	4.4	Garden Grass-moth	12.4	6.1	Uncertain/Rustic agg.	23.0	2.0
Large Yellow Underwing	6.6	4.0	Light Brown Apple Moth	6.3	3.1	Garden Grass-moth	21.1	1.8
Buff Ermine	4.1	2.5	Dark Arches	5.4	2.7	Riband Wave	18.2	1.6
Double Square-spot	4.1	2.5	Double Square-spot	5.1	2.5	Dark Arches	17.8	1.5
Silver-ground Carpet	4.0	2.4	Buff Ermine	4.6	2.3	White-banded Grass-moth	16.8	1.5
Mottled Beauty	4.0	2.4	White Ermine	3.8	1.9	Buff Ermine	16.1	1.4
Map-winged Swift	3.5	2.1	Clouded-bordered Brindley	3.6	1.8	Bird-cherry Ermine	15.8	1.4
Dark Arches	3.5	2.1	Riband Wave	3.6	1.8	Double Square-spot	14.3	1.2
Yorks & Humber (13)			Ireland (20)			East of England (27)		
	Mean	%		Mean	%		Mean	%
Heart and Dart	41.2	6.3	Small Square-spot	35.5	6.7	Bird-cherry Ermine	116.7	14.3
Garden Grass-moth	39.2	6.0	Heart and Dart	32.8	6.2	Garden Grass-moth	88.2	10.8
Bird-cherry Ermine	30.2	4.6	Buff Ermine	22.5	4.3	Heart and Dart	55.0	6.8
Large Yellow Underwing	27.6	4.2	Large Yellow Underwing	20.3	3.8	Uncertain/Rustic agg.	26.7	3.3
Uncertain/Rustic agg.	25.8	4.0	White Ermine	20.0	3.8	Elephant Hawk-moth	24.1	3.0
Marbled Minor agg.	21.2	3.3	Garden Grass-moth	17.8	3.4	Common Footman	20.0	2.5
Straw Dot	18.8	2.9	Flame	12.4	2.3	Treble Lines	17.0	2.1
Common Footman	16.3	2.5	Flame Shoulder	12.1	2.3	Heart and Club	17.0	2.1
Dark Arches	15.6	2.4	Clouded Border	10.4	2.0	Dark Arches	16.8	2.1
Elephant Hawk-moth	14.6	2.2	Uncertain/Rustic agg.	9.5	1.8	Willow Beauty	12.8	1.6
East Midlands (35)			West Midlands (16)			Wales (32)		
	Mean	%		Mean	%		Mean	%
Heart and Dart	66.0	8.7	Heart and Dart	72.5	13.6	Heart and Dart	65.5	12.1
Garden Grass-moth	49.4	6.5	Bird-cherry Ermine	40.4	7.6	Uncertain/Rustic agg.	17.3	3.2
Uncertain/Rustic agg.	39.7	5.3	Garden Grass-moth	26.9	5.0	Treble Lines	16.6	3.1
Dark Arches	39.6	5.2	Large Yellow Underwing	19.2	3.6	Flame	16.5	3.0
Bird-cherry Ermine	30.0	4.0	White-banded Grass-moth	18.3	3.4	Garden Grass-moth	15.7	2.9
Large Yellow Underwing	24.2	3.2	Dark Arches	17.8	3.3	Buff Ermine	14.3	2.6
Riband Wave	23.4	3.1	Uncertain/Rustic agg.	15.8	3.0	Riband Wave	14.0	2.6
Elephant Hawk-moth	23.4	3.1	Riband Wave	13.1	2.5	Dark Arches	13.8	2.5
Common Footman	19.7	2.6	Elephant Hawk-moth	12.2	2.3	White Ermine	13.4	2.5
Marbled Minor agg.	17.0	2.2	Setaceous Hebrew Character	9.7	1.8	Flame Shoulder	13.0	2.4
South East (25)			Southwest (26)			Channel Islands (2)		
	Mean	%		Mean	%		Mean	%
Heart and Dart	66.7	9.8	Heart and Dart	64.9	7.0	Marbled Minor agg.	110	9.8
Garden Grass-moth	54.6	8.1	Uncertain/Rustic agg.	41.8	4.5	Buff Ermine	88	7.8
Water Veneer	42.1	6.2	Garden Grass-moth	37.3	4.0	Heart and Dart	76.5	6.8
Uncertain/Rustic agg.	30.5	4.5	Riband Wave	34.5	3.7	White Ermine	75	6.7
Treble Lines	23.6	3.5	Common Footman	26.8	2.9	Brown-tail	46	4.1
Riband Wave	23.0	3.4	Treble Lines	26.7	2.9	Flame Shoulder	36	3.2
Bird-cherry Ermine	22.1	3.3	Dark Arches	23.3	2.5	Garden Grass-moth	35.5	3.2
White-banded Grass-moth	21.0	3.1	Large Yellow Underwing	22.5	2.4	Willow Beauty	31	2.8
Dark Arches	19.1	2.8	Willow Beauty	20.9	2.3	Small Square-spot	28.5	2.5
Willow Beauty	18.2	2.7	Elephant Hawk-moth	20.4	2.2	Dark Arches	28	2.5

Building on Mike’s statement, table 4 displays the maximum number of the top 10 moths from 2012 caught in a single night, along with their region and date for both years. The highest value for each moth is highlighted—blue for 2012 and orange for 2025. Our congratulations go to these recorders, as well as to the unseen others who caught nearly as many.

Table 4. GMS 2025 Q2. Maximum Single Catch of the Top 10 Core Species -2012 & 2025

Top 10	2012	Region	Date
Heart and Dart	297	WA	29/06/2012
Garden Grass-moth	40	WM	29/06/2012
Uncertain/Rustic agg.	33	SW	27/06/2012
Large Yellow Underwing	25	WA	29/06/2012
Dark Arches	88	SE	29/06/2012
Riband Wave	16	WA	21/06/2012
Marbled Minor agg.	36	CI	02/06/2012
Elephant Hawk-moth	7	SW	29/06/2012
Common Footman	11	SE	29/06/2012
Buff Ermine	48	IRL	26/06/2012

2025	Region	Date
110	WA	13/06/2025
804	EE	25/06/2025
81	EM	20/06/2025
166	NW	29/06/2025
123	EM	04/07/2025
42	NW	21/06/2025
63	SW	18/06/2025
50	EE	13/06/2025
89	SW	04/07/2025
37	SC	20/06/2025

All the trap nights and catches recorded by the recorders are summarized in Table 5. The minimum and maximum moth numbers caught over these nine weeks vary widely, likely due to differences in location, trap type, or microclimates. The minimum catches range from 26 to 1067, and the maximum from 471 to 2767, while the trapping effort (Moth Trap Nights) remains very high as usual.

The third section shows the preferred night for trapping. Although Friday is the official night, three nights on either side are acceptable, as everyone hopefully has a life apart from mothing (table 5).

Table 5. GMS 2025 Q2. Regional Statistics

Regions	Gardens	Moths			
		Total	Mean	Min	Max
SC	22	3636	165	31	471
NE	32	6507	203	26	854
Y&H	13	8472	652	146	1951
NW	32	18405	575	134	1848
IRL	20	10532	527	86	1412
EE	27	21969	814	84	2619
EM	35	26425	755	90	2422
WA	32	17360	543	159	1480
WM	16	8520	533	155	1191
SE	26	16941	652	47	1727
SW	26	24189	930	113	2767
CI	2	2246	1123	1067	1179

Moth Trap Nights		
Possible	Actual	Percent
198	180	91
288	274	95
117	115	98
288	271	94
180	166	92
243	220	91
315	293	93
288	259	90
144	136	94
234	226	97
234	223	95
18	18	100

Weekday Trap Nights	Tues	Wed	Thurs	Fri	Sat	Sun	Mon
Number of Nights	37	99	253	1415	327	194	72
Percent	37	98	243	1279	318	168	67

One of the requests was to provide a chart showing the numbers of some moths compared to previous years, rather than just the last year as has been done in earlier newsletters. I therefore created a chart of the top 20 moths from 2015 to the present day (table 6).

The idea was to compare each year's moth number to this year by subtracting its mean value from this year. If the result was negative, indicating fewer moths that year, then the cell was coloured red. Conversely, if there were more moths, then the cell was coloured green. For example, in the case of the Heart and Dart in 2015 it was calculated by subtracting 59.7 from 32.5 making 27.2. Some years with less than one moth difference were left uncoloured. There are no records for the White-banded Grass-moth (*Crambus pascuella*) before 2023

Table 6. GMS 2025 Q2. Comparison of the Yearly Mean Number of Moths in this Quarter.

Species/Year	2025	2024	2023	2022	2021	2020	2019	2018	2017	2016	2015
Heart and Dart	50.2	-30.6	3.4	-12.3	-16.6	9.0	16.0	11.5	-50.2	-13.5	9.5
Garden Grass-moth	34.1	-27.5	-34.1	-34.1	-34.1	-34.1	-25.0	-11.9	-34.1	-27.9	-20.9
Uncertain/Rustic agg.	21.8	-17.3	-5.8	-9.8	-11.3	-4.0	-15.2	14.9	-21.8	-18.1	-11.6
Large Yellow Underwing	20.6	-17.0	-14.3	-14.2	-17.6	-11.2	-11.6	101.8	-20.6	-14.0	-16.1
Dark Arches	17.2	-12.2	6.1	-10.7	-10.6	-7.7	-2.6	12.0	-17.2	-14.3	-11.0
Riband Wave	15.4	-11.8	-8.4	-9.7	-12.0	-8.8	-9.6	8.2	-15.4	-13.5	-10.0
Marbled Minor agg.	12.4	-7.6	-0.1	-3.3	-6.2	-5.7	-6.0	1.1	-12.4	-7.1	-4.6
Elephant Hawk-moth	11.8	-9.7	-6.3	-6.2	-7.6	-5.5	-9.8	-2.9	-11.8	-10.0	-7.9
Common Footman	11.1	-9.2	-6.1	-6.8	-9.9	-6.6	-11.1	9.7	-11.1	-10.6	-9.4
Buff Ermine	11.0	-4.3	-4.3	-0.1	-6.0	-5.4	-11.0	1.3	-11.0	-4.7	-2.4
Treble Lines	10.4	-2.9	-0.2	-2.7	-1.5	-3.1	2.5	-3.6	-10.4	-3.2	-4.2
Flame	9.1	-7.1	-2.8	-0.9	-5.2	-5.0	-6.8	-0.3	-9.1	-5.1	-3.0
Willow Beauty	9.0	-4.1	-0.6	-4.2	-4.4	-5.5	-5.8	4.5	-9.0	-6.3	-6.1
Flame Shoulder	8.4	-4.3	-3.7	-0.5	-4.8	-4.8	-4.8	15.3	-8.4	-4.5	0.1
Straw Dot	7.8	-6.1	-5.4	-3.1	-6.6	-6.4	-7.8	7.8	-7.8	-6.3	-3.7
Brimstone Moth	7.7	-2.8	-1.4	-1.6	-1.6	-2.8	-3.6	11.6	-7.7	-3.2	-2.7
White Ermine	7.0	-2.5	-3.0	-0.5	-3.4	-2.4	-7.0	1.1	-7.0	-2.5	-0.3
White-banded Grass-moth	6.9	-5.5	-6.9								
Common Marbled Carpet	5.9	-1.1	-2.9	-0.4	-1.9	-2.7	-3.2	4.3	-5.9	-1.9	-2.2
Setaceous Hebrew Character	5.8	-2.8	-3.0	0.6	-4.0	-3.6	-0.7	37.8	-5.8	-3.5	-2.6

The extra species below the line that many recorders enter has had 1735 rows of data, including one Mullein Moth larva that somehow entered a trap overnight. Of this total, there were 4138 moths, and of these, they numbered 421 species. There is no doubt some exaggeration exists here, as some moths were entered as both aggregates and species. Congratulations to the great majority who got the spelling correct, which made the task much easier. The entries are cross-checked with my library. I routinely strip off the code and re-do them to ensure the correct moths were entered.

Table 7. GMS 2025 Q2. Top 20 Additional Species

		Total	SC	NE	Y&H	NW	IRL	EE	EM	WA	WM	SE	SW	CI
<i>Eudonia lacustrata</i>	Tawny/Garden Grey	327	20	24	1	46	53	13	0	63	15	13	74	5
<i>Yponomeuta padella</i> agg.	Apple/Orchard agg.	242	0	0	5	0	5	6	0	2	44	0	180	0
<i>Eucosma cana</i>	Hoary Tortrix	114	3	6	23	4	19	30	0	1	5	2	4	17
<i>Archips xylosteana</i>	Variiegated Golden Tortrix	90	0	0	0	0	0	59	0	4	6	19	2	0
<i>Clepsis consimilana</i>	Privet Tortrix	90	2	6	3	9	6	11	0	13	11	5	24	0
<i>Agapeta zoegana</i>	Bright Straw	74	0	0	0	0	0	65	0	5	0	0	4	0
<i>Cnephasia</i> sp.	<i>Cnephasia</i> sp.	68	0	2	2	0	0	24	0	29	0	0	7	4
<i>Eupithecia intricata</i>	Freyer's/ Edinburgh Pug	62	33	5	0	0	0	8	0	0	1	13	2	0
<i>Aleimma loeflingiana</i>	Yellow Oak Moth	58	0	0	2	4	0	21	0	4	10	14	3	0
<i>Eudonia delunella</i>	Pied Grey	57	0	0	0	0	8	0	0	46	0	0	3	0
<i>Hedya pruniana</i>	Plum Tortrix	53	0	3	3	0	4	10	1	17	2	4	9	0
<i>Eucosma hohenwartiana</i>	Common Knapweed Tortrix	52	0	0	0	0	0	50	0	1	1	0	0	0
<i>Cochylimorpha straminea</i>	Common Straw	51	0	0	0	0	0	50	0	0	0	0	1	0
<i>Perizoma albulata</i>	Grass Rivulet	50	2	0	0	0	27	6	3	4	4	2	2	0
<i>Eupithecia subfuscata</i>	Grey Pug	44	7	0	0	5	12	2	0	4	5	1	4	4
<i>Pammene regiana</i>	Regal Piercer	38	0	0	0	1	0	35	0	0	1	0	1	0
<i>Eupithecia dodoneata</i>	Oak-tree Pug	37	0	0	0	0	2	3	0	10	4	3	15	0
<i>Scoparia pyralella</i>	Brown-spot Grey	34	15	0	0	0	1	4	0	1	0	10	2	1
<i>Ephesta woodiella</i>	Blushed Knot-horn	33	0	0	0	0	0	11	0	22	0	0	0	0
<i>Acrionicta alni</i>	Alder Moth	33	2	0	0	0	0	1	0	14	1	1	14	0

Buff Ermine (*Spilosoma lutea*)

This resident moth, a close relative of the White Ermine, belongs to the family Erebiidae (formerly Arctiidae) and sub-family Arctiinae along with the Tiger moths, other ermines, footman moths and allies.

Its distribution has increased significantly since 1970 by 35% but conversely, numbers have decreased at monitored sites by 48%. It is widespread in England, Wales, Ireland, the Isle of Man and the Channel Islands, with a predominantly southern and western distribution in Scotland (Atlas of Britain and Ireland's Larger Moths).

In its vernacular name, "Buff" refers to the yellowish-beige colour of the moth, while "Ermine" likens it to the appearance of the winter coat of the stoat, previously used for ceremonial royal clothing. Its scientific name, *Spilosoma* (spilos- spot and soma – body) and *lutea* (yellow), describes a yellowish moth with spots on its body.

The male is a distinctive yellowish-buff moth, while the female is whiter, with a diagonal row of elongated spots running from the forewing tip to the trailing edge.

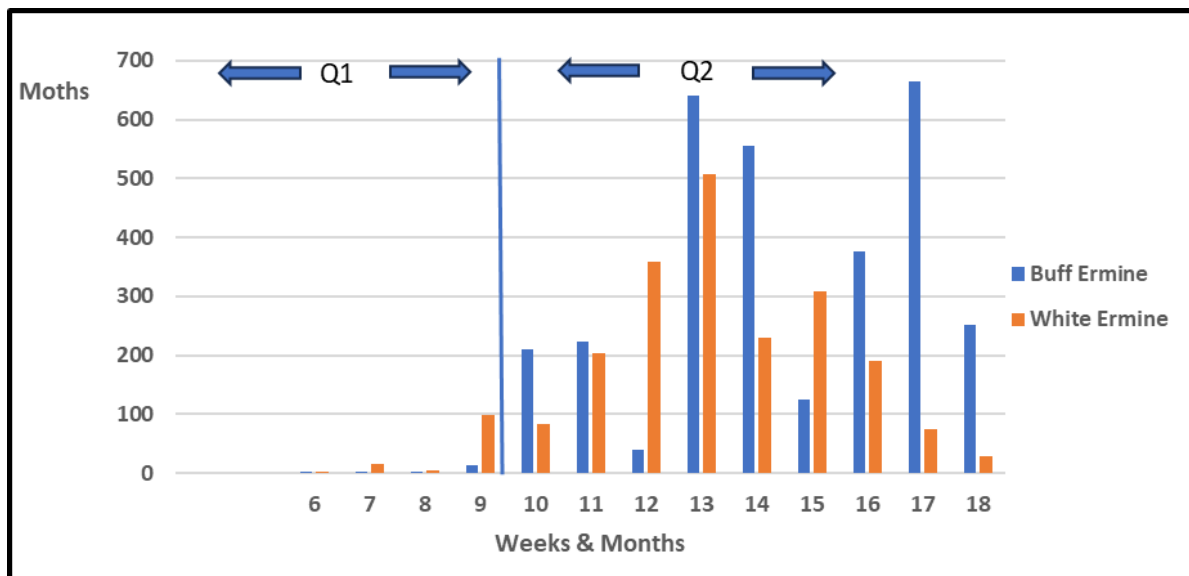


It has one generation with a flight season from mid-May to July, coming to light in numbers. The eggs are laid in July, with the larval stage lasting until October. It overwinters as a pupa in a silken cocoon on the ground. The larvae feed on a wide range of herbaceous plants, especially Common Nettle and woody species including Honeysuckle, Hop and birches. It is found in most habitats including gardens, hedgerows, parks and woodland.

Scientific studies have suggested that the White Ermine emerges earlier in the season, followed by the Buff Ermine. The two species overlap briefly in their flight periods, which means the Buff Ermine

benefits from the presence of the more common White Ermine, gaining protection through mimicry when both are active. This timing helps the Buff Ermine avoid predation by birds that have learnt to avoid the White Ermine's aposematic signals (warning colours that indicate unpalatability or toxicity) [JSTOR.org – Waldbauer & Sheldon].

Fig 14. GMS 2025 Q1&2 Flight Periods of the Buff & White Ermine



Battery Powered LED Strip Light for Skinner Trap

Ian M. White

I started moth trapping about two years ago, using a Skinner Trap supplied with a 20W actinic bulb (Anglian Lepidopterists Supplies model UV10). My garden is 50mts long but runs across the ends of several much smaller gardens, so visible light needs to be kept to a minimum. After a few ad-hoc comparisons between the supplied 20W actinic and a 25W “blacklight-blue” spiral bulb, I could not see any evidence of one catching more moths than the other. I rejected the actinic as it causes light scatter which illuminates a wide area, whereas the 25W “blacklight-blue” is only visible in direct sight, and can therefore be hidden from the view of neighbours. I regularly run the trap at two sites in the garden, one on the patio adjacent the house, and the other next to a shed at the far end of the garden where there is a semi-wild area that backs onto a wooded cliff with a main road and a river at the bottom. The garden is close to the Peak District at an altitude of 310mts, so has lower temperatures than many other areas, and thus lower trap catches. As of 13th July 2025, 187 species of moth have been trapped in the garden.



With holidays in mind, I decided my Skinner trap needed the option of a battery powered bulb. With its electrics removed, the remaining trap flatpacks and is well suited to car travel around the UK. The only modification I have previously made to the trap was the addition of a 32cm square Perspex rain hood to enlarge the circular hood supplied. On the occasions when it has rained during a trap session the only water ingress has been a little dampening of egg boxes near the centre of the trap, i.e. the rain has run down the two “funnel” flaps of the trap. Standard Perspex barely cuts any UV-A or other near UV wavelengths seen by moths; it does block UV-C (100-290nm) but that is beyond the wavelengths of interest.

I found several accounts online describing the use of LED bulbs, either purchased as individual high-powered LEDs, pre-assembled into a lamp, or as a strip of low power LEDs, and most of the accounts described use of a 12V supply. However, the LED-based “Goodden GemLight Super” plugs into a 5V power bank of the type sold for charging mobile phones. The ready availability of 5V LED blacklight self-adhesive strips pre-fitted with a USB plug and costing under £10 makes them an obvious potential choice for a budget moth trap, but I only found one account of their use (Woolmore, 2022). Some sources (e.g. Deijk et al. 2024) caution against using waterproof strips of LEDs as UV discolours their waterproofing layer and reduces UV output! Some sales descriptions lack basic details, but I found and purchased a non-waterproofed LED strip with the following specification: 2mts long; 120 LEDs; 10 Watts; LED type SMD5050 (meaning Surface Mounted Device measuring 5mm x 5mm); wavelength 395-405nm. Deijk et al. (2024) found that 5050 LEDs attracted twice as many moths as the smaller 2835 LEDs. For wavelength comparison, blacklight bulbs output in the 315-400nm range peaking at 365nm (UV-A), actinic bulbs peak at around 420nm and human sight range is typically 380-700nm. That puts the wavelength of the low-cost UV LED strip between blacklight and actinic light. A recent study showed that some moths also respond to certain wavelengths of blue and green, and to a small extent red, which has

led to the development of commercially produced LED moth trap “bulbs” that include those colours as well as UV-A (Brehm, 2017).



To turn the LED strip into a useable “bulb” it had to be wound around a cylinder. Some sources recommend that LEDs be given a heat sink, so I used an old aluminium water bottle. My power bank was advertised as 40,000mAh capacity, although the marked rating on the unit is 45,800mAh. It has one USB-A outlet rated at 3A and another at 2A, so the “bulb” is plugged into the 3A outlet. It has a digital readout of remaining battery capacity, a range of safety features, and has to “boot” into providing power; their term not mine, meaning to switch on output mode. It boots automatically when plugged into a mobile phone but not for an LED strip! The solution was to briefly connect a mobile phone to a spare outlet after connecting the LED “bulb”.

Given that the brighter the bulb, the larger the expected moth catch, I initially made the “bulb” using the full length of the LED strip. To check that it was safe to run the entire 10W strip (2A at 5V) I switched it on for 2 hours, and although the LEDs were warm to the touch, nothing was hot, and the power bank displayed a remaining capacity of 80%.

The first time the trap was set it was still using the full 10W of LED strip and for convenience the trap was placed on the patio to be near the house. It was switched on at 9pm, and still running at 3am, but had failed by 6am. There was a heavy dew that night, but the electrics remained dry, and most importantly, there were some moths in the trap! The running time needed to be increased considerably so the LED strip was reduced to 7W (84 LEDs). The trap was placed near the “shed” location where I normally run my mains operated trap for the Garden Moth Survey. The trap was still running after 9 hours, and the Power bank reported 16% power remaining, but that display subsequently proved a poor predictor of remaining run time.

It is easy to cut the LED strip down in length but not so easy to make it longer, so the next cut was a small one, reducing the “bulb” to 6W (72 LEDs). After 9 hours the power bank displayed 1% power left, but it stayed on for nearly two more hours! A running time of 10h40m was then confirmed by an indoor test, and that should suffice for the April to early September period. It takes about 6 hours to charge the power bank, and it displays 99% for a very long time before reaching 100%!

The following Table summarises the catches from the first three runs of the battery LED “bulb”, along with other trap catches taken around the same time. Lower catches at the “patio” site compared to the “shed” site are consistent with the last two years of catch data. The two sites are about 45m apart and screened from each other by shrubs. After three tests of the battery LED “bulb” I purchased a 7W mains powered LED bulb which emits light at or close to 365nm wavelength (UV-A), and its first two runs are included in the table. Amongst the “shed” results more species were caught using LEDs than the mains “blacklight-blue” bulb, although that is likely to be due to uncontrolled variables, the most obvious being temperature; the smallest catch was on the coolest night and

the highest catch on the warmest. In summary, these data provide no evidence of any catch differences between the three bulb types tested.

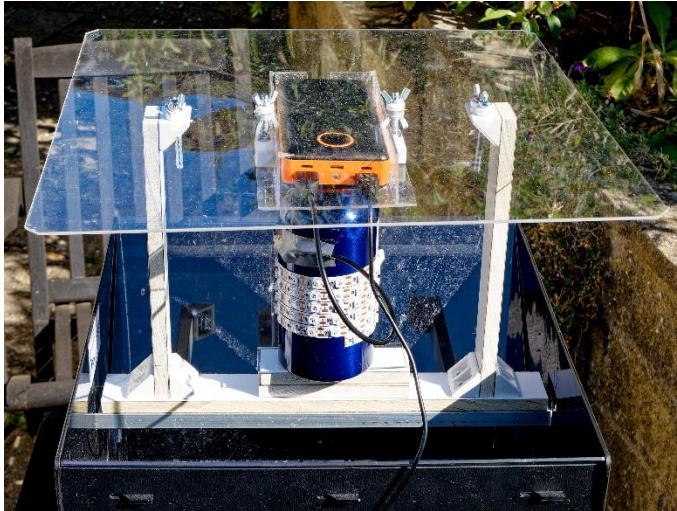
Table. Battery LED and other mid-summer moth trap catches at two locations in a single garden, ordered by increasing catch size

Location	Date	Min. Temp.	Lamp	Wattage	Catch	Species
Patio	29/6/2025	13.2	Battery LED	10	12	9
Patio	19/6/2025	13.4	Spiral	25	14	10
Patio	12/7/2025	13.1	Mains LED	7	19	13
Shed	2/7/2025	9.5	Spiral	25	20	12
Shed	8/7/2025	11.8	Battery LED	6	57	31
Shed	27/6/2025	18.1	Spiral	25	71	19
Shed	11/7/2025	12.7	Spiral	25	72	28
Shed	30/6/2025	15.9	Battery LED	7	92	35
Shed	13/7/2025	16.0	Mains LED	7	126	32



Except for the LED strip and power bank, most materials were from the “spares” collection; Perspex, plastic corner blocks, aluminium angle (1cm x 1cm), and strip material cut from a scrapped sheet of plastic shower wall cladding. Wooden strips could be used but shower cladding cuts easily, takes impact adhesive very well, and is weather-proof.

The first task was to create a new crossbar to replace that supplied with the Skinner trap. I cut two lengths (each 36.3cm) of aluminium angle which were then cut back by 1cm at each end on one face, to leave 1cm tenons to fit in the slots in the side walls of the Skinner trap. These lengths were then bonded (impact adhesive) to a 34 x 4cm wide bar of shower cladding to create the new crossbar, checking the fit before the glue locked the aluminium in place. I then cut two 3.5 x 22cm strips of the cladding material to make the uprights, their length being determined by the height of the LED “bulb”. Those two strips were then glued and screwed (via corner blocks) to create the two uprights. A corner block was also glued and screwed to the inside top edge of each upright.



The rain hood was made from a 37cm square of Perspex, drilled to take 5mm set screws aligned with the holes in the corner blocks at the top of each upright. I also used Perspex to create an open box structure for the power bank. This was made slight over-size, so the power bank has some air around it, and had a small aperture cut at the closed end to allow a pencil to be inserted to poke the power bank out. The “floor” was cut over-sized so that it could be fitted with plastic blocks through which

5mm bolts could be passed to fit the open box to the underside of the rain hood. The three Perspex walls of the “box” were fitted to its floor using a cyano-acrylate adhesive and the plastic blocks fitted with impact adhesive. A retainer is needed for the top of the LED “bulb” and I found that the water bottle I used could be pushed-cum-screwed into the red plastic top of a 3.5cm diameter plastic collection tube. The tube top was glued and screwed to the underside of the floor of the power bank holder; small wood screws were used; their points capped with a piece of cork; their heads taped to prevent them damaging the power bank when it is slid in/out. A block was used to support the weight of the “bulb” and fill the gap between the “bulb” and the crossbar. The upper “bulb” holder might be improved by adapting the original water bottle stopper.

The crossbar/uprights, the power bank holder and the rain hood are all held together using 5mm bolts (set screws), wing nuts and some plastic washers (impermanent fixing allows these parts to be flat packed for transport). When fitted to the trap, the crossbar is a tight fit but in a strong wind the whole assembly might tip (the same applies to the mains powered assembly of this type of trap). One solution would be to fit small wedges of plastic or thin wood into the slots that support the crossbar. When running the mains powered trap, I routinely use a block of wood pressed down on the crossbar and locked in place with a miniature bar clamp. A more sophisticated approach would be to fit a vane each side to both stabilise the rain hood and lock down each of the two diagonal “funnel” flaps of the trap; the vanes could be mounted into the “bulb” support but would have to be removed to empty the trap. There is a study which shows that vanes improve trap catch (Singh et al 2022).

Brehm, G. 2017. A new LED lamp for the collection of nocturnal Lepidoptera and a spectral comparison of light-trapping lamps. *Nota Lepidopterologica* **40** (1): 87-108.

Deijk, J.R. van, Wever, R., Heide, S.R. van, Boers, J., Deijl, I.H.J. van, Grunsven, R.H.A. van. 2024. UV-LEDs outperform actinics for standalone moth monitoring. *Journal of Insect Conservation* **28**: 959-968.

Singh, R.P., Bottger, D., Brehm, G. 2022. Moth light traps perform better with vanes: A comparison of different designs. *Journal of Applied Entomology* **146** (10): 1343-1352.

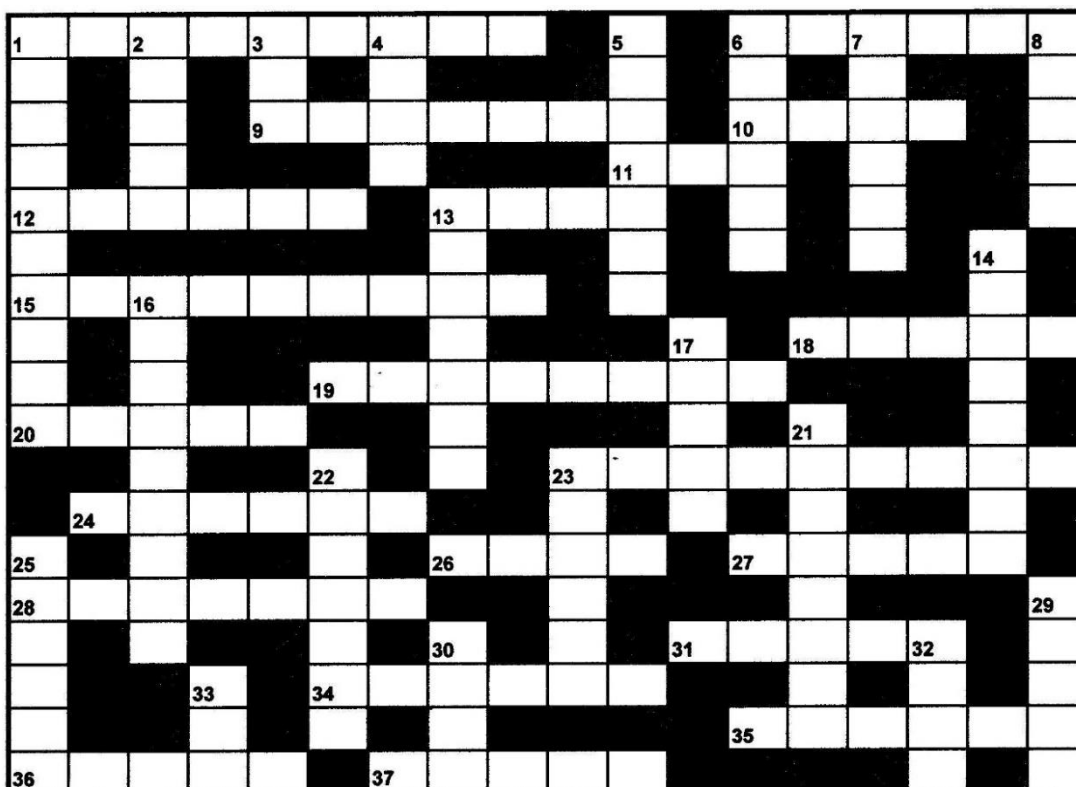
Woolmore, K. 2022. How to build a low cost moth trap. Ealing Wildlife Group. <https://ealingwildlifegroup.com/2022/08/23/how-to-build-a-low-cost-moth-trap/>

Puzzle Corner

Non-conformist

Lepidoptera Crossword No. 26.

All the answers are a part, or all, of the common name of a British Macro-moth to be found in the Atlas of Britain and Ireland's Larger Moths.



Clues Across

1. Does this visiting piscator play his musical suite near the English Channel.
6. When stung by this individual it can be embarrassing either then or now.
9. In our case could be extremely nice looking, very rare or even banned from entry.
- 10 & 6d. The plant could be better raised by making the rows rather more erratic.
11. Mr Crosby missed his bearing and we then found the useful natural instrument.
12. This year Sheffield and Arsenal started with a very sharply fought match.
13. See 2d.
15. Professor Clay Smith became confused looking for the Elixir of Life.
18. A red-hot rendition of the Church of England chords by the replacement choir.
19. Did the priest play games? Of course he did, around a 15-a-side sport.
20. Animals take care of the last raw remains of the food crop.
23. A showy exhibition usually found in units of two.
24. This car celebrates the fact that it is very rare.
26. Is this little one speedy? No. it sounds to be quite the opposite.
27. On average in the Works Department, the staff did this to the departing manager.
28. Was it our Beryl dressed in green? No it was only a mere lad!
31. You would certainly find this moth in your veg. garden.
34. I find that a goosefoot recipe is often good for aches and pains.
35. A common fruit but it is absolutely suitable for angelic youngsters.
36. It all commenced by going with him into the extremely snowy scenery.
37. This drink was saved for the person who was last out of the bar.....

Clues Down

1. This awkward method can really get on a man's nerves.
- 2 & 13across It's dancing time, lets have a waltz.
3. Arboreal growth found mainly in the fashion world.
4. I went with Ron and we managed to straighten things out.
5. Could this 24 sq.ft. paper cover a large cold bird. (Sorry, I'm pre-metric).
6. See 10across.
7. Country dweller found an explicit sure way to return home from town.
8. Sounds as though this moment was provided by the worthy medical assistants.
13. A garland composed of notes helps to adorn the celebration decorations.
14. I could have streaked, but would a bird lend a hand? Perhaps!
16. See 25down.
17. Please remember to look back to our visits to the lakes.
21. An unknown neck-wringer who is certainly not a learner!
22. This sea lover was heard to summon help in a soaking state.
23. You may annoy many a Scotsman by calling him this.
- 25 & 16down Abstinent Semetic individual who can even hear brewer catch his breath.
29. A small part, but he finally came onto the stage.
30. and he certainly was game to throw this.
- 32 The composition of an Annulet.
- 33 .Hard headed person returning into the not unusual circumstances.

Wordsearch 8 solution

These are the moth words which I hope you have found within the square.

Horizontally

Silky, Coast, Lead, Pink, Nut, Nutmeg, Gem, December, Fir, Fox, Iron, Figure, Lime, Gothic, Tooth, Lined, Muslin, May. Wax, Streamer, Spot

Vertically

Clay, Royal, Marsh, Ash, Triple, Tissue, Cabbage, Wood, Rest, Winter, Dot, Ruby, Ringed, Scotch, Handmaid, Emerald, Eyed, Annulet, Grass, Ground, (Round), Buff, Flame, Centre, Oak, Grey, Glaucous, Round, Bar, Drab, (Oak), Lappet, Shell, Smoky.

Diagonally

Trent, Mouse, Lackey, Pea, Berber, Satyr, Ear, Map, Fiery, Brindle, Crinan, Sand, Dew, Dusky, Dogs.

The additional word found consecutively marked within the square is
COSMOPOLITAN.

I hope you worldly folk found it OK.

Nonconformist

Communications & Links.

GMS Website <https://gardenmothscheme.org.uk/> In it are 5 Sections:

Home – the introduction

Information – lists the Regional Coordinators and gives some help with identification

Communications - includes past newsletters

Links – how to access our Facebook material and a link to UK Moths

Downloads - access to the regional recording forms and instructions.

Facebook Page - <https://www.facebook.com/GardenMothScheme>

Facebook Group - <https://www.facebook.com/groups/438806469608527/> - currently with more than 3100 Members (not all active GMS participants) – open membership – recording forms, instructions and micro-moth id guides are available in the Files section.

Bluesky - Garden Moth Scheme [@gardenmothscheme.bsky.social](https://bsky.app/profile/gardenmothscheme.bsky.social)

Twitter - Garden Moth Scheme [@GardenMoths](https://twitter.com/GardenMoths)