GMS News

Autumn 2019

Weeks 28-36

Contents

Editorial – Norman Lowe

Welcome to the final Garden Moth Scheme Quarterly Report of 2019. We have a bumper Christmas edition for you this time with a good variety of articles from lots of different contributors. Of course these always represent our contributors’ personal views, with which you might agree or disagree. And if so, let’s hear from you!

We start as always with Evan’s roundup of the quarter’s results comparing moth catches with weather conditions as they occurred throughout the period. This time he has chosen to compare Ireland and Scotland, the northern and western extremities of our study area. They are also our two largest “regions” (OK I know they (and Wales) don’t like to be called regions but I can’t think of a better alternative) and the ones with the largest numbers of vice counties with no GMS recorders. I’ll return to this theme in my Tailpiece. Evan has also focused on the Setaceous Hebrew Character, a species that seems to vary possibly more than any other from place to place. Some recorders get huge numbers and others hardly any at all.

Next David Baker tells us about his experiences with blacklight uv for his moth trap. He seems to like it! Then Rhian and Adam Davies update us with another snippet on happenings in VC43. The next article is a first for the newsletter, a book review of “Emperors, admirals and chimney sweepers” by Peter Marren. It seems our reviewer wasn’t impressed. Do readers agree?

Following on from this, Stephen Passey has news hot off the press of an exciting collaboration with Cairngorms Connect to use our GMS data to help inform decisions on habitat management in the Scottish Highlands.

I then pitch in with a couple of brief articles, one on the vexing question of how best to release trapped moths and the second describing our cosy little South Wales GMS conference. You'll recall that I asked whether anyone had recorded Clifden Nonpareil and I had one reply from a correspondent telling us that yes he had but it wasn't even the best moth in his trap that morning!

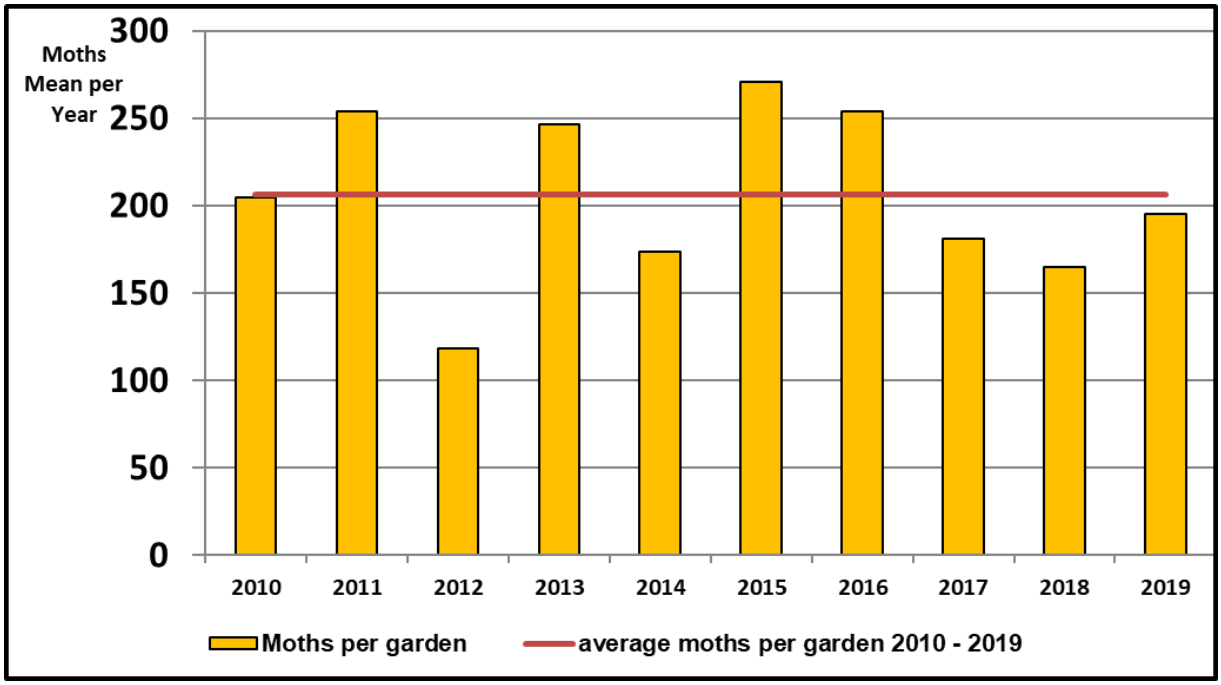
We finish with our latest crossword. As always I test myself against our compiler and this time I completed it though it took me days to "get" the reason for the last answer.

GMS 4th Quarter 2019 – Evan Lynn

Yearly Comparisons

Records received this quarter differed noticeably from those used in my last report, both in terms of the weather and overall moth numbers. I feared the worst after reading comments from several recorders of poor catches in October. While concurrently, Norman Lowe's Welsh report indicated a drop of 75% in the number of Red-line Quakers. So, much to my surprise and against all the odds, moth numbers this quarter remained steady as the fifth highest total since 2010 (fig 1).

Fig 1. GMS 2010 - 2019 Q4. Mean Quarterly Moth Numbers



The regional distribution of moth catches is shown in figure 2 with the more southerly regions catching the majority of the moths. The Channel Islands' catches much exceed those of the rest but care must be taken in interpreting these figures. Our two Channel Islands recorders both did well, whereas some recorders in other regions were less successful. This is illustrated in Table 1 which shows the maximum and minimum catches of recorders in each region and as the records are averaged, low numbers pull down the high numbers.

Recorders with low catches should not be disheartened because they may possibly reflect the true state of moths in our suburban gardens which can be affected by street lights and maybe other local environmental conditions. Also, neighbourhood politics may stop them using powerful MV bulbs that really pull in the moths, but even these are now on the way out due to difficulties of supply.

Fig 2. GMS 2010 - 2019 Q4. Mean Regional Moth Catches

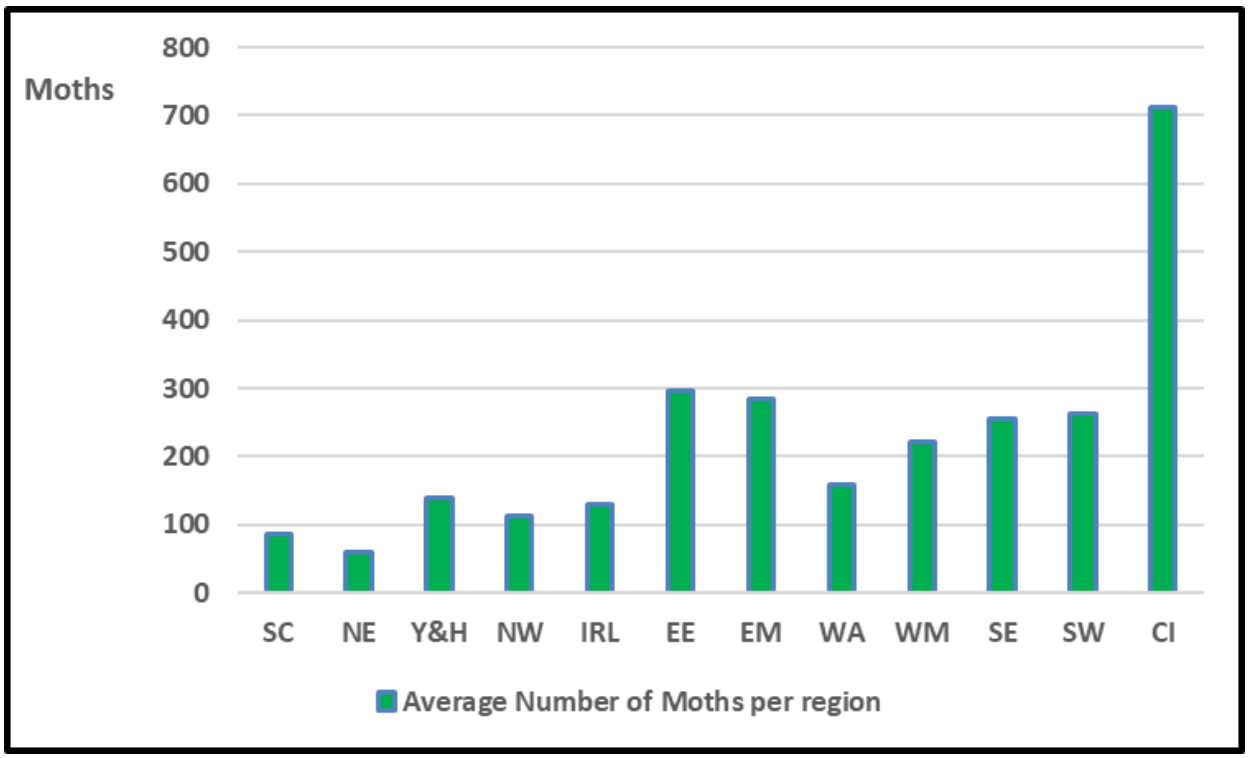


Table 1. GMS 2010-2019 Q4 Maximum and Minimum Regional Catches

Region	SC	NE	Y&H	NW	IRL	EE	EM	WA	WM	SE	SW	CH
Recorders	21	25	14	41	26	35	34	42	24	33	42	2
Max	301	197	308	370	528	656	838	514	843	859	1241	1012
Min	16	5	15	6	7	9	63	25	19	20	42	905
Mean	85	60	140	113	129	296	285	157	223	254	263	959

Temperature and Catches

The weather for these two months has ranged from quiet sunny spells to strong winds and heavy rain. All of these periods of stormy weather are relevant to the GMS recorders for as well as any biological effects on the moths, wet and windy weather may curtail flying activities on recording nights leading to results untypical for the time of year. While much of this is normal autumnal weather, there have been unwelcome additions from the remains of the hurricanes and tropical storms that caused so much devastation in the tropics. Dorian (Sept 9) started it off, acquiring energy from storm Gabrielle. These were followed by Humberto (24 Sept) and Lorenzo (03 Oct) all of which played a part in bringing in heavy rain and winds to many parts of the region.

While many of our Atlantic storms follow the jet stream the hurricanes and tropical storms have a different source. They all originate as offshoots of thunderstorms in the Inter Tropical Convergence Zone (ITCZ). This phrase refers to the humid thundery weather in the Horse Latitudes, or the Doldrums, both north and south of the equator. In the Northern Hemisphere the ITCZ is pushed northwards (fig 3A) from the equator during hot weather. The hot humid conditions produce thunderstorms and if conditions are just right (light winds, and ocean temperatures of at least 26°C), they can spin off to form tropical storms in the Caribbean. These then can grow in size to hurricanes in the warm waters and eventually approach Europe in a degraded state bringing in energy in the form of wind and rain (fig 3B).

Fig 3A. Seasonal Position of the ITCZ

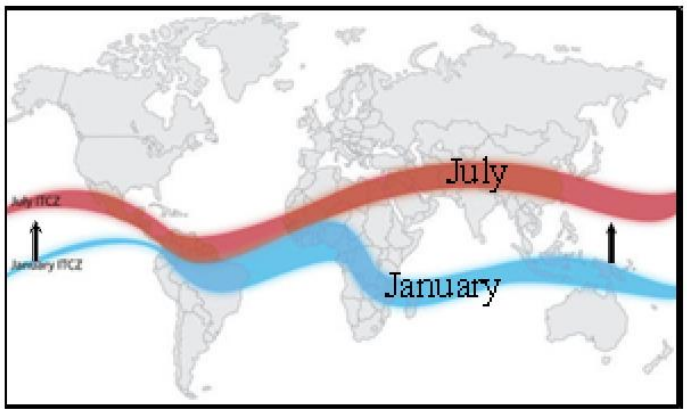
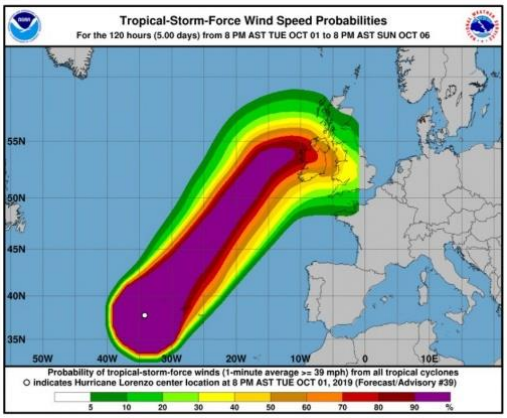
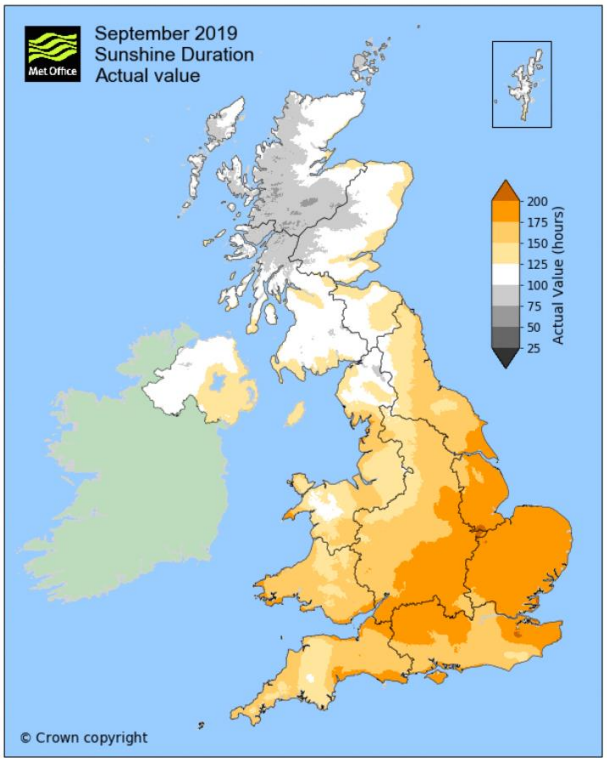


Fig 3B. Track of Lorenzo



The weather for this quarter is shown in the monthly summaries below. Fig 4 shows the hours of sunshine throughout the UK and Fig 5 shows the areas which had the heaviest rainfall of at least 10mm per day.

Fig 4. Hours of Sunshine for September & October 2019 (with permission of the Met Office)



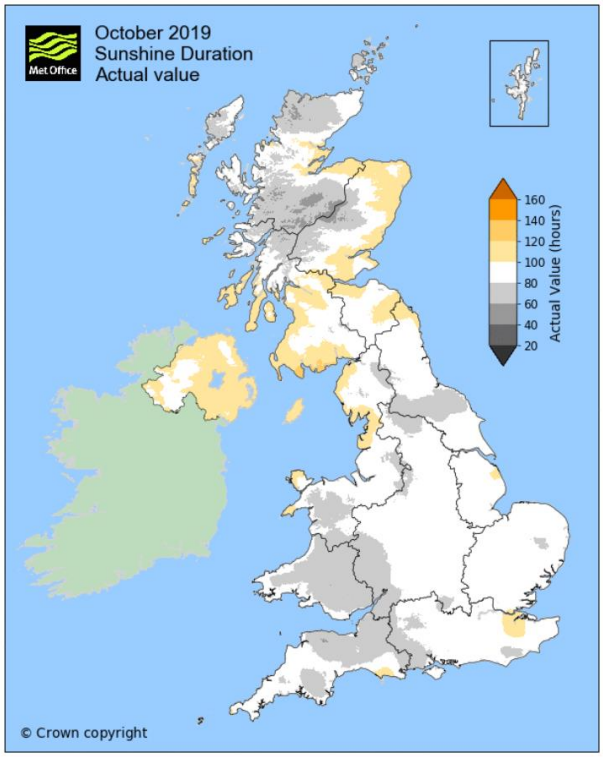
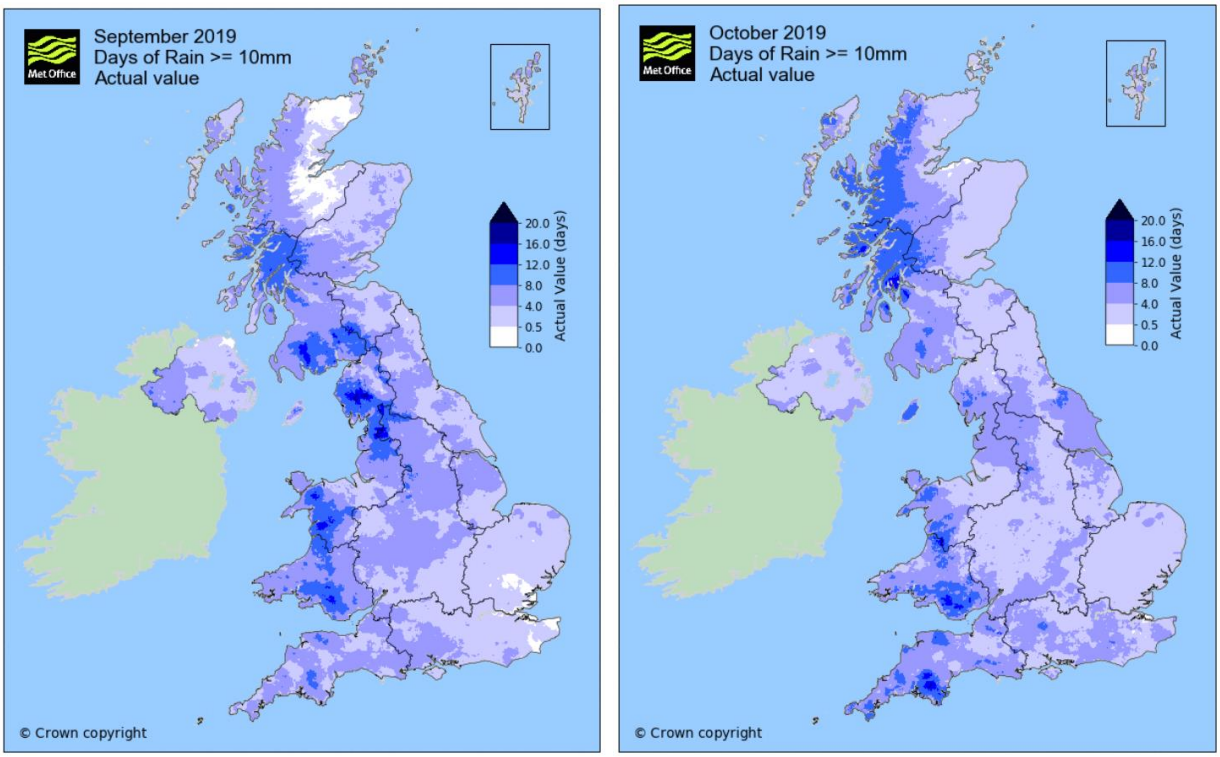
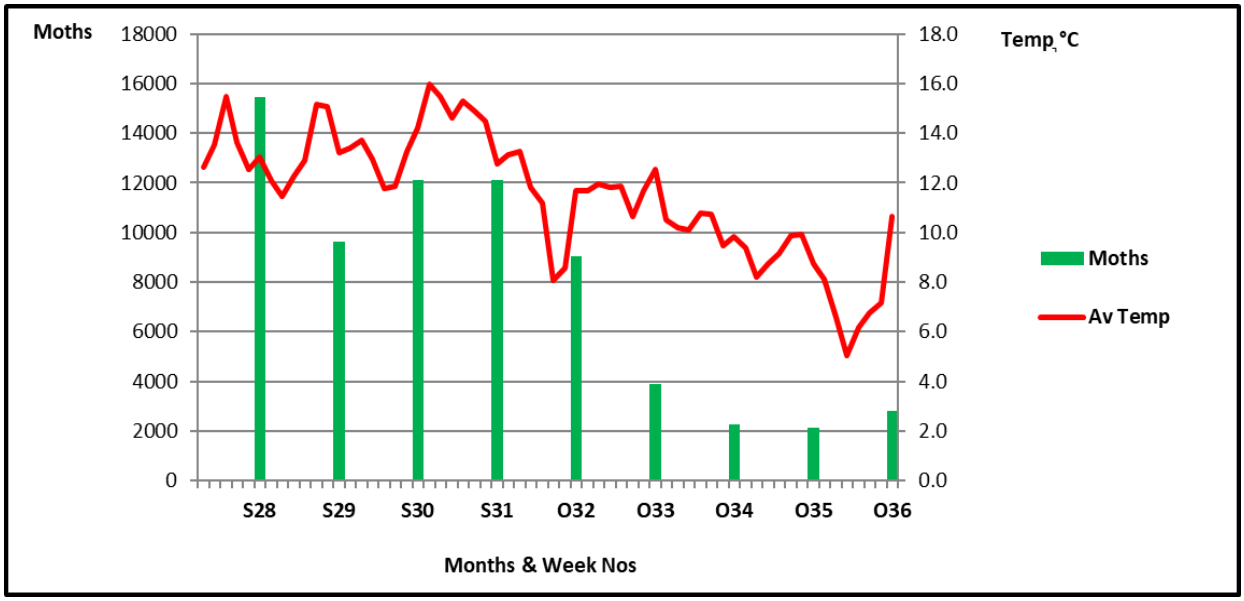


Fig 5. Days of rain in excess of 10mm for September & October 2019 (with permission of the Met Office)



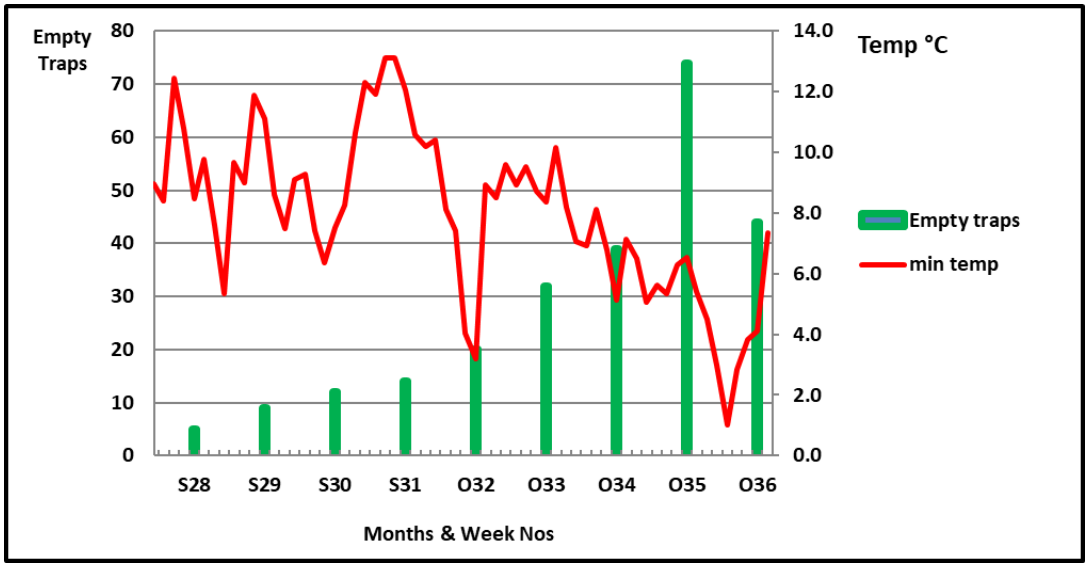
The catches associated with these weather charts produced good numbers in September dropping steeply in October (Fig 6)

Fig 6. GMS 2019 Q4. Average Daily Temperatures and Total Moths Caught



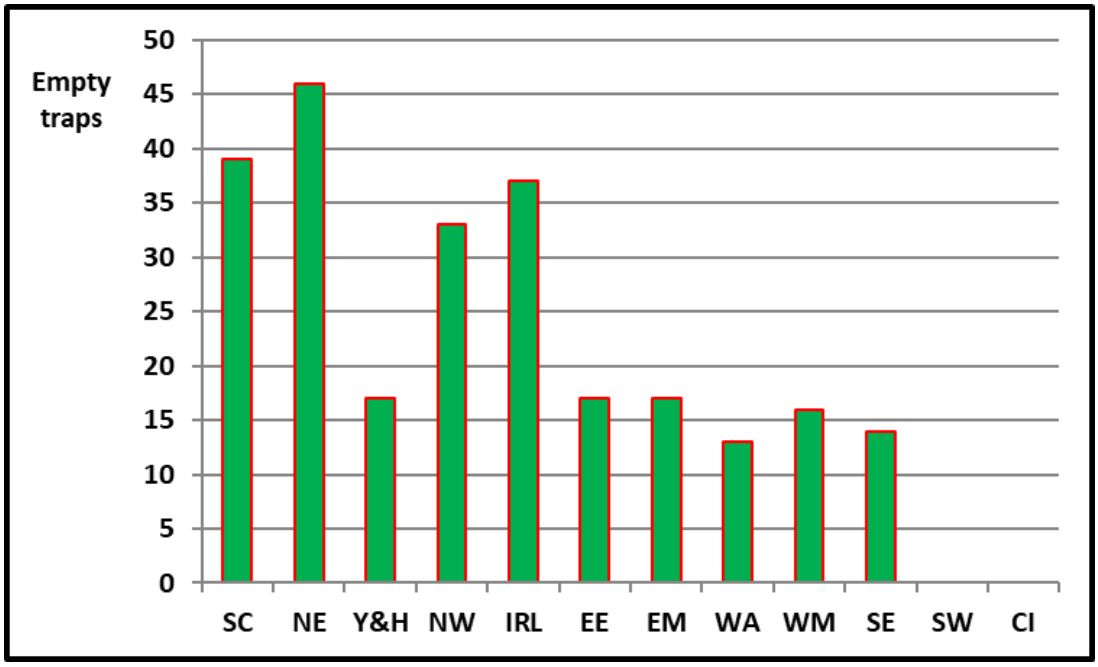
After the pleasant third quarter when there were only four empty traps, this quarter was very different with 249 empty traps. After the deterioration in weather conditions following Lorenzo (October 3) the number of empty traps started rising to a peak of 67 in week 35 (October 25) as seen in figure 7.

Fig 7. GMS 2019 Q4. Average Minimum Temperatures and Number of Empty Traps



These disappointing catches were not uniformly distributed but occurred mainly in the more northern regions and in Ireland (fig 8).

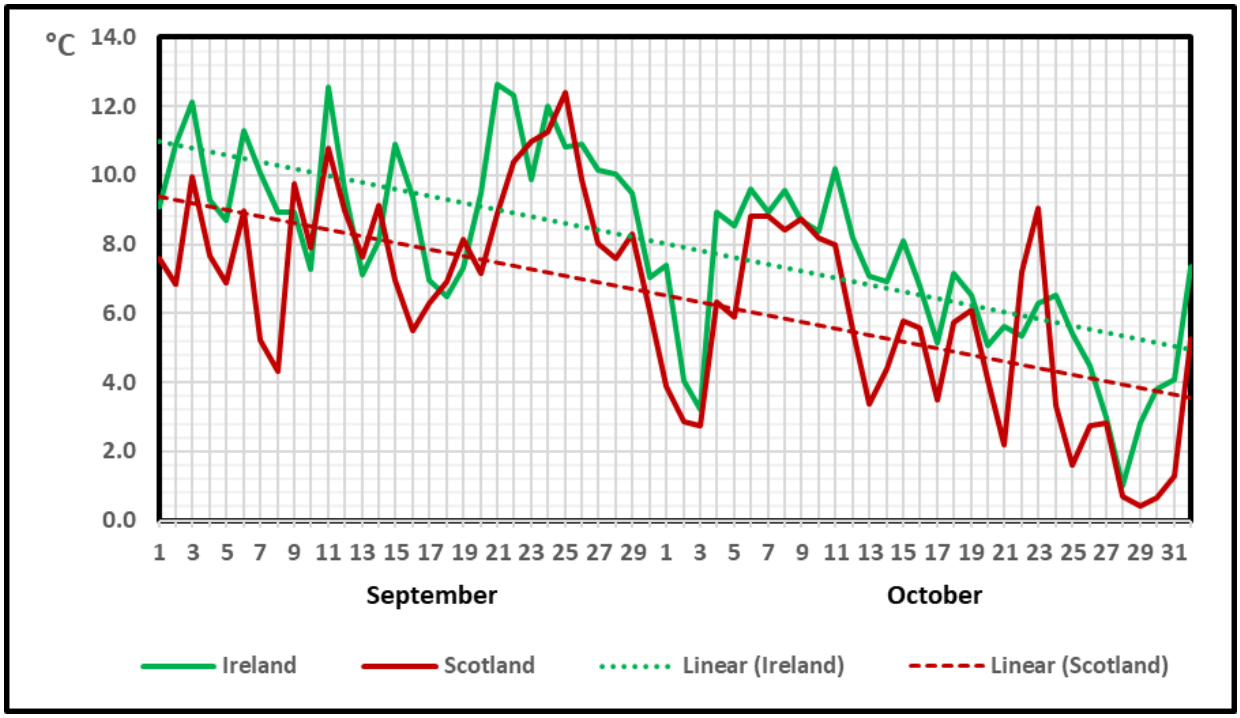
Fig 8. GMS 2019 Q4. Number of Empty Traps per Region



Regional Comparisons – Ireland & Scotland

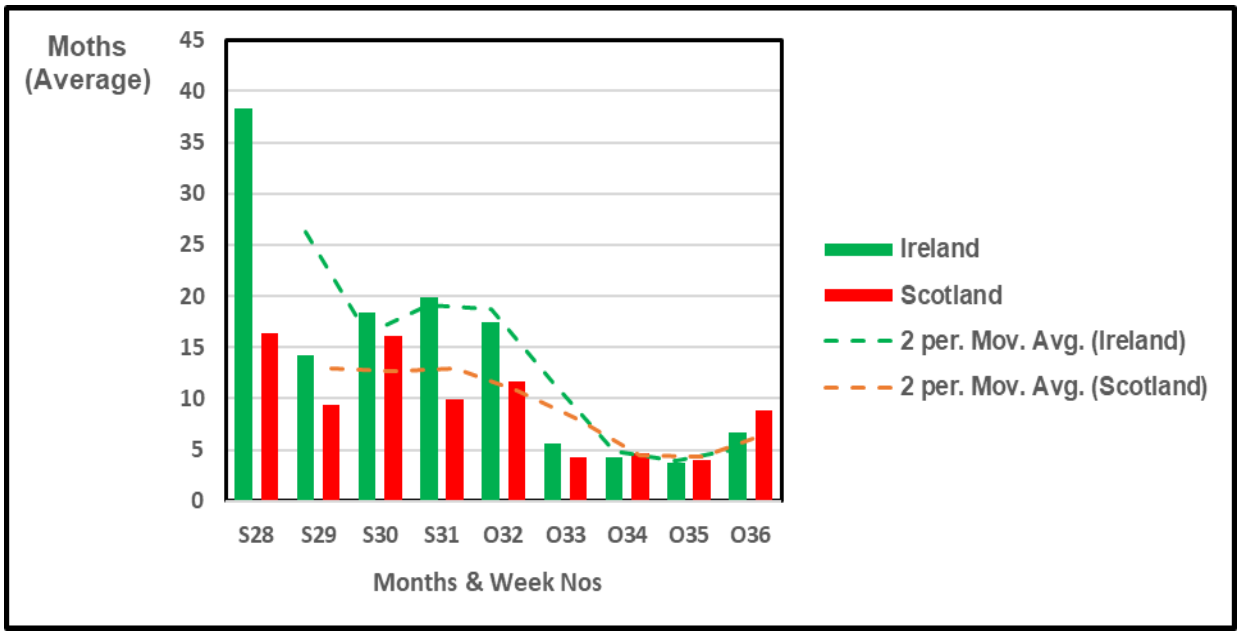
This month I compare Ireland and Scotland. Both regions are open to the full force of the westerly winds with the more northerly parts experiencing the worst of the storms brought in by the jet stream while the east coast of Scotland is exposed to the colder North Sea. Both sets of daily temperatures fluctuate together but with Scotland being mainly below that of Ireland though the trendlines show a small convergence of temperatures (fig 9). The lower temperatures in Scotland are to be expected as it is further north geographically and any warming effects of the North Atlantic Drift will be lost on its more easterly side.

Fig 9. GMS 2019 Q4. Minimum Temperatures in Ireland & Scotland



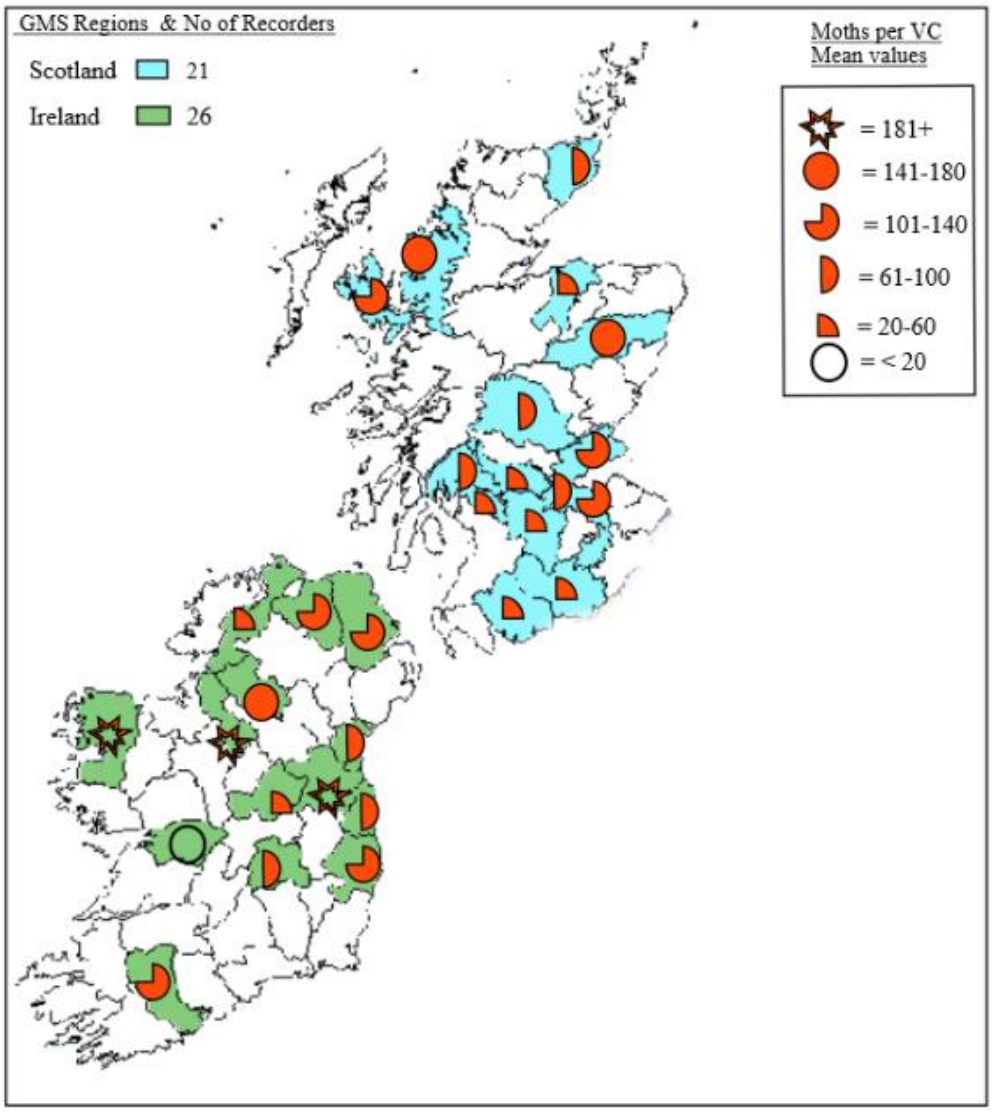
Ireland started off doubling the Scottish catches but then fell below Scotland before gaining the lead for the rest of September. In October there was a major fall for both of them before a slight recovery in the final week. The moving average line helps to smooth out the histogram for easier comparisons. (fig 10).

Fig 10. GMS 2019 Q4. Weekly Catches in Ireland & Scotland



Both regions are large and diverse with many Vice Counties yet to be included in the GMS scheme (fig 11) (*so if you live in one of these or know someone who does, let's hear from you – Ed.)*

Fig 11. GMS 2019 Q4. GMS Vice Counties in Ireland & Scotland



Statistics

This quarter has shown slightly more moths compared with last year. This is mainly due to the large numbers of Large Yellow Underwing and Setaceous Hebrew Character (Table 2). Other species in the top twenty either made modest gains or losses with the biggest drop being with the Beaded Chestnut.

The Rusty-dot Pearl kept position number twenty until I entered the results for Wales, when it was pushed off the list by the Snout. Interestingly enough I have just received the new Moth Atlas and I noticed that this moth has been gradually pushing its way northwards.

As before I have kept the catching frequency table demonstrating the number of sites at which the moth in question has been caught, regardless of frequency or quantity. To this I have added another column, (Diff), showing the difference in number of sites between the two years. A negative difference means that the moths were found at a larger number of sites last year. Logically, this would mean a reduction in the number of moths caught, but occasionally, as in the cases of the Silver Y and the Angle Shades, more moths were found at fewer sites.

Table 2. GMS Q4 2019 – Top 20 Core Species

Position		Top 20 Species	Mean Per Trap			Catching		
2018	2019		2018	2019	Change	2018	2019	Diff
1	**1**	Large Yellow Underwing	39.7	39.0	-0.7	308	**273**	-35
3	**2**	Setaceous Hebrew	10.1	24.0	13.9	223	**243**	20
2	**3**	Lunar Underwing	20.0	18.6	-1.5	219	**208**	-11
6	**4**	Square-spot Rustic	9.0	12.6	3.5	238	**244**	6
4	**5**	Lesser Yellow Underwing	9.2	9.5	0.3	277	**260**	-17
8	**6**	Light Brown Apple Moth	5.9	7.2	1.3	209	**221**	12
7	**7**	Black Rustic	6.8	7.1	0.2	224	**205**	-19
5	**8**	Beaded Chestnut	9.1	5.4	-3.7	158	**162**	4
12	**9**	Common Marbled Carpet	3.1	4.2	1.1	229	**223**	-6
13	**10**	Vine's Rustic	3.0	3.9	0.9	112	**151**	39
29	**11**	Common Wainscot	1.3	2.7	1.4	99	**116**	17
9	**12**	November Moth agg.	4.4	2.6	-1.9	195	**157**	-38
11	**13**	Yellow-line Quaker	3.4	2.6	-0.8	187	**169**	-18
15	**14**	Silver Y	2.4	2.5	0.1	226	**207**	-19
18	**15**	Red-green Carpet	2.0	2.5	0.5	170	**191**	21
14	**16**	Green-brindled Crescent	2.5	2.2	-0.3	182	**180**	-2
41	**17**	Flounced Rustic	0.9	1.8	0.9	93	**159**	66
30	**18**	Angle Shades	1.3	1.8	0.5	179	**172**	-7
20	**19**	Rosy Rustic	1.8	1.7	-0.1	136	**121**	-15
31	**20**	Snout	1.3	1.7	0.4	137	**131**	-6

0.4

The information in Table 3 summarises the activities of the 12 regions in this fourth quarter. Please congratulate yourselves on a job well done.

Table 3. GMS 2019 Q4. – Regional Statistics

Region	Gardens	Moths	Moths	Moths	
		Total	Mean/gdn	Min	Max
SC	21	1793	85	16	301
NE	25	1507	60	5	197
Y&H	14	1959	140	15	308
NW	41	4616	113	6	370
IRL	26	3343	129	7	528
EE	35	10376	296	9	656
EM	34	9698	285	63	838
WA	42	6614	157	25	514
WM	24	5340	223	19	843
SE	33	8395	254	20	859
SW	42	12091	288	42	1241
CI	2	1917	958.5	905	1012

Moth Trap Nights		
Possible	Actual	Percent
189	178	94
225	203	90
126	95	76
369	333	90
234	213	91
315	288	91
306	297	97
378	344	91
216	201	93
297	271	91
333	305	92
18	18	100

Weekday Trap Nights							
Night	Tues	Wed	Thurs	Fri	Sat	Sun	Mon
Days	55	252	455	1183	366	195	66
Percent	2	10	18	46	14	8	3

Table 4. GMS 2019 Q4. Top 10 Regional Species

Scotland (21)	Mean	North East (25)	Mean	North West (41)	Mean
Light Brn Apple Moth	6.6	Large Yellow Underwing	12.3	Large Yellow Underwing	20.2
November Moth agg.	5.5	Lesser Yellow Underwing	4	Lesser Yellow Underwing	9.3
Spruce Carpet	5	Light Brown Apple Moth	3.2	Set Hebrew Character	8
Common Marbled Carpet	4	Yellow-line Quaker	2.7	Light Brown Apple Moth	6.9
Autumnal Rustic	4	Rosy Rustic	2.6	Square-spot Rustic	4.7
Black Rustic	3.6	Silver Y	2.1	Common Marbled Carpet	4.3
Green-brindled Crescent	3.4	November Moth agg.	2	Red-Green Carpet	3.8
Square-spot Rustic	3.3	December Moth	1.9	Silver Y	3.8
Rosy Rustic	2.9	Green-brindled Crescent	1.9	Black Rustic	3.5
Feathered Thorn	2.8	Common Marbled Carpet	1.8	Yellow-line Quaker	3.3
Yorks & Humber (14)	Mean	Ireland (26)	Mean	East of England (35)	Mean
Large Yellow Underwing	18.9	Square-spot Rustic	16	Set Hebrew Character	63.8
Set Hebrew Character	17	Beaded Chestnut	12.3	Large Yellow Underwing	55.4
Beaded Chestnut	15.3	Rosy Rustic	7.9	Square-spot Rustic	23.5
Lunar Underwing	10.1	Light Brown Apple Moth	7.8	Lunar Underwing	22
Light Brown Apple Moth	8.9	Common Marbled Carpet	7.8	Black Rustic	19.8
Lesser Yellow Underwing	7.1	Set Hebrew Character	7	Lesser Yellow Underwing	13.4
Yellow-line Quaker	4.2	Large Yellow Underwing	6.5	Beaded Chestnut	8.3
Green-brindled Crescent	3.9	Black Rustic	6.2	Light Brown Apple Moth	8.2
Brown-spot Pinion	3.5	Lesser B-b Yellow Underwing	4.7	Vine's Rustic	7.1
Square-spot Rustic	3.4	Lesser Yellow Underwing	3.3	Diamond-back Moth	5.2
East Midlands (34)	Mean	West Midlands (24)	Mean	Wales (42)	Mean
Set Hebrew Character	70.9	Large Yellow Underwing	44.5	Large Yellow Underwing	28.7
Lunar Underwing	42.5	Lunar Underwing	28.7	Set Hebrew Character	12.6
Large Yellow Underwing	41	Black Rustic	15.8	Square-spot Rustic	10.6
Lesser Yellow Underwing	20.1	Set Hebrew Character	14.8	Lunar Underwing	8.6
Square-spot Rustic	11.5	Lesser Yellow Underwing	12.5	Lesser Yellow Underwing	6.6
Light Brown Apple Moth	10.2	Square-spot Rustic	12.3	Common Marbled Carpet	6.2
Black Rustic	7.9	Beaded Chestnut	8.3	Beaded Chestnut	4.9
Common Wainscot	7.3	Light Brown Apple Moth	7.8	Silver Y	4.2
Beaded Chestnut	6.2	Common Marbled Carpet	5.4	Light Brown Apple Moth	4.2
Vine's Rustic	6	Red-Green Carpet	4.7	November Moth agg.	4
South East (33)	Mean	Southwest (42)	Mean	Channel Islands (2)	Mean
Large Yellow Underwing	60.2	Large Yellow Underwing	91.4	Rusty-dot Pearl	130
Lunar Underwing	42.5	Lunar Underwing	29.6	Lunar Underwing	117
Black Rustic	24.1	Setaceous Hebrew Character	22.7	Large Yellow Underwing	84.5
Set Hebrew Character	23.2	Square-spot Rustic	15.5	Feathered Ranunculus	68.5
Lesser Yellow Underwing	9.7	Lesser Yellow Underwing	10.3	Square-spot Rustic	56
Square-spot Rustic	8.5	Vine's Rustic	10.1	Set Hebrew Character	37.5
Beaded Chestnut	7.8	Light Brown Apple Moth	7.3	Black Rustic	17.5
Light Brown Apple Moth	7.5	Common Wainscot	7.4	Shuttle-shaped Dart	17.5
Common Marbled Carpet	4.8	Beaded Chestnut	6.3	Vine's Rustic	16.5
Red-Green Carpet	3.6	Common Marbled Carpet	6.0	Light Brown Apple Moth	15

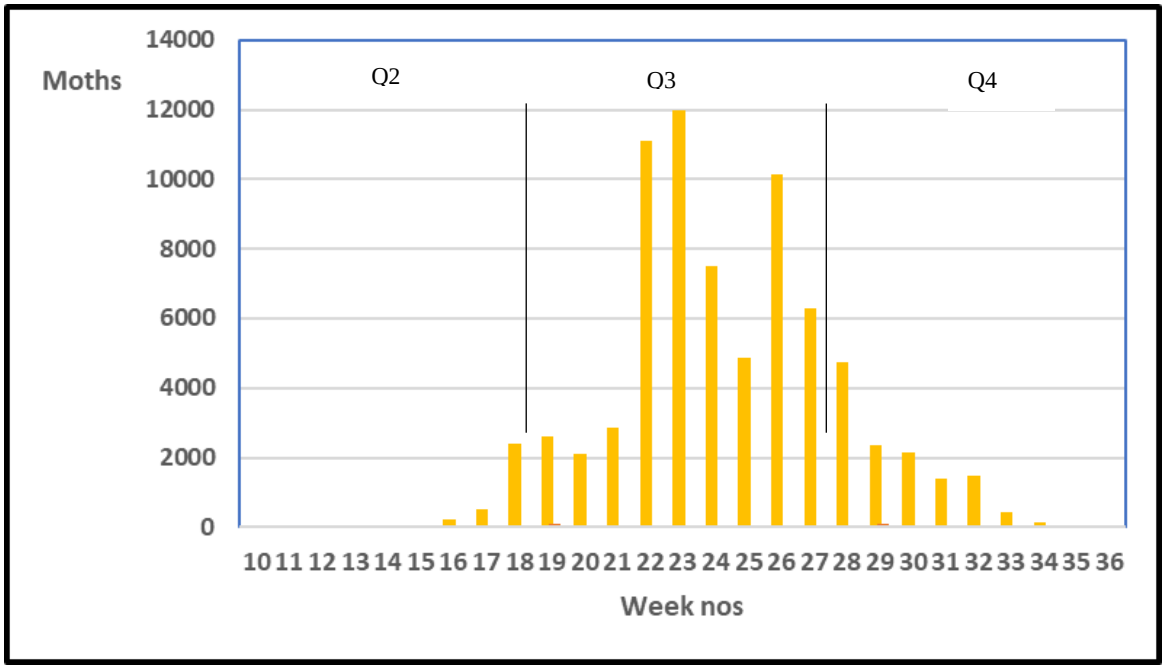
The mean number per garden of the top ten moths as well as the number of recorders in each region is shown in Table 4. Here again, the Large Yellow Underwing is top moth in seven

regions. In East of England and the East Midlands the highest number caught in one trap is shared by the Setaceous Hebrew Character where two recorders caught 195 and 163 on weeks 29 & 30 respectively. The Rusty-dot Pearl, which lost its position on the top 20 list, was caught on 18 occasions in the Channel Islands with one trap yielding 50 on one night.

Large Yellow Underwing

Continuing on with last quarter's report on the Large Yellow Underwing figure 12 shows the complete flight period spanning three quarters of the GMS year.

Fig 12. GMS 2019 Q4. Large Yellow Underwing Flight Period

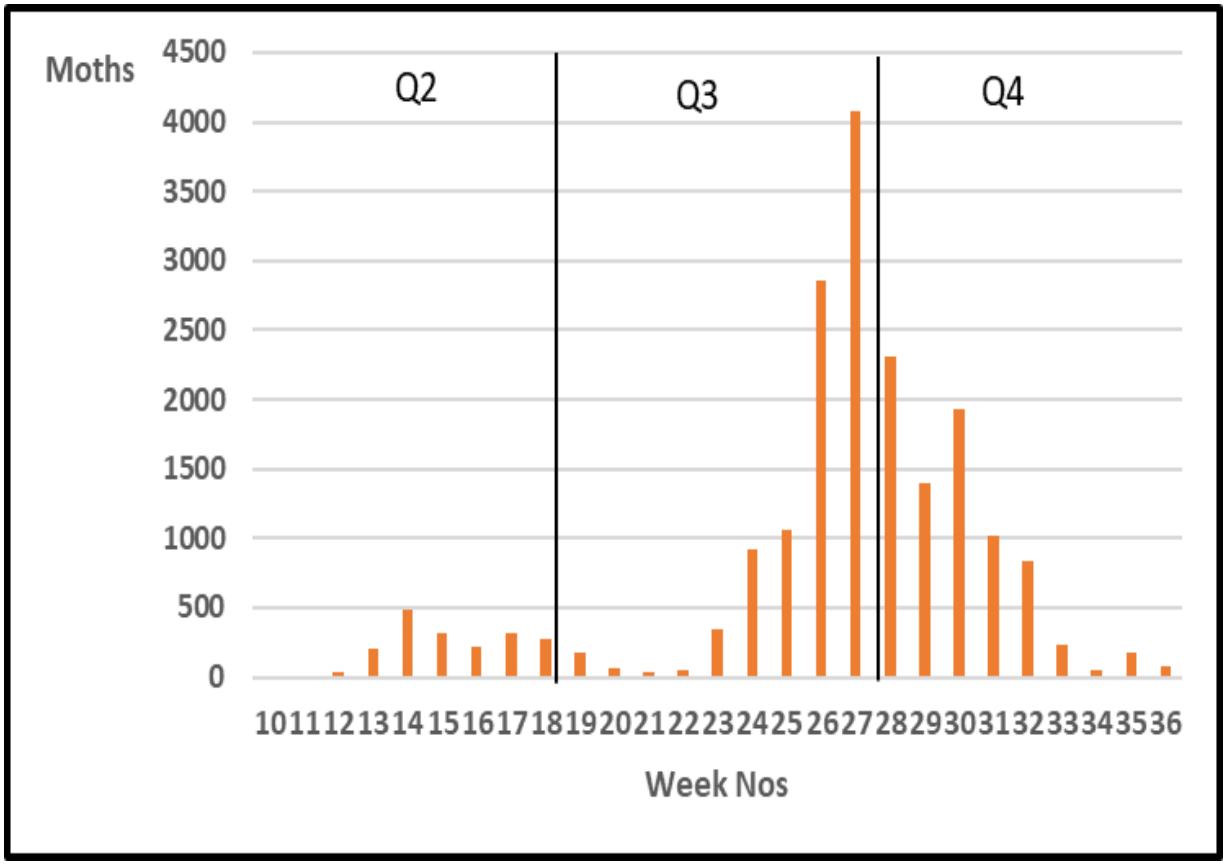


Setaceous Hebrew Character (Xestia c-nigrum)

The background for the name of this moth is Setaceous meaning having a bristle, while the Hebrew Character refers to the white outlined character mark often referred to as the 15th century Hebrew version of the letter “nun”. The genus name comes from the Greek Xestos meaning polished or smooth from the glossy forewing of some of the species. The species name, c-nigrum, was determined by Linnaeus. According to Peter Marren, Linnaeus, disagreed and interpreted the character mark as a black c so he named it c-nigrum.

This moth, which occupied the second position in the top 20, has two generations – a minor one in May to July and a much larger one from early August to October (fig 13) with numbers being augmented by inward migration from Europe. It feeds at night on flowers such as Buddleia, Ivy and Ragwort and comes to light in large numbers. By day it is hard to find hiding close to the ground.

Fig 13. GMS 2019 Q4. Setaceous Hebrew Character Flight Period



The larvae are polyphagous feeding on a wide variety of plants including Nettles, Willowherbs and Burdocks. Unlike many other moths whose larvae are parasitized by wasps, its main predators are parasitoid flies. It is typically a lowland species occurring in a wide variety of places, most especially in cultivated green spaces and gardens.

My move to the "Dark Side". David Baker

Introduction

We may share 7 out of 10 letters in our names but I haven't, as yet, teamed up with Darth Vader. As described in the Late Summer 2018 newsletter I modified one of my old traps to utilise 2 x Black-light bulbs late in the year and used it for a few nights. During the off-season I decided to re-equip my Robinson trap for around £35 with a 3 x 20w Black-light arrangement for use in my back garden where I have trapped continually since mid-1999. I started in 1999 with a home built unit using a 125w MV bulb and changed to a commercially produced Robinson Trap in 2006 relegating the old one to usage on other sites.

1999 - 2005


2006 – 2018


2019 - ???

Perceived benefits of the changes.

b. Cheaper to run (60watts v 125Watts).
c. Reduces the "wastage" of failed mercury vapour bulbs in line with political requirements.
d. Reduces the bright-light effect and any annoyance to neighbours.
e. Safer to stand close to in inclement weather. No "bulb explosions".

At first I wasn't sure whether to use the system continuously or sporadically, but then thought that a full year's usage should give a reasonable test as to the value of the changes. I did, of course, realise that I had no control over the weather or other changes made in the surrounding area and that a true comparison against the 125W MV system would possibly never be made. Many of my neighbours have removed larger trees from their gardens and whether this gives moths a better view of my trap and/or has given them less habitat to utilise is debatable. However, I have stuck with it and can now make an assessment as to whether I think the changeover was successful or not.

2019 Results

The system certainly attracts moths, plus many other insects, and throughout February, March and April the usual spring suspects arrived in reasonable numbers. In fact by the end of April the number of macros recorded stood at 29 species. This was certainly in line with most years and above the average (20.4 macros) of the previous 19 years. In these initial 4 months no new macros had been seen but 2 new micros were recorded, both shown below. They were ***Incurvaria masculella*** and ***Acleris cristana.*** The *A.cristana* was a new vice-county record as recently as 2017.

08.002 *Incurvaria masculella*

49.076 *Acleris cristana*

My hopes were somewhat dashed throughout May and June when a “shortage” of over 30 species was noted from the catches, including many of what I would call “my regulars”. However, it seems that many trappers, particularly those of us “Up North”, had a similar experience with the weather not being conducive for the moths to either emerge or to wander. I quote an extract from Evan Lynn in the GMS Early Summer Newsletter: “The cold nights in May produced a large number of empty traps. Catches then improved apart from a brief spell in mid-June when temperatures returned to the early-May levels”. My experience exactly! Now, I would not want others to suffer but it’s nice to know that I was not on my own with poor counts.

On 6th July I attended the excellent GMS meeting at Leighton Moss at which an example of a colourful migrant macro-moth was shown, among many other specimens from the area. Surprisingly, on the 14th July a well worn specimen appeared in my trap. It was a **Small Marbled** (see below). I swear there was no collusion; the original beauty was still in a glass tube when I left Lancashire. It was also pleasing to meet up with Brian Hancock, whose book on Pug Moths now resides on my shelves, and I spent quite some time in July with the book trying to identify two Pugs which were new to me. These were a Maple Pug and a Plain Pug, both now also confirmed by our Yorkshire Recorder.

Thankfully, July made up for the disappointing start to summer and numbers then improved to above average, including the 3 new macros and 4 new micros. One of the new micros was a Plume-moth ***Marasmarcha lunaedactyla*** **(Crescent Plume).** I do wonder if quite a number of plume moths are not closely examined by many of us and do not get recorded. I have recorded 14 species over the years, although some are not easy and confirmation from our local micro-recorder has been sought.

72.073 Small Marbled

45.023 Marasmarcha lunaedactyla

From August onwards things have been much as normal. Most of the usual autumnal moths turned up as the weather changed to its fairly normal pattern and thankfully, to my mind, the catches throughout the autumn period were much as expected. A visiting migrant **Dark Sword-grass**, not seen for 3 years, spent an evening on the window-sill adjacent to the trap in late September.

73.327 Dark Sword-grass

49.261 Crocidosema plebejana

A few days later I found an unknown micro in the trap and potted it for later examination. After studying the literature I was fairly sure it was **Crocidosema plebejana** and after discussion with, and dissection by, our Yorkshire Micro-recorder it was determined to be a female of that species. Although its specific name suggests ”of the people” this certainly doesn't pertain to us Yorkshire folk, being only the seventh record in the county, the first female and the furthest found inland. A further surprise awaited on 10th October when a Light Emerald was found in the trap. This was my latest sighting ever of the species by a good 3 weeks. October almost passed by with no further surprises with most of the usual suspects turning up. However, on the 31st just before my season ended I found a **Sprawler** adjacent to be trap. This was only my fourth sighting in 20 years. Surely this should be an incentive to carry with the “experiment”.

73.065 Sprawler

And so:-

<u>The Technical Stuff</u>

Now, I am not academically trained and don't, or even can't, manage to cope with using formulae with constants such as $\sum = (\mu = \sqrt{232.3}, d.f.=7, z<0.0001)$ in my assessments and have to rely on more of a gut-feeling option from tables and graphs which I have prepared. I am more inclined toward Mark Twain's views, i.e. “There are three kinds of lies: Lies, damned lies and statistics”.

Since my first full year of trapping, in which I only recorded macros, I have kept a record of macro-moths caught per month. Figure 1 shows a sample table, this for 2010, which gives details for the year and shows my highest total specimen count in a calendar year.

Month	Nights trap ran	Nights no trap	Species noted	New Species for 2010	Species at Month end	Total Catch	Average catch/night	Average for year to date
January	0	31	0	0	0	0	0	0
February	11	17	1	1	1	6	0.45	0.45
March	30	1	10	10	11	76	2.53	2.0
April	30	0	18	14	25	159	5.3	3.39
May	31	0	47	38	63	175	5.64	4.07
June	30	0	90	62	125	1485	49.5	14.40
July	27	4	115	44	169	1923	71.22	24.05
August	31	0	75	19	188	2422	78.12	32.87
September	28	2	49	11	199	1924	68.71	37.47
October	31	0	26	9	208	153	4.93	33.42
November	5	25	4	1	209	9	1.8	32.80
December	0	31	0	0	209	0	0	32.80
TOTALS	**254**	**111**	**N/A**	**209**		**8332**		**32.80**

Fig,. 1 Monthly table (2010)

Using these monthly tables I have prepared Figs 2 & 3 showing the macro species recorded during each month over 20 years. Figure 2 shows the number of species in the trap whether it has already been seen or not, i.e. if already seen in April it will still be recorded in May etc. but not as a new species for the year. Many species, of course, cover several months. Fig. 3, however, shows the initial month when a species was recorded in the year.

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	Ave	2019
Jan	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0.1	1
Feb	1	0	0	3	4	5	3	8	2	5	1	7	8	1	4	1	4	6	4	3.5	10
Mar	7	3	6	6	5	10	6	5	6	10	10	11	7	2	8	5	10	12	13	7.5	5
Apr	5	4	12	11	7	8	8	10	4	14	14	22	2	7	12	13	5	10	12	9.5	13
May	29	19	30	32	30	20	15	26	37	33	38	27	25	16	32	19	21	45	50	28.6	19
Jun	44	49	52	56	63	44	55	42	22	56	62	50	35	43	51	47	38	55	50	49.8	30
Jul	34	61	45	41	39	46	45	34	56	25	44	27	50	67	42	41	49	25	43	42.8	56
Aug	22	32	21	22	27	19	18	18	23	25	19	26	21	30	16	24	20	20	28	23.1	20
Sep	9	11	10	9	7	14	16	7	12	10	11	13	8	10	10	4	14	8	10	10.1	11
Oct	8	7	6	7	8	9	6	9	7	7	9	10	10	9	9	10	9	8	6	8.6	10
Nov	1	1	3	2	0	0	0	0	0	0	1	1	1	0	0	0	1	0	4	0.8	0
Dec	1	0	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2	n/a
Total	161	186	187	190	191	175	172	159	169	185	209	195	167	185	184	164	184	186	213	183	175

Figure 3. Initial sighting of Macro-Species within each Month

Using the tables in Figure 3 it can be seen that in the first four calendar months of 2019 the species catches were greater than average, being 29 species as against 20.4. A great start!

However, as mentioned in my introduction, the next two months, a poor May and June, were the opposite with 49 species against the 77 average. The results from my local GMS recorders showed that this pattern was repeated by others, although using one night per week is not a very sure guide and I hope that the following graph (Fig 4) gives a good idea of the “ups and downs” of my 20 years of moth recording.

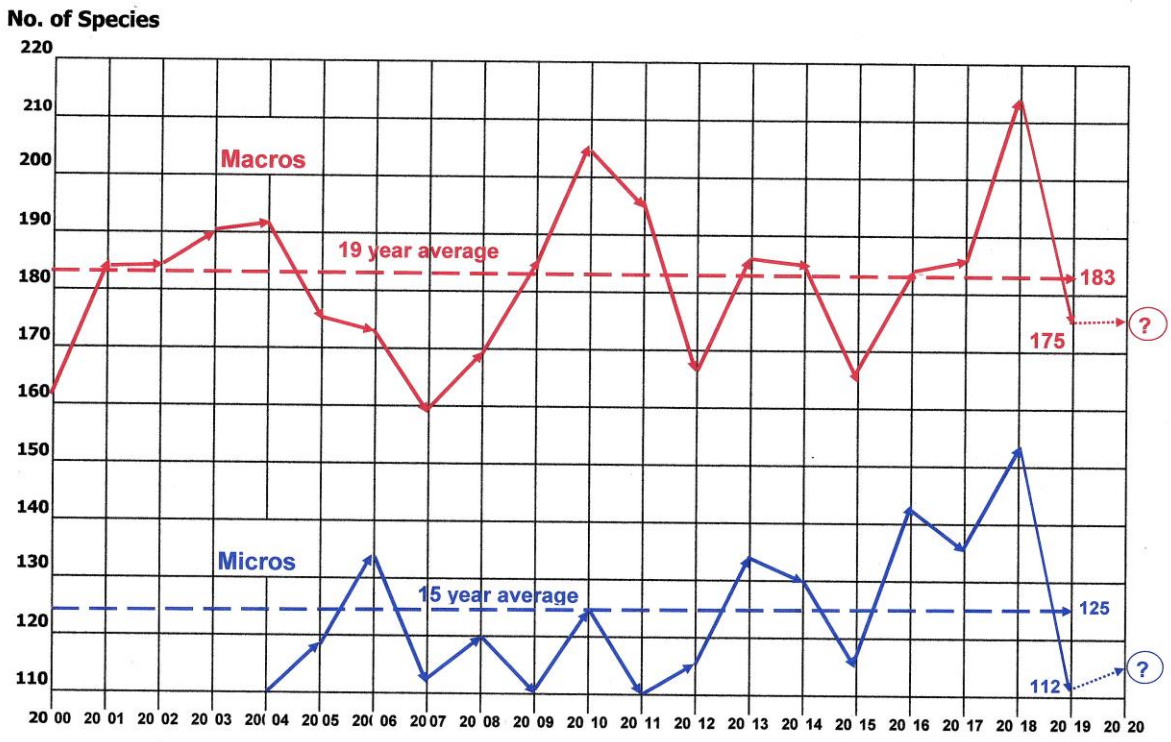


Figure 4. **Species per year 2000 - 2019**

I did not graduate into the regular recording of micros for a few years, and only started to record them seriously from the 2004 season. These results are also shown above in Fig.4 and the graph shows the number of species recorded per year with, again, a drop in the catches this year, 2019.

Conclusions

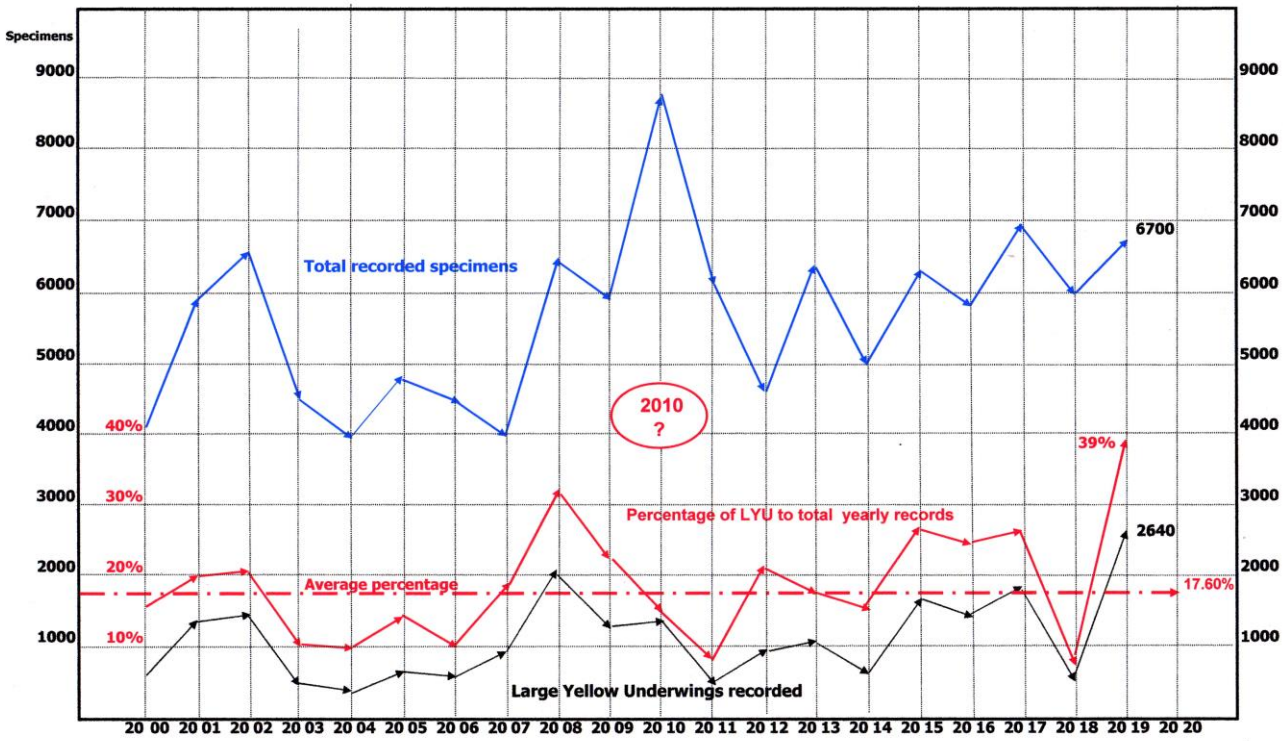
Although the numbers recorded have been lower than average I do believe that the unusual May and June largely contributed towards that result. However, on the positive side, I have recorded seven new micros and 3 new macros, so something must work alright! The trap certainly appears to be doing its job on the “Dark Side”.

I have decided not to carry on beyond early November as this is my usual tidy-up time unless doing the winter GMS sessions. Therefore the trap is now back on the garage shelf but will certainly be brought out again in mid-February. I consider the experiment to have been a very worthwhile venture and am determined to use the same “Black-light” assembly again in 2020.

A final digression

One moth which, to say the least, was very prominent in my trap from June until early October was the Large Yellow Underwing. I have never seen as many at home in my 20 years of trapping. They made up 39% of my sightings this year and sent me back through my records once again. The graph below shows the full 20 years of records.

I mentioned above that in 2010 I recorded more specimens than in any other year but this was the year when the Large Yellow Underwing was showing its lowest percentage of the total catch. This was the one real mysterious “blip” on the chart.



I have no idea what caused the relative shortage of Large Yellow Underwings in 2010. The lines on the graph follow a fairly regular pattern, except for that year. Many other species showed up in high numbers, but the LYU count was relatively small.

That's it for another year and I am now looking forward to an eventful 2020 on the **"Dark Side".** Any thoughts or suggestions to be written on a five pound note and sent to the Editor please!

Another snippet! - Rhian and Adam Davies (VC73)

I'm sure you all remember the 2018 Q1 edition of the GMS newsletter, so here's a follow up on that snippet! For those in need of a reminder though, we had recently bought a house and were getting to work on our garden. Here's what it looked like in 2018 and 2019:

2018

2019

The best angle!

We were interested to see if this would have an impact on our moth numbers. We had a significant increase in moths in 2019 compared to 2018.

	2018	**2019**
Q1 total GMS	11	54
Q2 total GMS	44	174
Q3 total GMS	408	1140
Q4 total GMS	20	31
Grand total	**483**	**1399**

We also found a lot of caterpillars this year compared to last. Some were butterflies, but we also had moth caterpillars. The highlight was finding two large elephant hawkmoth caterpillars just a few weeks ago. It's difficult to say if this increase is a result of the changes to our garden or if it simply reflects the wider trend reported by Evan in the 2019 Q3 newsletter. Either way we are happy with the results – both of our extra moths and improved garden!

Emperors, admirals and chimney sweepers, a book review Peter Major

Every quarter, another plea from Norman for contributions, and another racking of my brain for something about which I could write. Norman is always so helpful – I've lost count of how many photographs of troubling micros, the ones I don't dare be sure of, I've sent him, and every time I get a straight answer, sometimes within minutes. So when I got my hands on a copy of *Emperors, admirals and chimney sweepers*, Peter Marren's book about 'the weird and wonderful names of butterflies and moths,' I decided I'd write a review.

Only, when I read the book, I struck a problem. I imagine a lot of people have enjoyed this book, and it is one of very few books on what is, I suspect for many of us, a fascinating subject. But when I read the book, it annoyed me. It's a mess of dodgy information, factual errors, unexplained assertions… I'd been intending a review, not a diatribe. I hardly associate the GMS newsletter with polemic, however polite. So, if you're disappointed by my disappointment, please view what follows as a helpful companion, study notes perhaps, something to help Marren's readers more fully engage…

The book gets off to a bad start. In the note on p13, Marren tells us "the omission of the definite article is a grave discourtesy to the species." Personally, I feel that the choice, upon turning over an eggbox, to say "lovely, that's a gothic," rather than "lovely, that's a the gothic," is a matter of grammatical preference, one with which I feel entirely comfortable. To Peter Marren, I no doubt seem egregiously discourteous, but it begs an explanation that he omits to provide. And then, given that this book is specifically about names, Marren gets a fair few wrong. "Pale emerald" (p157) for light emerald and "codlin moth" (p77) for codling moth seem forgivable enough. But referring to a cabbage white (pages 19 and 45) as if it were a species of butterfly is unnecessarily misleading. And calling a crimson speckled a "crimson speckled footman" (p99) reveals a love of the long-winded and unnecessarily lumpy, of which I will say more below. But it is not only names that pour erroneously from Marren's keyboard. The bee moth is described as a famous pest (p95), but my understanding is that (unlike the wax moth) it rarely attacks the hives of honeybees, its preferred sources of larval food being the nests of bumblebees and wasps. The female water veneer is described as wingless (p217) when some of them have fully-formed wings. The *Noctuidae* is called a superfamily (p65) – it's a family, one to which the silver hook (p150) still very much belongs (the superfamily is called the *Noctuoidea*). *Morophaga choragella* is called "the clothes moth" (p114) – it isn't, and its larvae eat bracket fungi. The leading edge of a wing is described as the trailing edge (p163). The inferior wing is described as the forewing (p188). The genus name *Craniophora* is called a species name (p198). We're told that *Lithosia* means 'plain' (p202) – it means stone. The exile is described as having lost the species name *exulis* (p203) – it still has it. The geometrician's new genus is given as *Prodotis* (p213) – it's *Grammodes*. The marbled coronet is described as black, white and brown (p115) – has Marren muddled his specimen or is he colour blind to purple and green? And don't be fooled by the comments on species that eat broom (p134) – several micromoths feed on it, while the broom moth itself is an inaptly-named non-specialist feeder.

As if all that weren't enough, the book is bizarrely out of date. It was published in 2019, six years after a new checklist updated the names, and taxonomic ordering, of British Lepidoptera. Marren acknowledges the change, but then sticks stubbornly to now obsolete names and orderings. Nowadays, the marbled white spot is *Deltote*, not *Protodeltote* (p92). *Tischeria gaunacella* (p112) is now *Coptotriche* (and extinct). *Brachmia lutatella* (p113) is now *Helcystogramma*. The scallop shell (p195) is now in the genus *Hydria*, not *Rheumaptera* (the brown scallop is not a *Rheumaptera* either, but wasn't even before the new checklist). The bordered gothic (p204) is now *Sideridis*, not *Heliophobus*. Neither the gold swift nor the common swift (p205) remain in the genus *Hepialus*, now being *Phymatopus hecta* and *Korscheltellus lupulina* (sic) respectively. The cream-bordered green pea (p217) is now a nolid, not a noctuid. The olive crescent may have a mysteriously morbid scientific name, but several new field guides have been published since it was the last moth in the book (p114). Similarly, it now feels quite a long time since either the beautiful hook-tip (p150) or the snouts (p175) were at the back of the book. The new checklist is among Marren's references (p243) but it is hard to believe that he referred to it.

Occasionally, even the explanations of names seem strained. Not many people are going to single out the four British species of *Eana* for their prettiness (p130), though there is (or rather was) a form of *Eana penzeana* whose wings echo the ermine on an exclusive robe, which presumably earned the moths their generic name.

And what are we to do with merely the second half of a scientific species name? Neither of the most commonly used micromoth field guides index them. Wanting to see for myself pictures of the moths about which Marren was writing, I would have found it easier if he'd included the genus name. In case you feel the same way, *porphyrana* (p113) is *Eudemis*, *ambiguella* (p116) is *Eupoecilia* (just in passing, it is one of 27 *–ella*'s among the British tortricids – more of a well-companioned scattering than a lonely exile among the *–ana*'s), while *alpinella* (p149) is both *Elachista* and *Platytes*, so I guess we'll never know to what Marren was referring. Nor will you find *Metaxmeste phrygialis* (p129) in your field book, as only one individual, and that unconfirmed, has ever been reported in Britain, some time before 1892. Similarly, *Opogona antistacta* (p142) is known from just one specimen, reared from bananas imported from the Caribbean in 1936. *Trichophaga mormopis* (sic – p225) is an accidental import seen only twice in Britain. And the only species of *Heliodines* (p204) to have been found in Britain became extinct around 1820.

Of course, it's not all bad. The history is intriguing, though even here the reader must be always on their guard…Albrecht Dürer painted painted ladies in his *Adoration of the magi*, but he painted them perched at rest, not fluttering (p96).

The final paragraph of 'Enter the Artists,' (p46) devoted to Albin's hampstead eye, parrots the often-made claim that Eleazar Albin 'muddled his specimen.' But why is the error ascribed to Albin? Is the incriminating note that the specimen was caught on Hampstead Heath (which is quite a muddle for a species found in Australia) historically attributable to Albin, or might it not be an error on the part of James Petiver (who published the error), or a third person? I'd have preferred a little more historical accountability, rather than the repetition of an incomplete story. But despite all the errors and omissions, despite the publisher's spectacularly casual attitude to proof-reading, the book still manages to plumb new depths when Marren turns to the vernacular names of micromoths…

Micromoths tended not to be given vernacular names upon their discovery. A number of entomologists, most notably Ian Heslop, have championed giving micromoths vernacular names subsequently, names which most entomologists have shunned. But in his discussion, the only reason Marren gives for the general aversion is Mark Parson's "they just aren't accepted," which, given its circular logic, is hardly likely to seem much of an argument. At this point it might be useful to look at a few micromoth common names, for example the small sample included on p82. Small runic smudge (to save you looking, there is no other runic smudge), unequal smudge, grey diamond-backed smudge (diamond-back moth to everyone else), chequered hooked smudge… the reason most entomologists don't like Heslop's common names is because they are, to put it as simply as possible, horrible. The problem is not with vernacular names for micromoths, to which I suspect (despite Marren's claim on p210) few people are, on principle, opposed, but that the names on offer are utterly tedious. Marren notes, with what I take to be extreme understatement (p162) that some of the names "need a little more work." Give me Linnaeus' mysterious latin any day. One wishes that Heslop and his followers might have read the words of Benjamin Wilkes, quoted on p56: "the names given ought to denote some distinguishing particularity, and that the most obvious, in the subject on which they are bestowed…" Or, even more helpfully, the words of Peter Marren himself (p12): "the names of our butterflies and [larger] moths are old, and not invented by sober scientists but by creative people with a gift for touching on exactly the right word."

I sense, looking at Heslop's names on p82, a profound boredom with moths. These names have none of the wonder and vitality of those of their macromoth cousins. Arriving at each micromoth, Heslop took a perfunctory look, then dumped it in a metaphorical jar with all its relatives. There is no poetry, no humour, no inventiveness, scarcely any interest, just a quick cold look and then moving on to the next species on the list, desperate to be finished with the

soul-destroying labour in time for publication, so that he could get back to his hobbies and slaughter a hippopotamus.

But not only are the micromoth vernacular names disappointing, they are not fit for purpose. Perhaps it would be useful to consider what exactly the purpose of vernacular names might be. Every moth already has a name. We call it a scientific name, but it's more a universal name, written, expediently, in no extant language. Every moth also has a (UK-specific) number in the most recent taxonomic ordering. A third tag would be for the sake of having a label in English. Many people will use scientific names, many people will use numerical labels, those who dislike using either may find it easier to use a third, vernacular, name. To be fit for purpose, that name needs to be short and memorable – in a word, pithy.

Ian Heslop's ugly, long-winded names do not fit the bill. Almost all of them are unnecessarily long, the lengthiness reflecting his personal obsession with orderliness. Every ypsolophid has to get called a smudge, every elachistid gets called a dwarf, every gelechiid a groundling. We see vernacular names attempting to emulate the taxonomic role of scientific names, except in English. But why? Scientific names are taxonomic, in that they group related species into genera. But they are only slightly taxonomic, and if you want to understand the phylogenetic relationships between species of moths, you'll need a lot more than just their names. Vernacular names do not need to be remotely taxonomic; they do not need to lump a species with others that scientists think might be related. Vernacular names need only to be short and memorable. The much-loved vernacular names of macromoths demonstrate this beautifully. Arches can be black, least black, green, dark or buff (among others); if an arch is not a phylogenetically homogeneous character, so what?

As Marren says (p10), today "the beaded chestnut, for instance, would be reinvented as the spotted brown," (or more likely as Bloggs' spotted autumnal brown stout-body) but only by the ghost of Heslop and its ilk. The only thing going for Heslop's micromoth names is that a few of the "weird and wonderful" macromoth names are just as bad. Surely the name lesser broad-bordered yellow underwing, which has single-handedly converted many to scientific names, deserves to be described as truly heslopian.

I understand that some people want to give micromoths vernacular names to facilitate their conservation. It is, however, absurdly arbitrary to withhold legal protection for a species because it does not have an (unused and all-but-unusable) vernacular name, as if in denial of more than 250 years of people using scientific names. The vernacular names of micromoths might well be here to stay (p84). If so, and in their present form, they are also a missed opportunity, and a tedious imposition, here to stay.

GMS collaboration with Cairngorms Connect – Stephen Passey

Cairngorms Connect is the largest habitat restoration project in the UK, aiming to restore habitats across a large area of the western side of the Cairngorms National Park. A partnership between four neighbouring land managers (RSPB, Scottish Natural Heritage, Wildland Limited., and Forestry and Land Scotland), with funding from the Endangered Landscapes Programme and supporting partners such as Butterfly Conservation, the project has a 200-year vision for restoring landscape and species across an area that stretches over 600 square kilometres.

Moths are intrinsically linked to biodiversity and one aspect of the project will be to conduct a five-year moth survey, with some moth traps at high altitudes in the mountains, to see what effect reforestation has, with the aim of repeating this survey in 10-20 years' time. We are very pleased to announce that data from Garden Moth Scheme sites in and around the project area are to be used to support this moth monitoring project. The intention is to use the GMS data as

a control so that Cairngorms Connect can better assess the effect of woodland restoration on moth populations over time. It will be very interesting to see how the GMS can contribute to conservation efforts such as this one.

Further information on the project can be found here:

https://community.rspb.org.uk/ourwork/b/biodiversity/posts/bring-back-the-moth-how-tiny-winged-wildlife-is-helping-restoration-work

http://cairngormsconnect.org.uk/

Many thanks to Audrey Turner, our Area Coordinator for Scotland, and to Dr Pip Gullett of Cairngorms Connect for getting the GMS involved. Many thanks also to GMS recorders, past, present and future, for providing data for this project.

The Garden Moth Scheme is keen to engage with anyone who would like to make use of our data for research and conservation purposes. Please contact us at gardenmothscheme@gmail.com to request access to our data.
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How and when to release trapped moths? – Norman Lowe

One of the issues that affects all who use light traps is the release of trapped moths back to the wild. There are two main issues – where and when. Where poses the problem of avoiding hungry predators; in my case the main one is an aggressive robin that lurks beside (and sometimes on) my trap, but there is also a squadron of house sparrows ready to pounce. So I hide my moths in dense undergrowth as far away from the trap as possible. But you might ask, why not try to place the moths where they would be camouflaged such as on a tree trunk?

And then there's when. I release them straightaway, but maybe I should retain the moths till dark when the birds will be roosting. But what about bats? And how will the moths fare during the day? Will there be space in the fridge for 100 or so moths? Will I remember at the right time?

So, readers, what do you do and why?

Garden Moth Scheme South Wales Conference – Norman Lowe

The second regional GMS Conference of 2019 was held in Talbot Green, South Wales on 24 November. 18 people squeezed into the meeting room at the office of the SE Wales Biological Records Centre (Sewbrec) to hear National GMS Coordinator Stephen Passey describe the results for 2018. Howard Burt then told us about the contents of his trap, both moths and others, giving us an illustration of each species.

After Howard's talk I asked the question I frequently pose to my readers – do you enjoy the newsletter and how can we improve it. In response people were polite and said they enjoyed it. Then Dave Slade described the role of Sewbrec in receiving and verifying biological records and disseminating the information. (Sewbrec is one of four Local Environmental Record Centres covering the whole of Wales – I act as Chairman of the one covering Powys and the Brecon Beacons National Park). Dave and Stephen then did a double act discussing the issues surrounding getting GMS records to local/national databases. Elaine Wright contributed a

detailed overview of the non-moths likely to be found in moth traps and we finished with a look forward by Stephen to GMS 2020 and beyond.

Everyone seemed to enjoy it. So, if anyone would like to organise a regional GMS conference in 2020, feel free – just let Stephen or I know.

Clifden Nonpareil - Michael Sammes

Thanks for the latest (as usual, interesting) GMS News.
In your tailpiece you ask who has recorded a Clifden Nonpareil this season. I had one on 29th September, perched on the outside of my trap but, I have to admit, more exciting on that occasion was a Dewick's Plusia inside the trap! I trap in Chippenham, North Wiltshire.

Dewick's Plusia

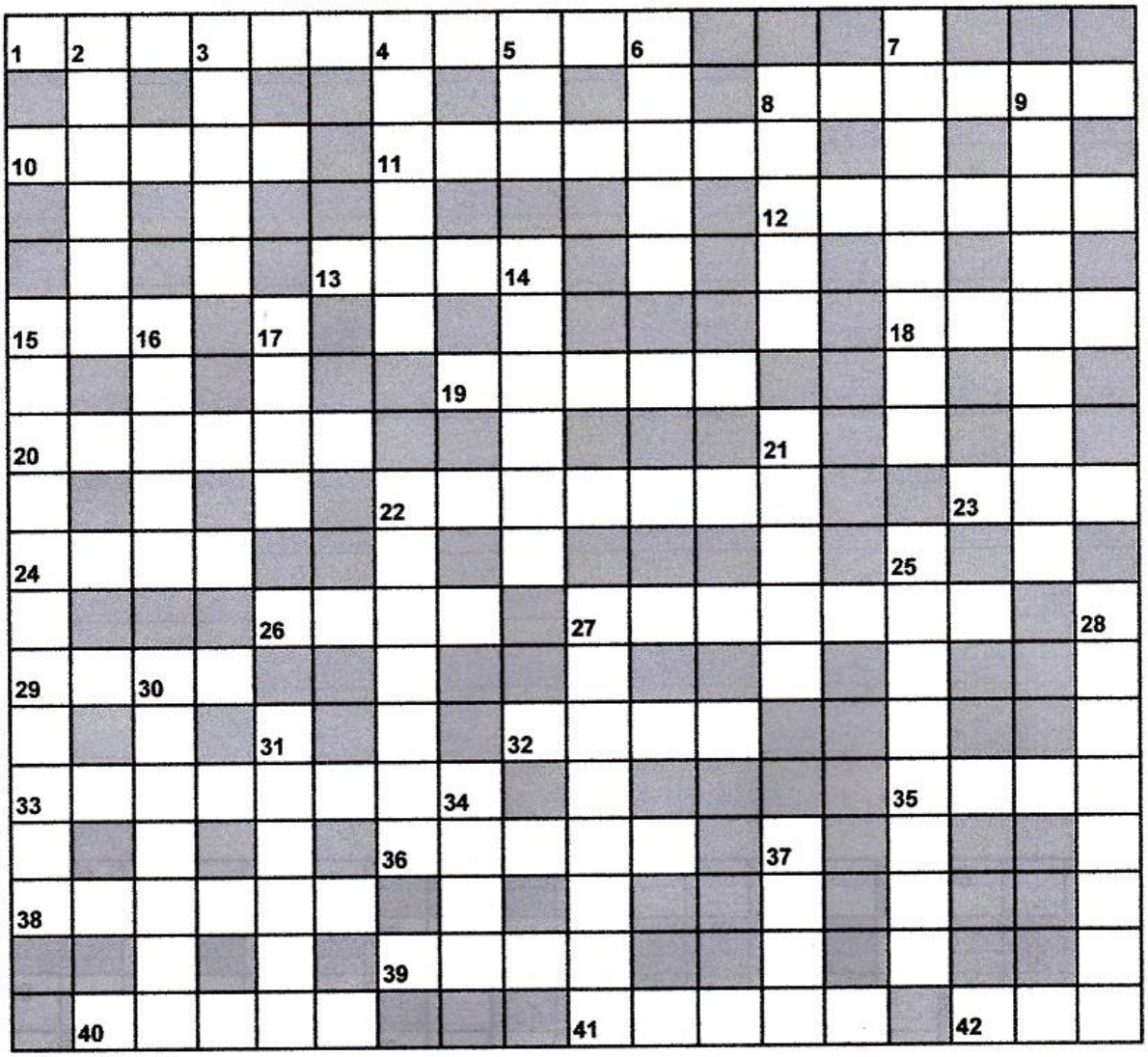
Clifden Nonpareil

Tailpiece – Norman Lowe

More and more it is becoming clear that our GMS data is being perceived as valuable by outside organisations. Following on from the news reported in the last newsletter that CEH are going to utilise the data to compare results with the longstanding RIS dataset, now Cairngorms Connect have signed a data agreement with us – see Stephen's article in this edition. What this emphasises is that every record made by a GMS recorder is of value and is available for use to help the understanding of moth population trends. Remember all records provide information including empty traps. It is really important too that we have the greatest possible diversity. To achieve this, we need urban sites that might not attract many moths, records from areas that might seem unattractive, and records from vice counties with few or no existing GMS records. So if you live in a town or city, or a place with intensive agriculture, that you think has a poor chance of seeing many moths, your records are really needed. Or maybe you know someone else who thinks their records wouldn't be of interest. Please persuade them otherwise and encourage them to do GMS in 2020.

The usual address is norman@enviro-consulting.com and of course I welcome contributions of any length on any subject.

Lepidopteran Crossword No. 12 *Nonconformist*



Across

1.Shout at Smaug or train him to run to find the first name of rare immigrant.
8.Moth of sinister background.
10.Cromwell Oliver almost had it with “warts and everything”.
11.In the Highlands the use of a horn can help find this layabout.
12.Can be fast, icebound or even a servant to rangers.
13.Could be under sixteen with a cheery complexion.
15.But maybe not one of these early stagers.
18.Likes long, long winters before it has a go at emergence.
19.Southern county signal encloses a lactic settler.
20.Forename of a regular visitor said to appear lying down in our traps.
22.See 40a, 41a.
23 & 26aTwo regular forenames, but together are perhaps from a U.S. forest.
24 & 4dLocal southern species proving their rare worths.
26.See 23a.
27.See 21d.
29.In clear brushstrokes and a fine wood finish we have a regular immigrant.
32 & 37d.One would really long for this species.....

33 & 37d...but you would have done real well to find this visitor in your trap....
35 & 37d.....followed by this one you have also noticed.
36.Colour of a moth either on the floor or way up in the air.
38.This genus seems to take to the shade naturally.
39 & 16d.A species that gives Margy less chance of it being found anywhere but coastal areas.
40 & 22aThis visitor, sometimes Scottish, turns out to be a badge creator in disguise.
41 & 22aNot Scottish this time, more likely to have come from a faraway Hindu sky.
42.Description of a female of certain age.

Down
2.Whoops, the little beauty just flew off between my legs.
3.A thought in mind interrupted by a series of waves.
4.See 24a.
5.Palindromic maybe - but doesn't sound much!
6.Like my friend Emma, originally from down under.
7.A newcomer from Boston? Well he has lost his learner plates.
8.The male could weigh ostensibly more than the grassland female.
9.Set in mediaeval legend, but for this moth to glide rain must fall on a pipe.
14.A Yorkshire missile sent from a little dog.
15.My pal made me romp, other than walk, to find this heath-land species.
16.See 39a.
17.Put "Hey you" into elemental terms and you could have a swift specimen.
21 & 27a.Pale mosses add their body odour to attract this rare but possible immigrant.
22.As a Bee is in an apiary, is this moth in a fraternity?
25.Mickey's employer according to Walt and Dukas.
27.Would a bird lend its feathers to form this pattern?
28.Put your requirements in a place of rest for this common forename.
30.A slimmed down version of Lens red streaks maybe?
31.Anna and I take a family outing to find a little flying kleptomaniac.
34.Gemstone worn by a spring-tailed feline character.
37.See 32,33, & 35a.

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 1300 '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

Mike Cook has created a linked Facebook group called 'GMS Moth ID Help' specifically for helping members with identification queries. We are trialling this to see if it will help with getting everyone's ID queries dealt with promptly. It can be found at https://m.facebook.com/groups/689678498210657

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