GMS News

Early Summer 2020

Weeks 10-18

Contents

Editorial

As a result of discussions with GMS recorders at national and local meetings we know that you are keen to ensure that the data you collect is utilised as effectively as possible for the conservation of moths. To this end we have in the past agreed that in principle GMS records should be passed to County Moth Recorders (CMRs) for inclusion in the National Moth Recording Scheme. Whilst such data transfer is now taking place it is not without its problems. Some CMRs are getting the data twice and others not at all so we are looking at ways of improving data flow without increasing the burden on our recorders.

To this end we have been in discussion with staff at the Biological Records Centre to find ways that GMS records could be transferred to the iRecord system for onward transmission to CMRs. In order to set the ball rolling we hope to have a trial system in place in time for the Winter GMS which starts at the beginning of November. Please be aware that this will not affect in any way the Recording Forms that we are all familiar with. However at the same time we are planning to devise a means of entering GMS directly on to iRecord that would be an additional option rather than a replacement of the existing systems. Watch this space for further developments.

As well as the usual overview of the quarter we have in this issue a reminder by Roger Freestone of the importance of questionnaires followed by two articles on moth variation featuring the Clouded Drab and the Hebrew Character respectively. Then two items concerning interesting catches, of the Ruddy Streak and the Round-winged Muslin. I've then done a short

review of the new moth atlas and we finish with Puzzle Corner, Communications and our sponsors.

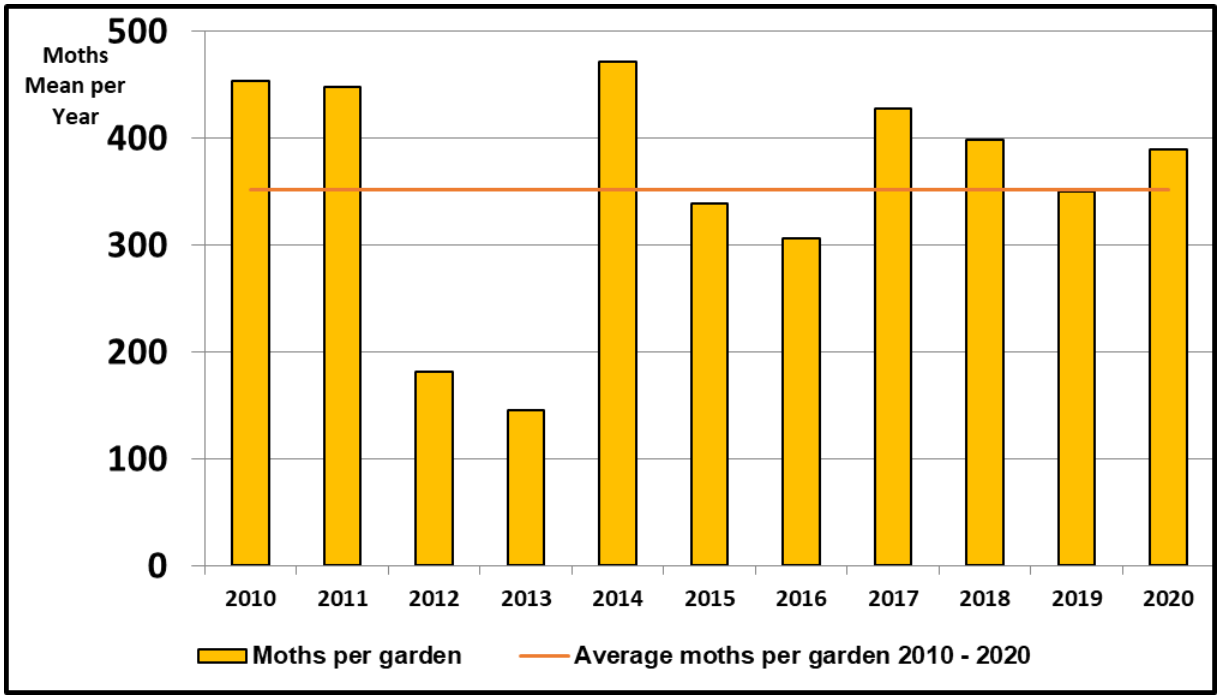
Overview GMS 2020 2nd Quarter by Evan Lynn

Following the low numbers in the previous quarter of this year compared with 2019 the results this time show a definite improvement. Some regions have reported the very early emergence of moths such as *Chrysoteuchia culmella* and Riband Wave related to the exceptional early warm weather.

Yearly Comparisons

The warm and dry weather continued on into May producing larger numbers of moths almost equal those of 2018 but not alas to earlier good years (Fig 1).

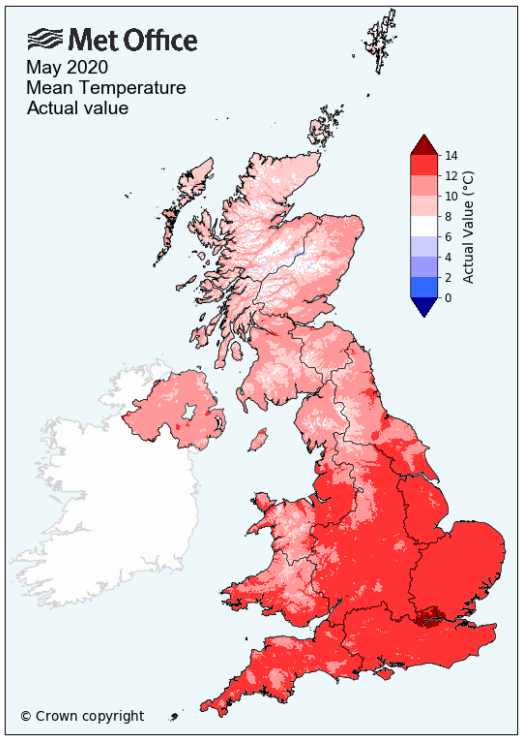
Fig 1. GMS 2010 - 2020 Q2. Mean Quarterly Moth Numbers



For the most part, May was a mixture of brilliant sunshine punctuated with periods of strong winds, showers and thunderstorms. In England the mean temperature was 1.1°C above the 1981-2010 long term average with just 17% of the average rainfall. Recorders in parts of Scotland may not recall this long hot month with the same enthusiasm since the middle of May saw some wintry showers and overnight frosts.

The warm dry weather continued on into June until the now familiar monsoon season hit. Storm Miguel heralded the change in weather with strong winds and thunderstorms. Following this introduction, the month was a mixture of heavy rain and periods of sunshine. Some of these events are shown in the Met Office charts of mean temperature and rainfall (figs 2&3)

Fig 2. Days of Mean Temperature for May & June 2020 (with permission of the Met Office)



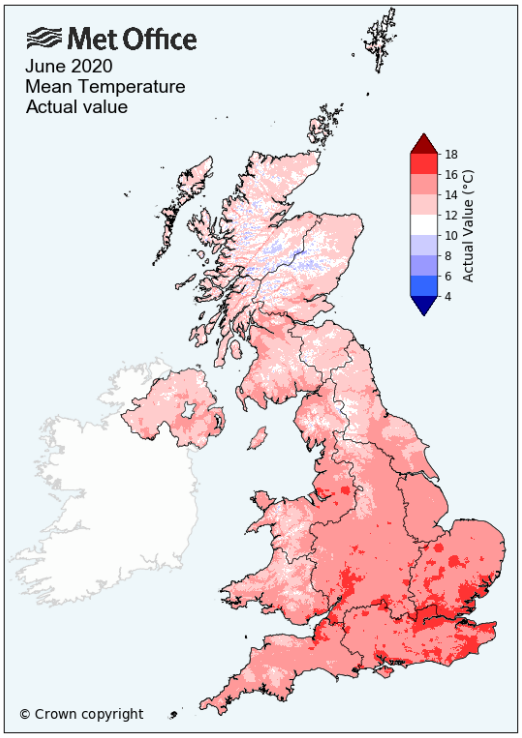
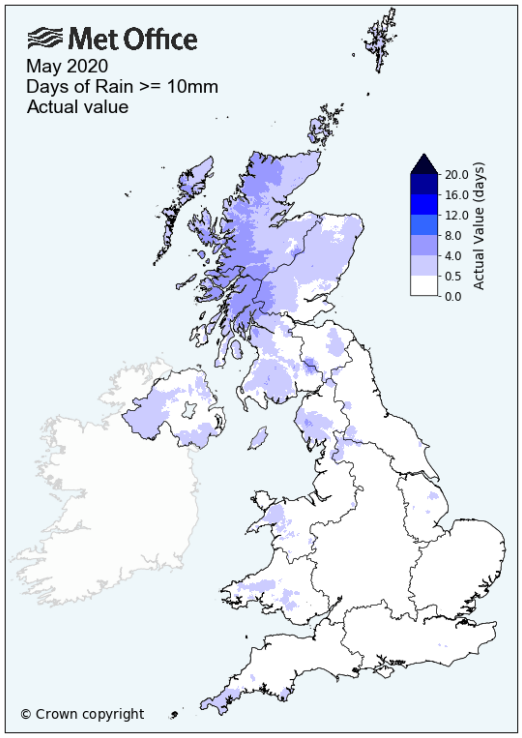
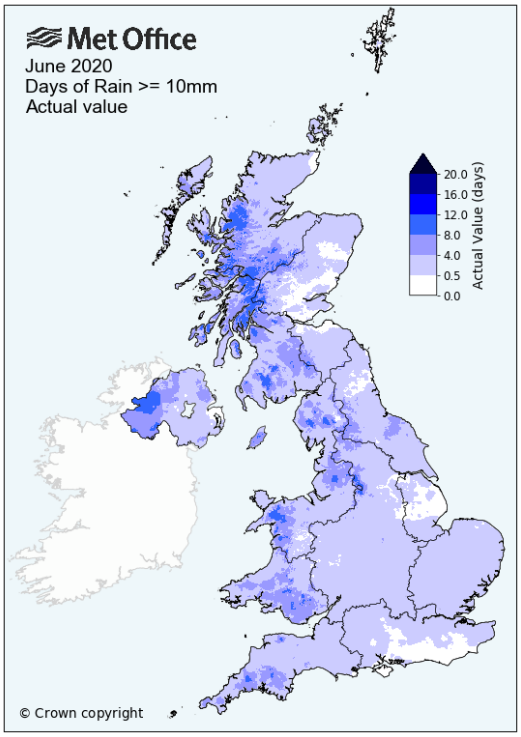


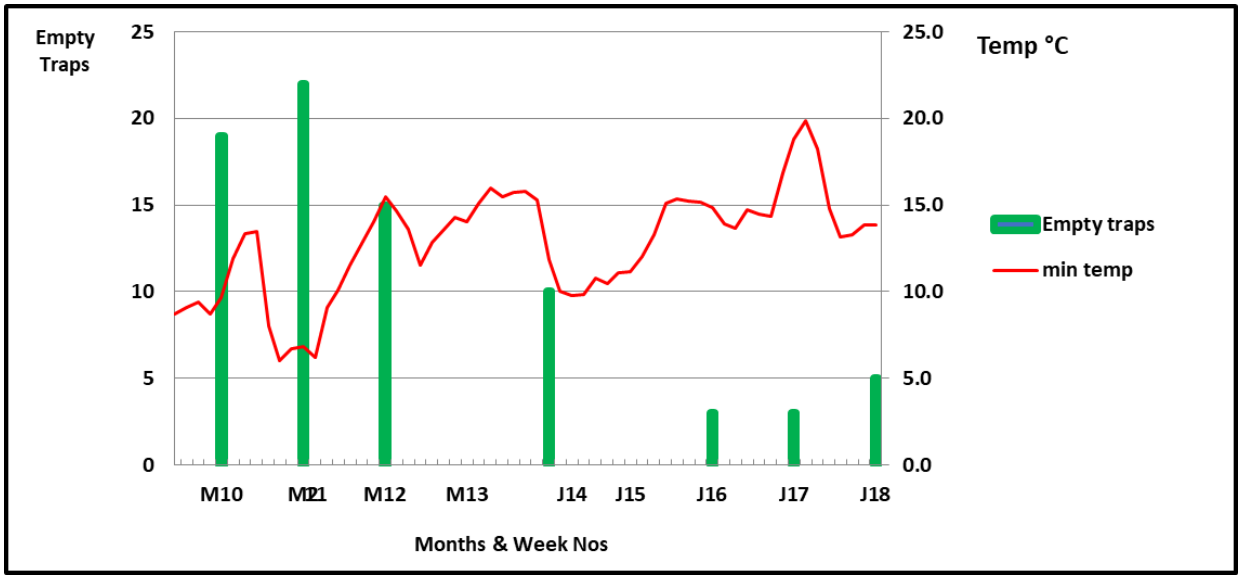
Fig 3. Days of Rainfall >10mm for May & June 2020 (with permission of the Met Office)





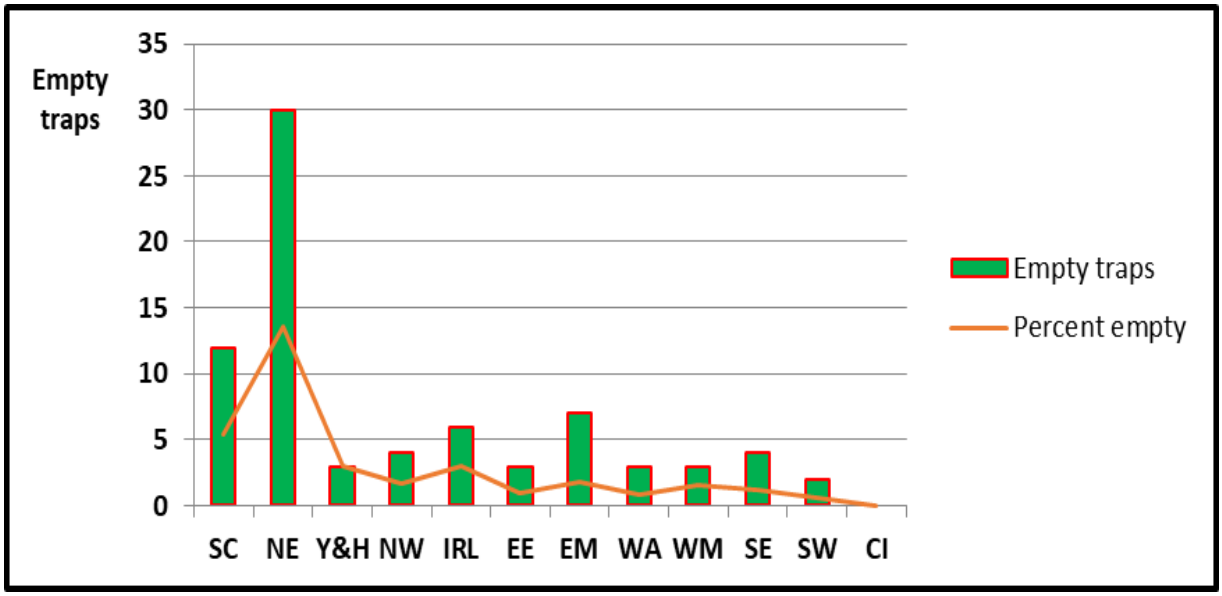
The difference between these two months can also be related to the number of empty traps with the most occurring in May and early June when the night time temperatures were lowest. (Fig 4)

Fig 4. GMS 2020 Q2. Average Minimum Temperature and Empty Traps



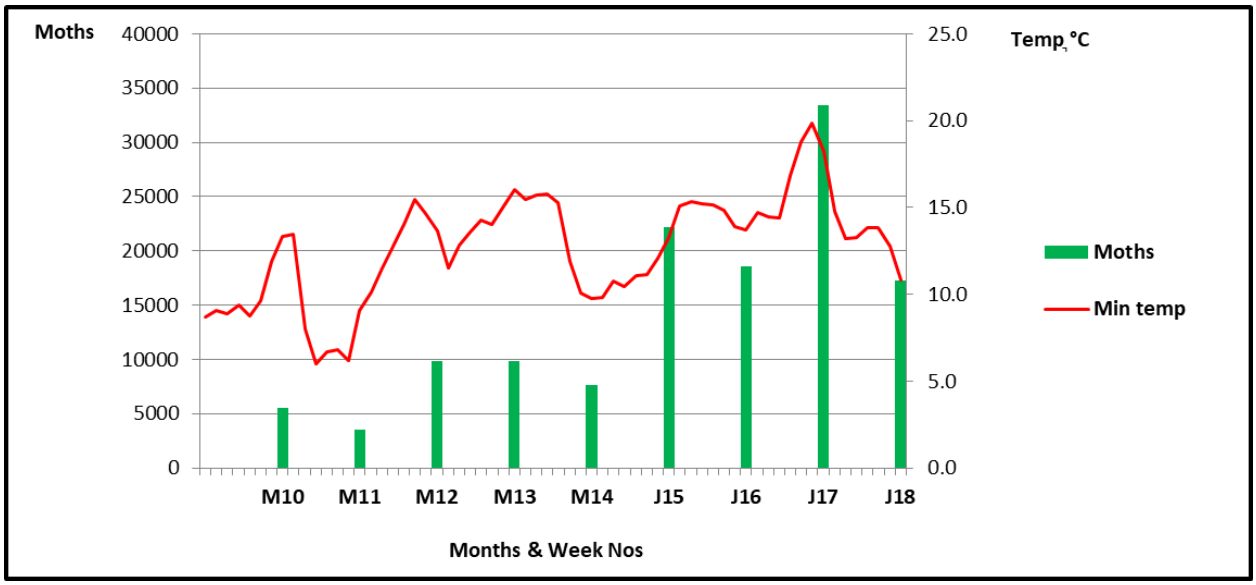
As to be expected from looking at the above maps Figure 5 shows that the majority of the traps were to be found in regions exposed to the colder temperatures and wind.

Fig 5. GMS 2020 Q2. Percentage Number of Empty Traps in Each Region



Although the catches show an almost classic correlation with the mean minimum temperatures rising and falling with the warm and cold nights (fig 6), the best catches appear to be in June when the weather was worse than May.

Fig 6. GMS 2020 Q2. Average Minimum Night Temperatures and Total Moths Caught



In last quarter's newsletter, Mark Pewtress (from near John O'Groats) described his problems of catching moths during the frequent adverse weather conditions experienced at the northerly tip of Scotland. His experiences make our moth trapping in our sheltered Welsh valley rather tame in comparison. After gaining permission from Mark, I related his catches to the weather conditions on his trapping nights this last quarter (table 1). The rain was measured over a 24 hour period but the wind (mph) was at 2300 hrs. As can be seen the most significant factor for his poor catches was the force of the wind. To relate wind speed to personal well-being, force 4 is reckoned to be when people start getting nervous.

Table 1. GMS 2020 Q2 Catches at John O'Groats

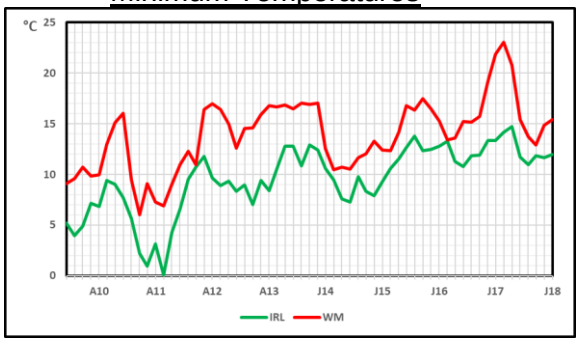
Week No	Date	Moths	Min temp °C	Rain mm	Wind @2300 hrs(mph)	Beaufort Scale
Week 10	May 8	35	7.8	0	0.7 – 3.5 (W)	1
Week 11	May 15	5	6.9	0.5	12.3 – 17.8 (W)	4
Week 12	May 22	0	10.4	1.5	17.9 – 24 (S)	4-5
Week 13	May 29	3	11.3	0	3.6 – 7.5 (S)	2
Week 14	June 5	1	8	13.3	12.3 – 17.8 (N)	4
Week 15	June 12	3	9.9	5.9	7.6 – 12.2 (N)	3
Week 16	19 June	6	11.3	7.8	7.6 – 12.2 (S)	3
Week 17	29 June	21	12	11.1	7.6 – 12.2 (N)	3
Week 18	4 July	20	12	5.1	12.3 – 17.8 (E)	4

Regional Comparisons

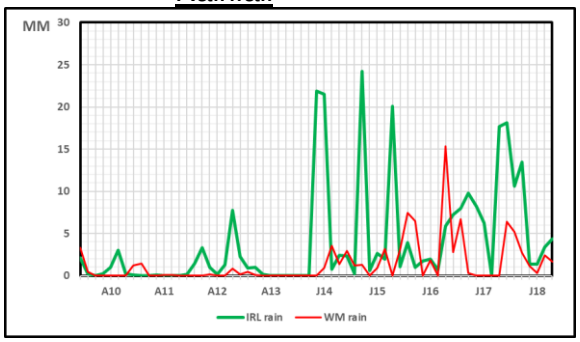
This quarter I compared Ireland and the West Midlands to see if there were differences in minimum temperature and moth catches. Ireland receives the warm wet westerly winds but can be subjected to windy and cold conditions when receiving the northerly air masses. The West Midlands is less exposed to these fluctuations but can instead get very hot thundery weather in summer (fig 7). A random check of a few trap sites showed the Irish sites to be more rural than the West Midlands and therefore less subject to the bane of moth trappers – street lighting.

Fig 7. GMS 2020 Q2. Minimum Temperatures & Rainfall in Ireland and the West Midlands

Minimum Temperatures

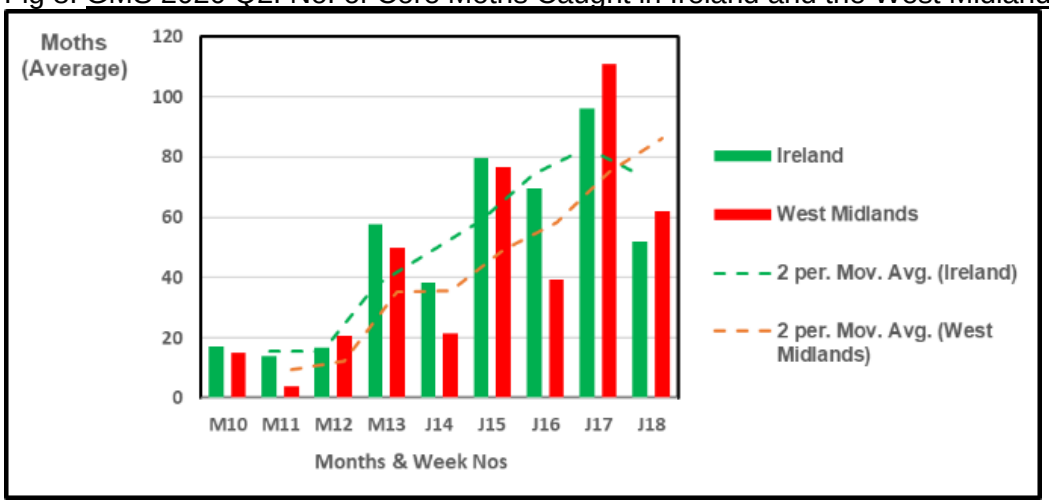


Rainfall



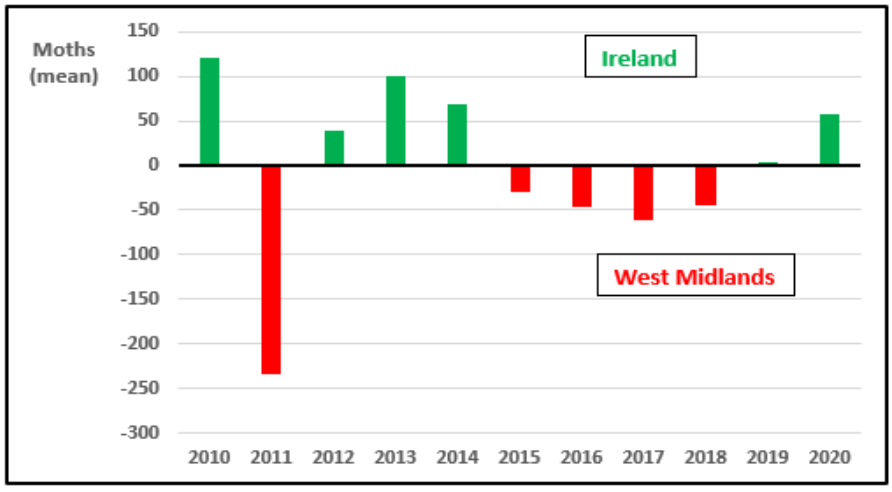
Nonetheless the two regions have the same catching pattern although Ireland had larger catches in six out of the nine weeks (fig 8). The final two weeks had the West Midlands with a clear majority as their evening temperatures increased again. The rolling or moving averages of both regions reflect the variations for each week.

Fig 8. GMS 2020 Q2. No. of Core Moths Caught in Ireland and the West Midlands



If this quarter's results show a close-run race, what about the previous years? Figure 9 shows the difference between the two regions with only 2019 having equal numbers. Here the annual Irish figures are subtracted from those of the West Midlands. A positive result (green) shows Ireland had more moths and red or negative results show the West Midlands having more.

Fig 9. GMS 2020 Q2. Difference between Core Moths Caught in Ireland and the West Midlands in Years 2010 to 2020



Statistics

The first quarter of this year produced some very depressing results when compared to 2019 which, because of early warm temperatures, produced larger numbers of moths. As shown in figure 1 at the beginning of this article, this quarter has arrested this slide with good numbers of moths, again aided by favourable weather. Although the Heart and Dart shares pole position in both years the numbers are down slightly this year (table 2). It was found in more gardens, as seen in the catching frequency section, but in lower numbers. The Treble Lines this year has dropped significantly in both numbers and sites.

The comparisons must be regarded as only part of the whole picture as the flight period of moths does not always follow our strict quarterly periods, but varies with changing weather conditions. A better comparison can be made after looking at its whole flight season, since many may be appearing in the third quarter.

Table 2. GMS Q2 2020 – Top 20 Core Species

Position		Top 20	*Mean Per Trap*			Catching Frequency		
2019	**2020**	Species	**2019** 346 Gardens	**2020** 338 Gardens	Change	2019	**2020**	Difference
1	**1**	Heart and Dart	81.5	78.4	-3.1	240	**315**	75
4	**2**	Garden Grass-veneer	11.2	22.1	10.9	233	**257**	24
8	**3**	Uncertain/Rustic agg.	8.1	18.6	10.5	301	**260**	-41
5	**4**	Large Yellow Undrwing	11.1	11.5	0.5	309	**312**	3
2	**5**	Dark Arches	18.0	10.9	-7.1	201	**286**	85
3	**6**	Treble Lines	16.0	8.4	-7.6	280	**182**	-98
9	**7**	Marbled Minor agg.	8.0	8.0	0.1	200	**278**	78
29	**8**	Elephant Hawk-moth	2.5	8.0	5.5	210	**266**	56
19	**9**	Buff Ermine	4.1	7.4	3.3	279	**265**	-14
11	**10**	Riband Wave	7.1	6.9	-0.2	224	**278**	54
16	**11**	White Ermine	4.8	6.1	1.3	292	**230**	-62
15	**12**	Brimstone Moth	5.1	5.7	0.7	242	**279**	37
7	**13**	Lt Brown Apple Moth	8.4	5.2	-3.2	187	**222**	35
26	**14**	Flame	2.8	5.1	2.3	260	**244**	-16
18	**15**	Flame Shoulder	4.4	4.6	0.2	190	**236**	46
13	**16**	Diamond-back Moth	6.1	4.5	-1.6	85	**163**	78
83	**17**	Common Footman	0.5	4.4	4.0	217	**194**	-23
25	**18**	Small Magpie	3.1	4.2	1.1	230	**225**	-5
20	**19**	Willow Beauty	3.9	4.2	0.3	146	**231**	85
27	**20**	Cinnabar	2.7	3.8	1.1	246	**120**	-126

A regional comparison of the top 10 moths is shown in Table 3. As to be expected the Heart and Dart dominates all the regions apart from the Channel Islands where it is superseded by the Orange Footman.

Table 3. GMS 2020 Q2. Top 10 Regional Species

Scotland (25)	Mean	North East (25)	Mean	North West (28)	Mean
Heart and Dart	30.3	Heart and Dart	23.7	Heart and Dart	83.5
White Ermine	12.8	Garden Grass-veneer	11.7	Large Yellow Underwing	18.6
Garden Grass-veneer	11.6	Large Yellow Uwing	9.2	Garden Grass-veneer	13.9
Elephant Hawk-moth	11.2	White Ermine	6.0	Uncertain/Rustic agg.	10.1
Large Yellow Uwing	9.7	Hebrew Character	4.4	Dark Arches	9.4
Diamond-back Moth	6.6	Clouded-bdered Brindle	4.3	Crambus pascuella	8.5
Clouded-bdered Brindle	5.8	Diamond-back Moth	4.3	Riband Wave	8.4
Brimstone Moth	5.3	Brown Rustic	3.7	Marbled Minor agg.	8.1
Brown Silver-line	5.1	Lt Brown Apple Moth	3.4	Buff Ermine	7.0
Marbled Minor agg.	4.8	Silver-ground Carpet	3.3	Elephant Hawk-moth	6.6
Yorks & Humber (15)	Mean	Ireland (23)	Mean	East of England (36)	Mean
Heart and Dart	44.3	Heart and Dart	65.0	Heart and Dart	72.8
Garden Grass-veneer	32.1	Large Yellow Uwing	35.5	Garden Grass-veneer	37.8
Uncertain/Rustic agg.	21.9	White Ermine	23.9	Uncertain/Rustic agg.	29.3
Diamond-back Moth	21.5	Buff Ermine	19.4	Treble Lines	27.8
Large Yellow Uwing	13.3	Small Square-spot	13.3	Dark Arches	20.4
Riband Wave	8.7	Elephant Hawk-moth	13.2	Marbled Minor agg.	20.0
Dark Arches	8.7	Flame Shoulder	12.9	Cinnabar	19.3
Marbled Minor agg.	7.4	Uncertain/Rustic agg.	10.6	Set Hebrew Character	10.5
Buff Ermine	7.3	Brimstone Moth	9.9	Diamond-back Moth	10.3
Elephant Hawk-moth	6.9	Garden Grass-veneer	9.5	Common Footman	10.3
East Midlands (42)	Mean	West Midlands (22)	Mean	Wales (40)	Mean
Heart and Dart	70.2	Heart and Dart	91.5	Heart and Dart	129.5
Uncertain/Rustic agg.	30.7	Garden Grass-veneer	35.1	Garden Grass-veneer	21.4
Garden Grass-veneer	24.4	Uncertain/Rustic agg.	30.6	Large Yellow Underwing	15.7
Dark Arches	14.3	Dark Arches	14.1	Buff Ermine	13.3
Riband Wave	12.2	Crambus pascuella	12.9	Uncertain/Rustic agg.	12.5
Elephant Hawk-moth	9.9	Elephant Hawk-moth	9.9	Dark Arches	11.5
Marbled Minor agg.	9.9	Common Footman	9.6	Treble Lines	10.6
Common Footman	9.7	Large Yellow Underwing	9.5	White Ermine	9.8
Small Magpie	9.2	Marbled Minor agg.	9.3	Flame	9.0
Brimstone Moth	8.4	Riband Wave	8.4	Elephant Hawk-moth	9.0
South East (38)	Mean	Southwest (42)	Mean	Channel Islands (2)	Mean
Heart and Dart	72.2	Heart and Dart	127.3	Orange Footman	86.0
Garden Grass-veneer	23.5	Uncertain/Rustic agg.	24.7	Shuttle-shaped Dart	46.0
Uncertain/Rustic agg.	22.8	Garden Grass-veneer	23.5	Heart and Dart	35.5
Dark Arches	13.0	Treble Lines	14.0	Uncertain/Rustic agg.	20.5
Crambus pascuella	12.5	Dark Arches	12.0	Buff Ermine	18.5
Elephant Hawk-moth	8.5	Large Yellow Underwing	11.3	Dark Arches	17.0
Common Footman	7.2	Riband Wave	9.1	Marbled Minor agg.	15.5
Large Yellow Underwing	6.2	Buff Ermine	8.5	Large Yellow Underwing	15.0
Marbled Minor agg.	6.0	Elephant Hawk-moth	8.1	Rusty-dot Pearl	14.5
Riband Wave	5.8	Small Magpie	7.3	Light Brown Apple Moth	11.0

The minimum and maximum moth numbers both within and between regions over the nine-week period vary considerably, yet with some similarities, possibly reflecting location, type of trap and/or the individual micro climates. The number of gardens per region ranges between 2 and 42 while the trapping effort (moth trap nights) is remarkably consistent (Table 4). Trapping consistency is also commendably high suggesting that our GMS records are representative of the moths of UK & Ireland. The third table shows the preferred night for trapping. Although Friday is the official night three nights either side are acceptable as everyone hopefully has a life apart from mothing.

Table 4. GMS Q2 2020 – Regional Statistics

Region	Gardens	Moths	Moths	Moths	
		Total	Mean	Min	Max
SC	25	6189	248	30	656
NE	25	4546	182	22	594
Y&H	15	5143	343	75	787
NW	28	9823	351	43	650
IRL	23	10619	462	26	1926
EE	36	19266	535	56	2495
EM	42	17206	410	71	1179
WA	40	17477	437	106	1605
WM	22	8919	405	107	1374
SE	38	12201	321	20	970
SW	42	19496	464	31	1299
CI	2	1295	648	0	0

Moth Trap Nights		
Possible	Actual	Percent
225	222	99
225	221	98
135	133	99
252	242	96
207	202	98
324	321	99
378	377	100
360	360	100
198	195	98
342	336	98
378	371	98
18	18	100

Weekday Trap Nights							
Night	Tues	Wed	Thurs	Fri	Sat	Sun	Mon
Days	35	55	225	1913	363	146	66
Percent	1	2	8	68	13	5	2

Pale Tussock

The Pale Tussock (*Calliteara* – possibly an early beauty, *pudibunda* – the shame-faced or blushing one) is a member of the family *Erebidae*, recently changed from the *Lymantridae*. The reasons for the name have an interesting history according to Peter Marren in his book Emperors, Admirals & Chimney Sweepers. He states that this is a moth that has covered its genitals with a fig-leaf of hair. Another reading of its scientific name would imply the opposite for it could also mean “disgraceful, a shameful thing”. If so, Linnaeus may have been thinking of the moth’s long hairy legs. Colonel Emmet apparently commented that no well-bred lady would flaunt her legs as this moth does. *Editor’s note – my trusty 1858 book gives the old name Orgyia (Greek for the outstretched arm, from its habit of extending its forelegs) pudibunda (Latin for modest).*

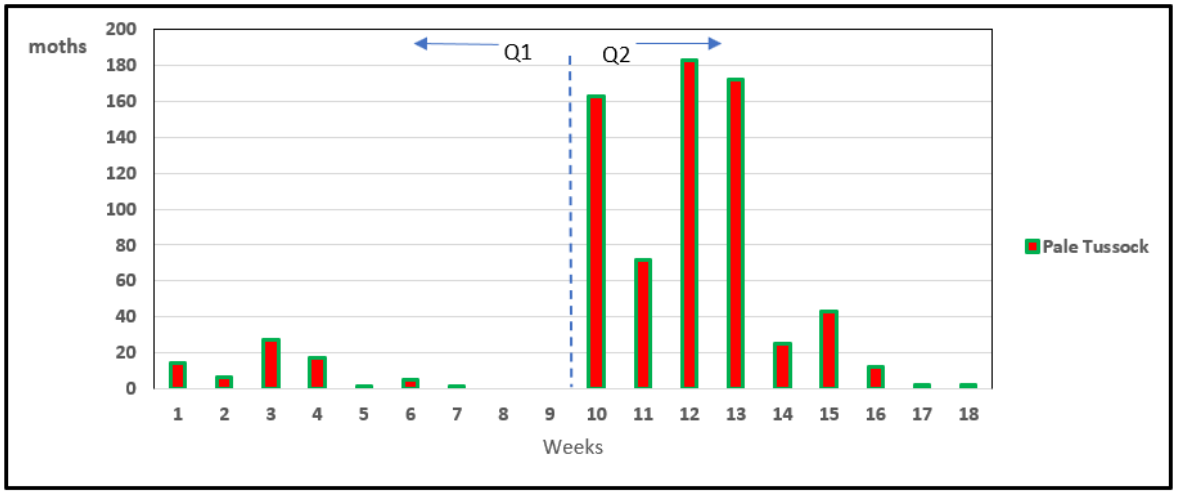
The adult moths are sexually dimorphic. The females are larger and plainer in appearance while the smaller males have more contrasting markings and very feathery comb-like antennae. Both exhibit the distinctive forward-facing furry legs at rest.

Pale Tussock Male

Pale Tussock Female

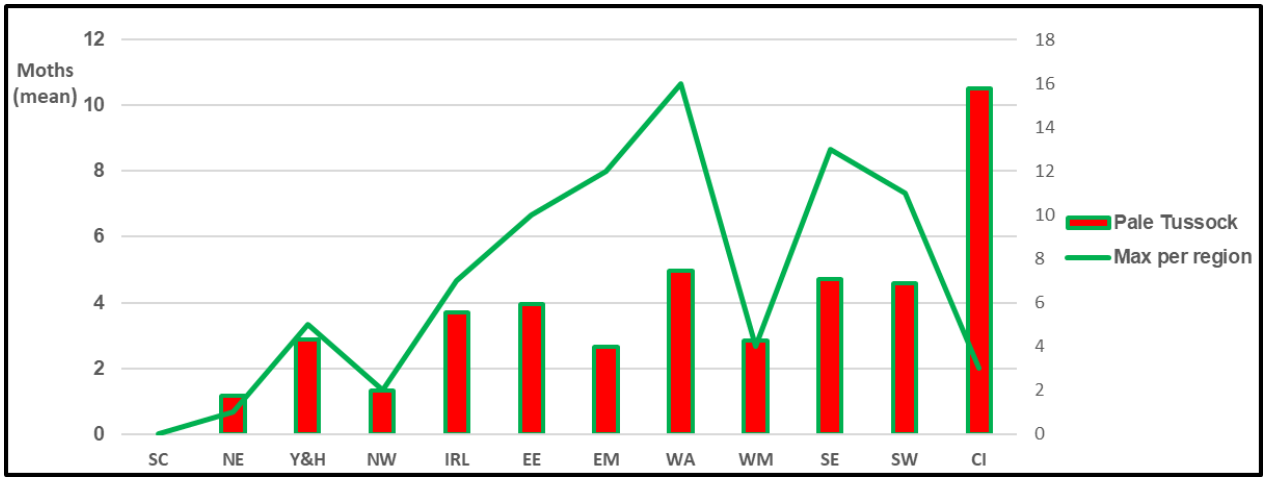
The flight season, according to the books, is May to June but this year, like other moths, it appeared early, mostly in the East Midlands and to a lesser extent in the North East (fig 10). The male especially comes well to light.

Fig 10. GMS 2020 Q2 – Pale Tussock Flight Season



The hairy larvae used to be abundant in hop fields prior to the use of pesticides where it was known as the Hop-dog. It now feeds on a wide variety of broad-leaved trees and shrubs and can be found in gardens, hedgerows and woodland in both urban and rural lowland locations, overwintering as a pupa. It is very widely distributed in England and Wales north to Cumbria but is apparently absent in GMS records from Scotland as seen in figure 11.

Fig 11. GMS 2020 Q2 - Regional Distribution of the Pale Tussock



Since I wanted to look at a species which not everyone caught, I have only used the mean of the number of successful recorders instead of the totals within regions. Table 5 shows the mean number of moths caught in each region and the variations in numbers of these recorders. The top scorer with 16 Pale Tussock in one night came from Powys, Wales in week 13.

Table 5. GMS 2020 Q2 - Pale Tussock Recorders

Regions		SC	NE	Y&H	NW	IRL	EE	EM	WA	WM	SE	SW	CI
Mean	Pale Tussock	0	1	3	1	4	4	3	5	3	5	5	11
Recorders	Pale Tussock	0	6	9	12	13	17	24	32	12	20	31	2
Recorders	Regional	25	25	15	28	23	36	42	40	22	38	42	2
Percent	Pale Tussock	0	24	60	43	57	47	57	80	55	53	74	100
Max	Pale Tussock	0	1	5	2	7	10	12	16	4	13	11	3

The new Atlas of Britain and Ireland's Larger Moths states that the distribution of this moth shows a significant long-term increase of 46% between 1970 and 2016 with a recent range expansion in Northern England. In order to try and demonstrate this with the GMS results I have collated the mean figures for the last 11 years for each region (table 6).

Table 6. GMS 2020 Q2 - Pale Tussock Regional Distribution 2010 - 2020

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	
SC	0	0	0	0	0	0	0	0	0	0	0	
NE	2	1	0	0	0	2	1	5	10	1	1	
Y&H	3	3	1	0	1	1	2	5	8	2	3	
NW	3	3	1	1	2	2	2	4	4	3	1	
IRL	7	6	2	3	4	3	3	4	6	3	4	
EE	4	3	2	3	2	3	3	5	5	3	4	
EM	4	2	2	2	2	2	3	3	4	3	3	
WA	7	4	3	3	4	6	5	5	7	4	5	
WM	5	3	2	2	2	4	5	5	7	3	3	
SE	7	4	2	2	3	3	3	5	5	5	5	
SW	6	4	2	3	4	7	5	6	8	4	5	
CI	7	7	4	2	15	5	18	12	4	7	11	

Garden Questionnaires- Roger Freestone

Accurate GMS Garden Questionnaires are required to link submitted GMS records to each site's habitat and features. It is designed to capture both "Area Features" (e.g. locality to nearest water and woodland etc.) and "Garden Features" (e.g. presence of lawns, native species hedgerow etc.) along with the recorder's name(s), site address, trap/bulb type, grid reference etc.

A Garden Questionnaire should normally be completed by a new recorder on joining GMS and returned to the Local GMS Area Coordinator for forwarding to myself (I am responsible for both the maintenance of the Master GMS Participants List and submitted Garden Questionnaires). This "location" information is typically required when our GMS records are used as part of external research projects which reference some or all the variables defined in the Garden Questionnaire. Dependant on the type of research being carried out it may not be possible to use recorders' moth records if the appropriate Garden Questionnaires are not on file and available for the researchers to reference.

Please note: In line with current GDP requirements Garden Questionnaires are anonymised prior to release to external bodies; Name, Address and Email data are deleted.

A couple of points worth noting:

- A Garden Questionnaire needs to be updated if the trap/bulb type has been changed and if there are any changes to "Area Features" or "Garden Features".
- A new Garden Questionnaire is required if a GMS Recorder moves to a new house as this is classed as a totally new recording site and as such will be recorded in the Master GMS Participants List.

If you have not already submitted a Garden Questionnaire, or if any of the two above bullet points apply then please inform your Area Coordinator who will then pass on the information to me. A copy of the current Garden Questionnaire can be downloaded from the GMS website http://www.gardenmoths.org.uk/

Feel free to contact me on rogerf500@sky.com if you have any questions or comments.

Clouded Drabs by David Baker

Following comments in previous newsletters on the range of variation in the Clouded Drab, David Baker has provided us with photos showing a range of variation that he prepared some years ago. It makes an interesting comparison with Dave Hatton's article on the Hebrew Character which follows next.

A Clouded Drab Selection

Hebrew Characters by Dave Hatton

My catch of moths has been that poor this spring, I decided to look at some of my pictures from previous years to remind me what a moth looked like. Then I remembered recently looking at a compilation of Clouded Drab's that David Baker did a few years ago. So I thought with the Hebrew Character being an early spring moth, and having a similar flight period to the Clouded Drab, that it would be fitting to look at the variations.

A selection of Hebrew Character moths from 2009 to 2014 from Pudsey.

It can be seen from the compilation above, that there appears to be quite a contrast in the ground colour of this moth, which varies from light grey to dark grey, and light brown through to a chestnut brown. Also there is quite a considerable variation and contrast in the markings, shading and cross lines on the fore wings. The mark resembling a character from the Hebrew alphabet varies slightly, though is usually recognisable, although on rare specimens the mark can be almost, or completely, absent.

Most years the grey forms seem to be dominant, though occasional years produce more of the brown forms. Some years the brown forms may occasionally dominate the years catch. Although most entomologists put this variation down to genetic variation, I sometimes wonder if the annual weather conditions, and/or diet play a part producing the different colour forms. Does anybody know the answer to this, or have another theory?

Most years I get a good overall catch of Hebrew Character, and one thing I do know is it's not the Daffodils they come for as I, and several others around me, haven't got any.

The Ruddy Streak in Pudsey, West Yorkshire by Dave Hatton.

Apparently I am quite a lucky fellow; a certain adventive moth called the Ruddy Steak (Tachystola acroxantha) has inhabited my garden for seven years in a row. They first appeared in two other Yorkshire gardens during **2012**, but apparently as one off records at that time. This moth also appeared as a new VC63 record in the Pontefract and Leeds areas, and in **2014** the moths appeared in my garden in small numbers. Since then as the years have passed, this species has become a frequent visitor to my trap. The most up to date count for the Ruddy Streak moth in my garden this year is **28**.

YEAR	Amount recorded		YEAR	Amount recorded
2014	**8**		**2018**	**26**
2015	**9**		**2019**	**12**
2016	**5**		**2020**	**12**
2017	**16**		**2020**	Up to June 13th

Recently the moth is becoming more widespread over Yorkshire, it is now quite common in VC63, but is still absent from VC65. There are photographs below for those not familiar with this species.




They had been seen in England before 2012, and been gradually getting established slowly moving northwards. This species was first noted in Devon in 1908, and was thought to be

imported from its native Australia in imported plants. However some of the more recent appearances in this country I believe are from a different source. Ruddy Streak has been quite common in Europe for a few decades, and I believe recent accidental introductions are European in origin.

My own theory as to where they came to be in my Pudsey garden is as follows. Every year, for ten years I have bought Verve bark chippings from a certain well known D.I.Y. store. There is a small, particularly awkward little bed to weed in the summer, chippings are ideal to keep the weeds down. This makes sense to me for two reasons; **A)** the larvae of this species feed on rotting wood, and **B)** the chippings are imported from Europe already bagged. Are there other recorders who have this species in their own gardens that confirm this theory, or perhaps they could have spread from a neighbours chippings. Most recently I found two small pupae in my bag of bark chippings from last year, they eventually emerged, and yes they were Ruddy Streak.

Round-winged Muslin by Irene Mower

I live on Cumbria in VC69, in the Arnside AONB and have been mothing for about 10 years. I run a Robinson trap in my garden most nights. The garden is about a quarter of an acre and contains herbaceous plants, shrubs, vegetables, trees and grass. It is on the edge of a small village on the south side of the Kent estuary. It is surrounded by limestone pavement, mixed woodland, orchards, grass meadows and scrub and has small ponds nearby. I have had over 360 species in this garden.

I was thrilled to bits recently to find in my trap, a Round Winged Muslin, which I initially dismissed as another aberration of a Muslin Footman, a common species in my area . I had one of those last July. (see first photo.) Closer inspection proved otherwise and I showed the moth to Brian Hancock (of pug fame) who verified my identification. This is the first verified record of this moth for our AONB. 2 were found dead on the floor of a hide at Leighton Moss and one in a nearby village but neither record was accepted due to no specimen or photo being submitted. Almost all modern Cumbrian records have been in VC 70. Pre 2000 records are from Windermere and Walney. The Round Winged Muslin lives in damp areas and the larval foodplants are lichens, mosses and algae. (Plenty of those in our high rainfall area.)

Some other special finds over the years have been Beautiful Hooktip (first for Cumbria),White Marked, Manchester Treble Bar in 2013 (no doubt from across the estuary) July Belle and Black Arches. What next, I wonder. Mothing certainly gets you out of bed in the morning!

The Atlas of Britain & Ireland's Larger Moths – a Review by Norman Lowe

I have lots of books on moths. Some I use frequently and they soon start to look ragged whereas others are left on the shelf and stay pristine. At the end of last year I acquired a copy of the new Atlas of Britain & Ireland's Larger Moths by Zoe Randle and co-authors and it soon became obvious that here was a book destined to become ragged quite quickly through frequent use.

It should be stated at the outset that this Atlas is not primarily an identification guide. There are plenty of these already and some are very good indeed. Whilst each species is illustrated by a thumbnail photo, it is the accompanying information that is so valuable. This includes maps of distribution over three time periods – 2000 to 2016, 1970 to 1999 and pre-1970 and the changes in distribution and abundance over the same time periods. Also very useful is the information on the flight seasons.

So what use might be made of the Atlas? Here's a hypothetical case drawn from recent experience. Imagine that I have two moths in my trap at the end of July that seem odd. They appear to be a Heart & Dart and a Common Quaker. Both should be over now, shouldn't they? I consult the Atlas and find that Heart & Dart is recorded in decreasing numbers throughout August and into September so that is fine, but Common Quaker has stopped flying by the end of May so that can't be right. Then I realise that it's actually a Rustic. Later a report comes in of a Brown-tail in North Wales. Surely the species is confined to England? But a look at the Atlas shows several North Wales records so the identification can be accepted. What is more, the Atlas is great for just browsing through.

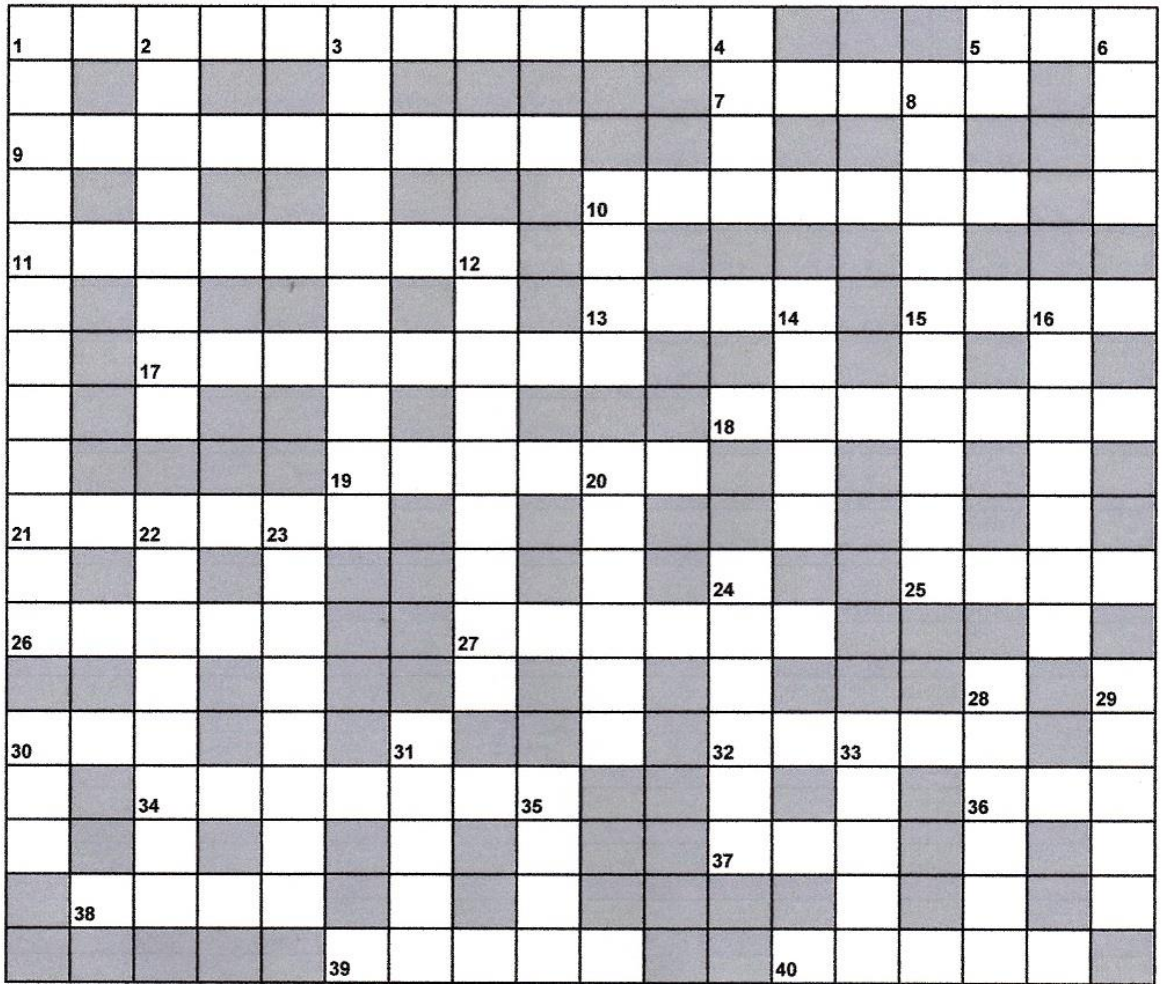
All in all a very useful book and highly recommended. And of course it represents an enormous amount of work by the authors as well as by the contributory moth recorders. Take a close look and you'll probably find dots on the maps that you contributed!

Puzzle Corner by Nonconformist

Moth Spiral No 3 Answers

Nonconformist: Streamer: Merveille: Lewes: Scarce: Emperor: Orache: Chestnut:Nutmeg: Egyptian: Anticlea: Least: Straw: Welsh: Shoulder: Ermine: Edinburgh: Honeysuckle: Lesser: Seraphim: Muslin: Narrow: Water:

Lepidoptera Crossword No. 13



Clues Across

1. See15a
5. The state of a female pensioner.
7. If spread on the floor this could be a damp staring point for 22d.
9. A species irregular enough to make a soul moan wildly.
10. After eating Cajun I perk up when finding the following treat with 30d.
11. Blend an upper garment with a fossil fuel to find a genus of larger moth.
13. Final score: Peacocks 2 – Kittens 4.
15 &1a .This hibernating moth, if ground hotly, reeks until it appears again in spring.
17 & 30d.Modellers use the correct channels and gungey sprue to solve this species identity.
18. Albert's exchanged the article for nothing and found an extra four legs?
19. A lepidopteran, but important, qualification for some "garden centre" moths.
21&16d. By making a terrible mess axes lured these from their County seats!
25. After a quick listening session I come back to the idea of making a protective covering.
26. Could be plain moth, grey or even prickly.
27. See 6d.
30. Could be small and twisted or lined with a light border.
32 See 34a
34 &32a.Could be used by young ladies as make-up but I blend as mush.
36. It's a long time since we had a clue on this scale.
37 & 33d.These descriptions would belong to 11 if only wings were added to its ruder end.

38. Elemental part of a stair on an outstanding species.
39. This would seem to appear lively whilst waiting to lose the ferrous markings.
40. Tell tales about adding 16d to bolster your recording collection?

Clues Down

1. "Wot no paper?" Let's search through Cassie's cruet to solve this household problem.
2. A generic name for paste? Goo is what I would name this little species.
3. Its tripod stance is noted in extra old books as being a renamed genus.
4. The best winning combination of markings for some species.
5. Commonly sounds like part of a well known musical instrument but there is an alternative.
6 & 27a. Not a bored polar specimen but a Southern woodland rarity.
8. It made Tess grieve to see this small stone on her borders.
10. A species to find great heights in the middle of summer.
12. Does this genus hail from Salop or does it spring from anywhere?
14. The shoulder covering on this species is certainly not enough!
16 see21a.
20 & 29d. I have problems with this beauty so I run forum to help me solve them.
22. As a starting point surely they would use the rear stem for a take-off.
23. Isis asked her tiny page where the insect that ruined her cotton buds came from!
24. The French may wear rubber berets now, but did the North Africans do also?
28. Is it possible that Bess hears cutting statements about herself when ear-wigging?
29 see 20d.
30. see 10 & 17a.
31. A barrier, although also a home provider, for a simple unrefined specimen.
33 see 37a.
35. Remove the brewing liquor and we will put you on top of the world.

Tailpiece

As usual when I get to my Tailpiece I wonder what I should emphasise this time. So first, if you haven't done so already, please make sure that your questionnaire has been filled in or, if things have changed, fill in a new one. Remember to send in questionnaires to your Area Coordinator, or if you have questions or comments to Roger at rogerf500@sky.com .

Also, if you have any thoughts on the proposal that we link our results to the iRecord system please let me know. Is your County Recorder currently happy with the data flow of GMS results? And, as always, let me have your thoughts or better still send me an article for the next edition. Contact me at the usual norman@enviro-consulting.com.

Communications & Links.

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

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

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

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www.mapmate.co.uk