GMS News

Early Summer 2022

Weeks 10-18

Contents

Editorial

Many of you will realise that we have fallen behind in producing GMS Annual Reports. In order to address this it is intended to produce a brief 2019 Annual Report containing the bare bones of the results for the main 2019 and winter 2019/2020 periods. This will be followed by a more traditional issue covering the 2020 and 20/21 results.

Running GMS takes a lot of doing and much of the work is carried out by a small number of hard-working individuals. Here are some of the things that are done to keep the show on the road.
Overall coordination including communication with and appointment of Area Coordinators
Management of the bank account
Communication with sponsors
Maintaining the GMS database
Production of the Annual Report
Production of Recording Spreadsheets
Looking after the GMS website
Production of the quarterly newsletter
Maintenance of the questionnaire database
Writing the quarterly report for inclusion in the newsletter
Coordinating GMS issues in each area including communication with and recruitment of recorders
Collating and sending on record sheets quarterly and annually
Organising scheme-wide and local meetings and conferences.

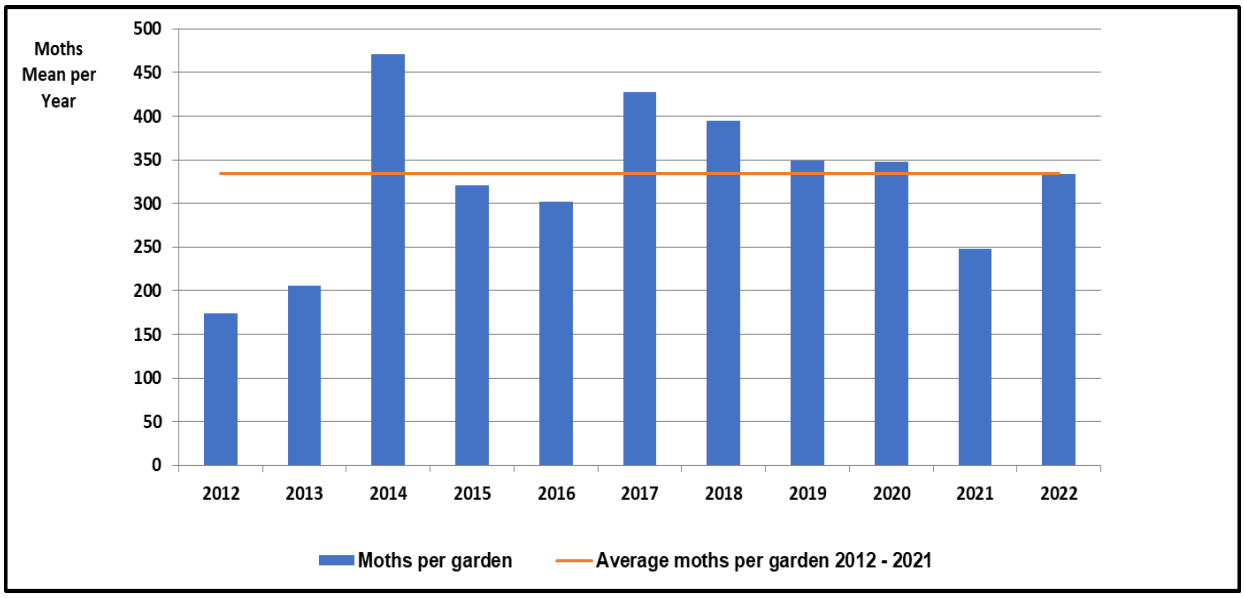
Currently most of these are being done but it would be good to have more people involved to spread the load and perhaps to take over one or more should that become necessary. Please get in touch at norman@enviro-consulting.com if you think you could give some time to help..

Overview GMS 2022 2nd Quarter

Evan Lynn

This quarter proved better than expected. The last mild winter could have been detrimental to overwintering larvae/pupae due to the better survival conditions for parasites and attacking fungi. Nevertheless, the number of moths caught is up on last year (fig 1).

Fig 1. GMS 2022 Q2. Mean Quarterly Species Numbers 2012 to 2022

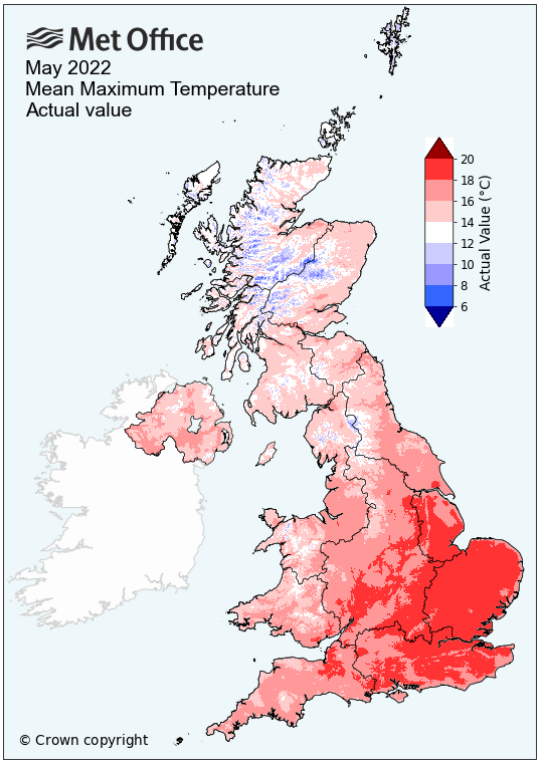


The weather for May was fairly uneventful for most areas. The Atlantic weather systems this month were reasonably quiescent with the UK as a whole having 107% of the historical average rainfall with Honister in Cumbria recording 65.2mm on the 10th of May. Then a plume of hot air moved up from France triggering several outbreaks of lightning activity and heavy downpours caused localised flooding in several places with at least two houses in the south suffering serious lightning strikes.

These weather conditions continued into June with warm, calm weather being punctuated with the occasional severe thunderstorms. Criccieth in North Wales received 94 mm in 24 hours. At the same time the hot weather caused a dramatic cliff collapse in Devon. In the middle of the month a cold front intercepted a tongue of very warm air coming up from the continent. This inevitably resulted in intense thunderstorm activity across parts of southern and eastern England. There were numerous power cuts in Devon and Cornwall and the First Light Festival in Suffolk was temporarily suspended as a result of heavy downpours and lightning displays! Finally, the month ended with more localised storms causing travel disruptions from flooding.

Some of this extreme weather is shown in the following Met Office charts. The effect of the plume of hot air can be seen in May for the south of England when they didn't even have the longest hours of sunshine.

Fig 2. Mean Maximum Temperature for May & June 2022 (with permission of the Met Office).



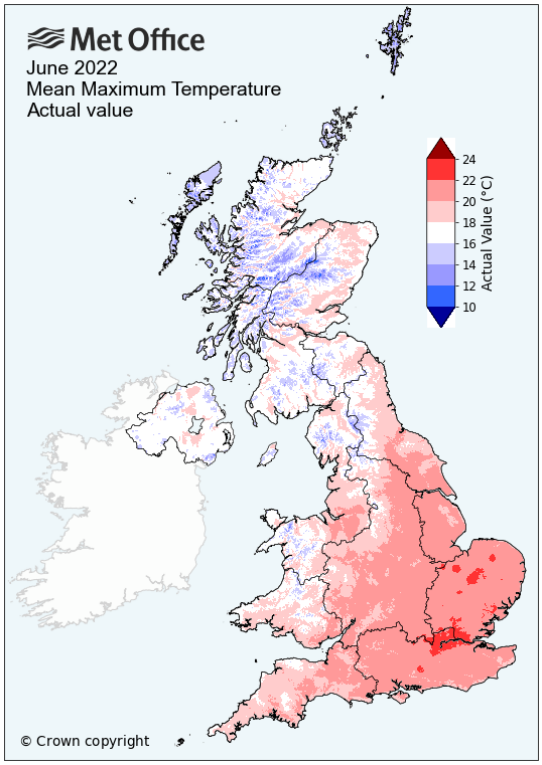
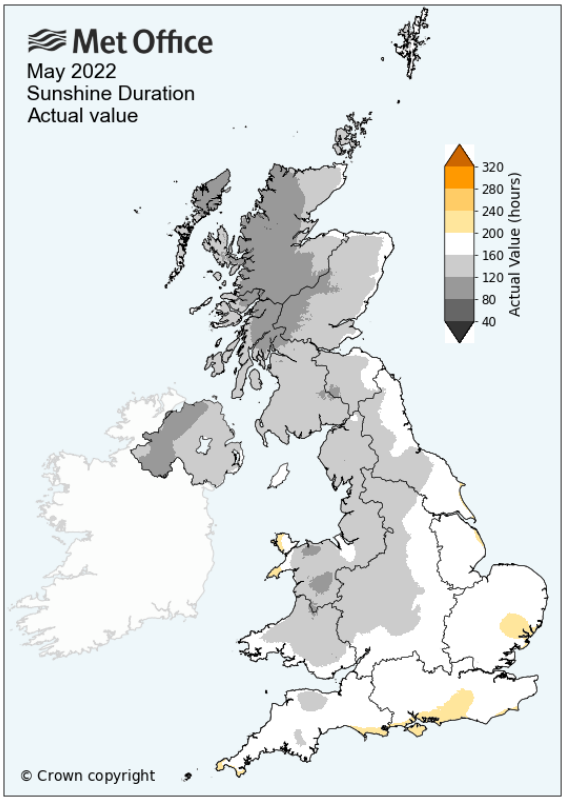


Fig 3. Hours of Sunshine for May & June 2022 (with permission of the Met Office).



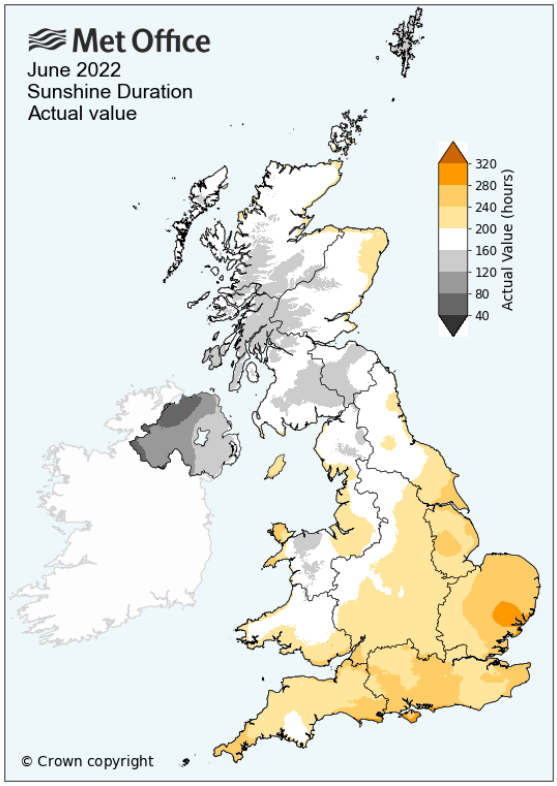


Fig 4. Days of Rainfall >= 10 mm for May & June 2022 (with permission of the Met Office).

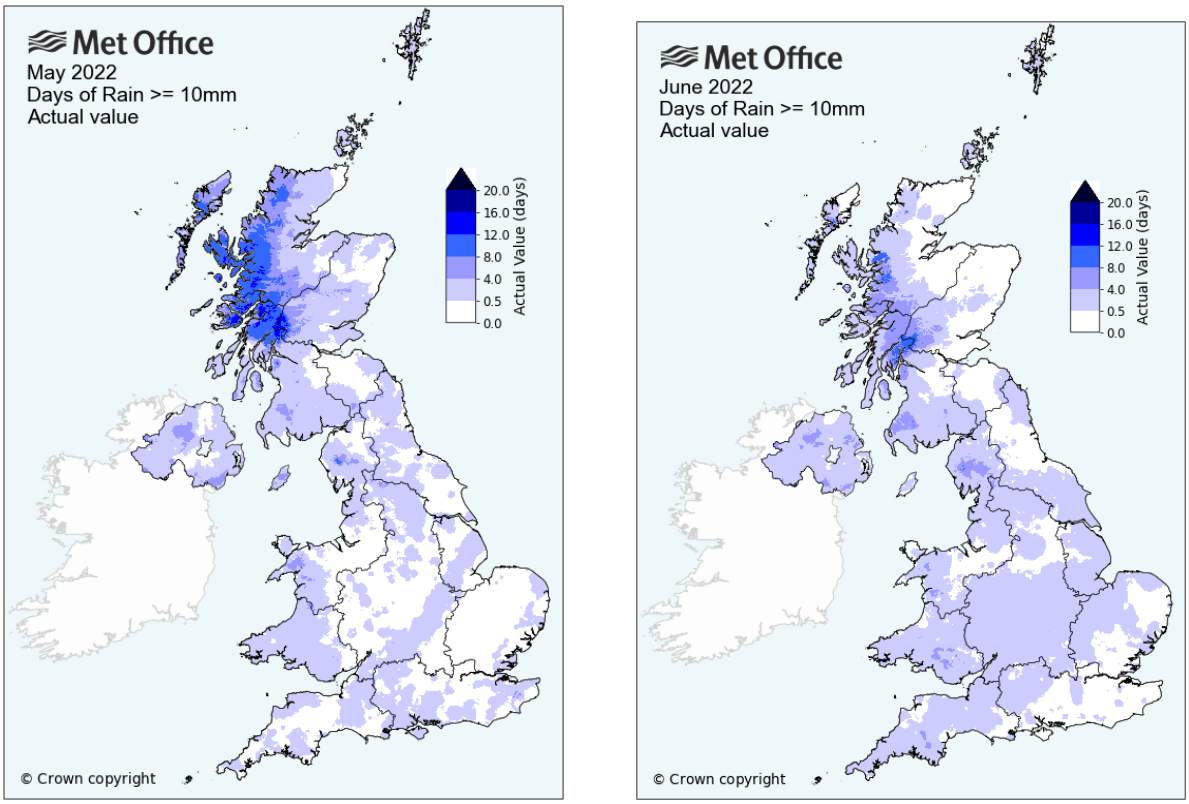
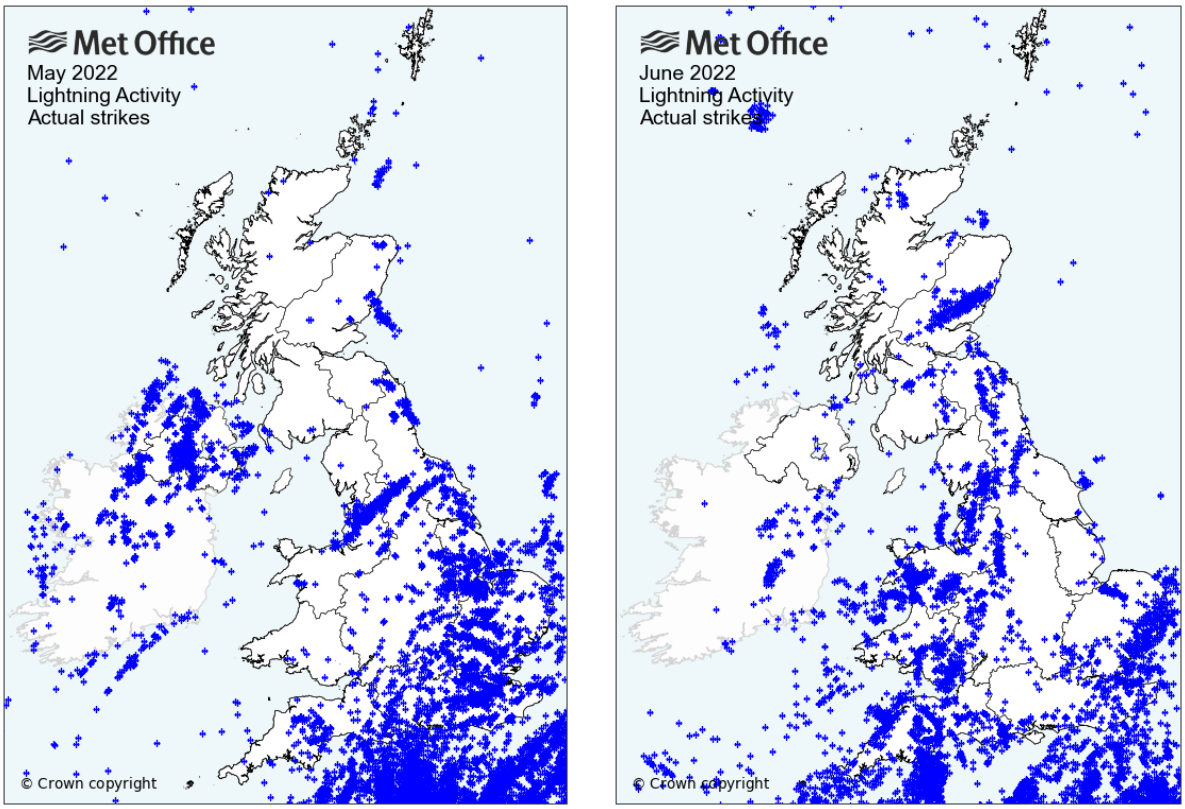
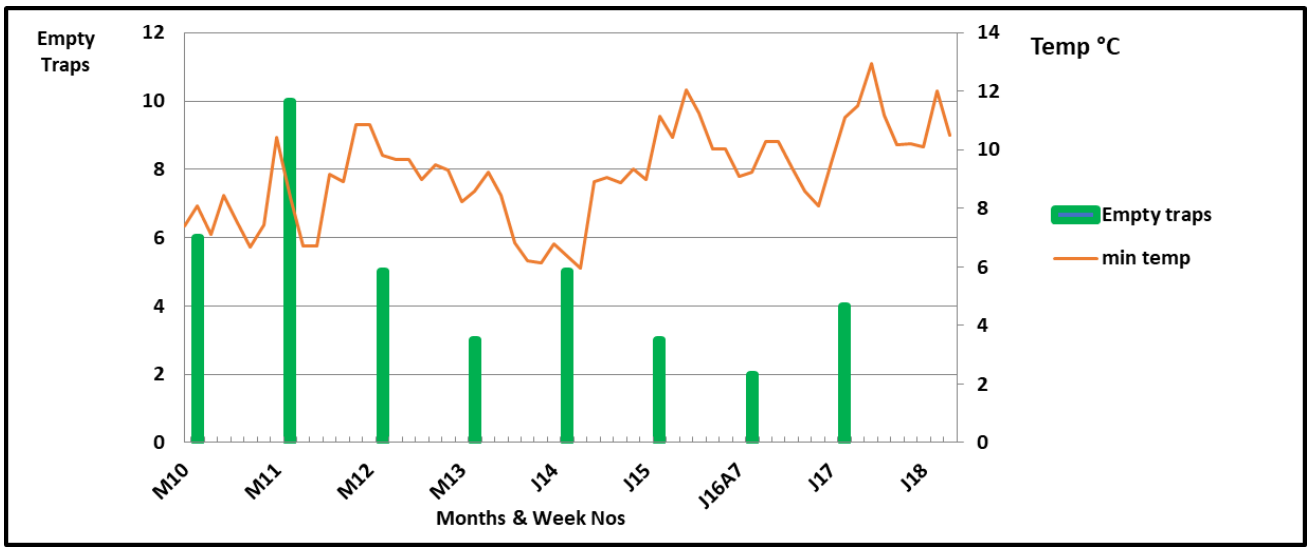


Fig 5. Lightning Activity for May & June 2022 (with permission of the Met Office).



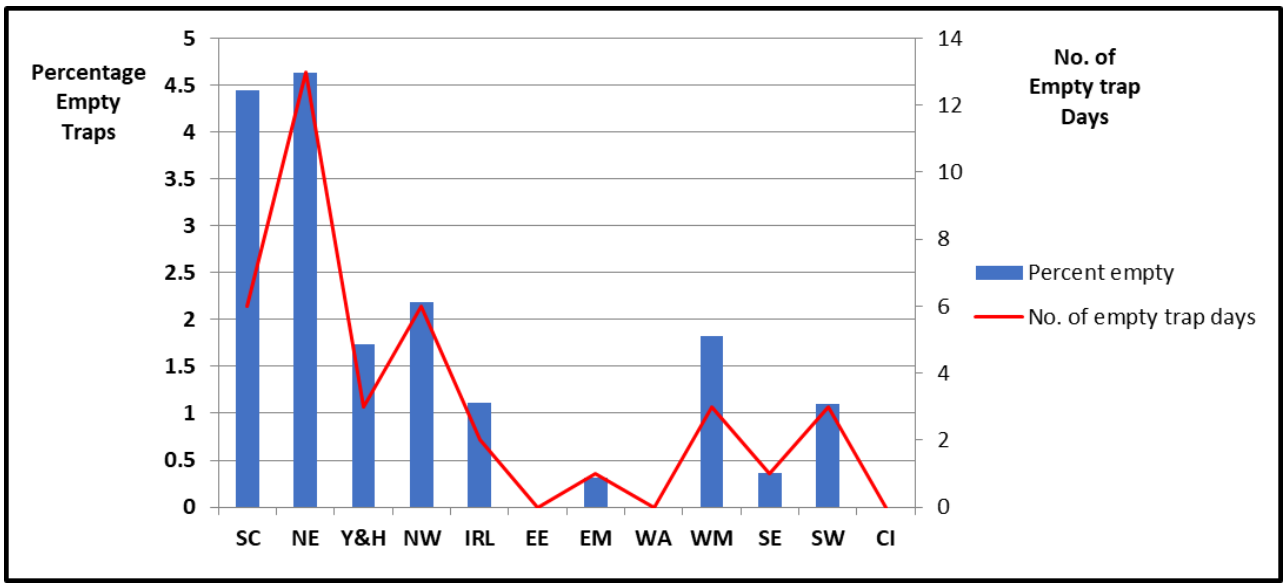
Perhaps some of these conditions contributed to the number of empty traps this quarter with weeks 10 &11 being the worst affected (fig 6).

Fig 6. GMS 2022. Q2 Number of Empty Traps and Minimum Temperature



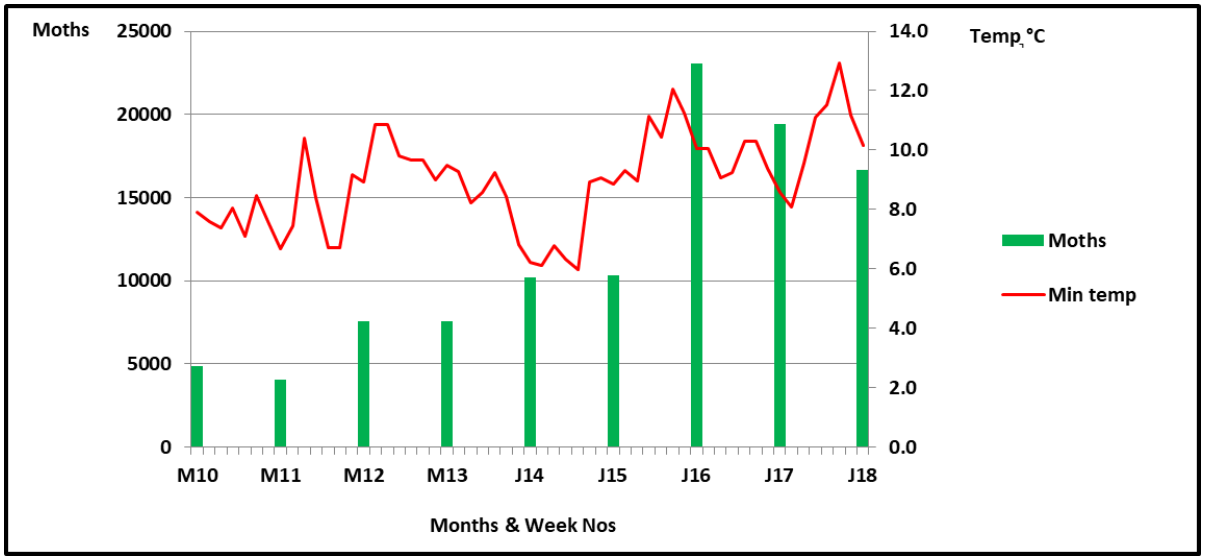
It would appear that the highest number of empty traps were in Scotland and the North East (fig 7). Sometimes the cause for empty traps is obvious but in other cases it can be a mystery. One unfortunate recorder had empty traps in four out of the nine weeks and even in the good weeks he was only in single figures. Without actually knowing the garden in question it is hard to say if it is the locale or the trap itself.

Fig 7. GMS 2022 Q2. Regional Number & Percentage of Empty Traps



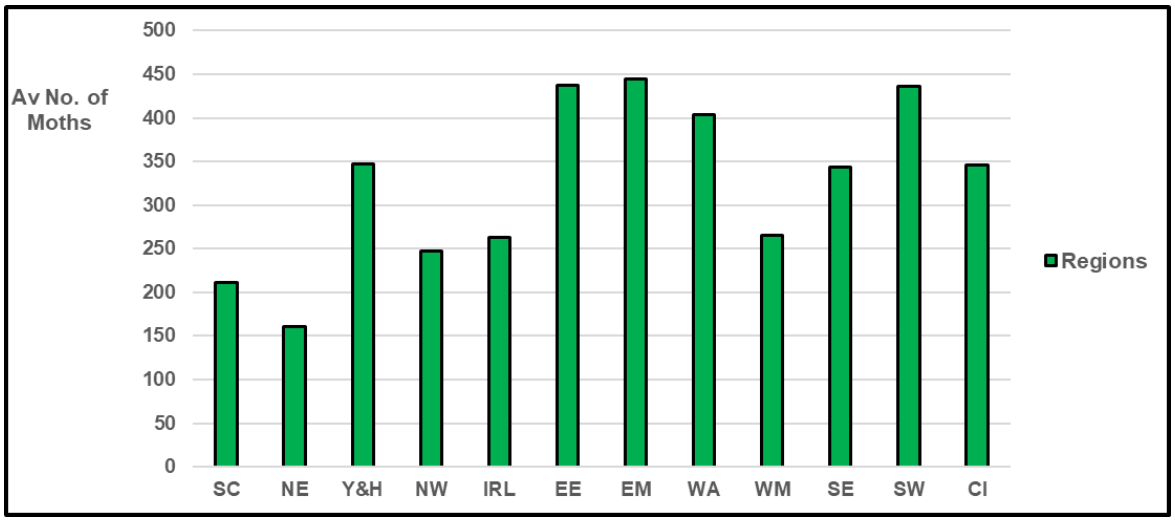
The moth catches gradually increased until week 16 (fig 8) when they started to fall again and it would be interesting to know whether this was related to some of the extreme weather that Britain and the continent have been experiencing. Answers on a postcard please!

Fig 8. GMS 2022 Q2. Number of Moths and Minimum Temperature



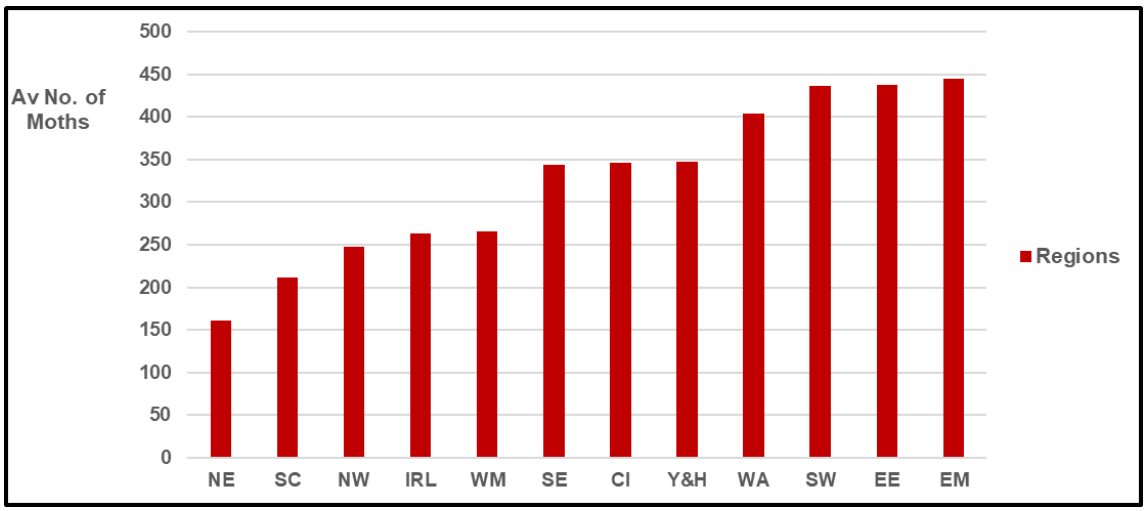
The moth catches in each region give a slightly confusing picture showing a possible bias towards the south (fig 9),

Fig 9. GMS 2022 Q2. Regional Average No. of Moths



However, rearranging the regions from their normal geographical sequence to a ranking order of increasing moth numbers shows a general increasing trend from North to South with only the Channel Islands clearly out of place (fig 10). Their one recorder had 346 moths compared to the Yorkshire & Humberside with an average of 347 moths. In turn this region is out of place with the South East averaging 344 moths. No doubt the recorders in Yorkshire will have a saying for this!

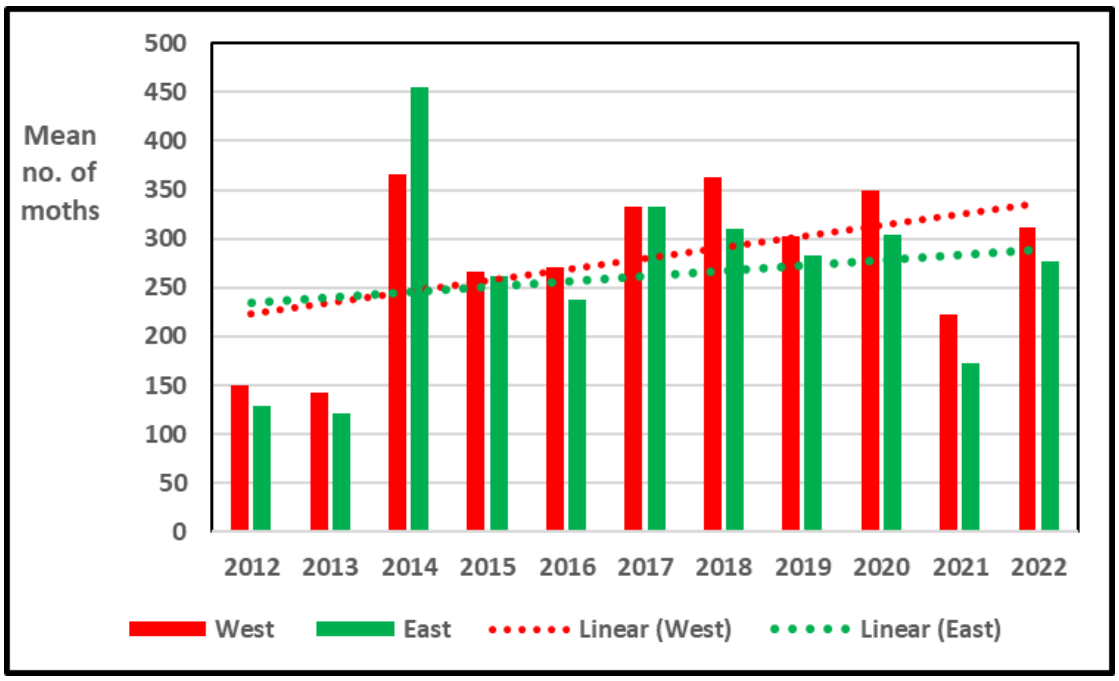
Fig 10. GMS 2022 Q2 Regional Average No. of Moths



East vs West

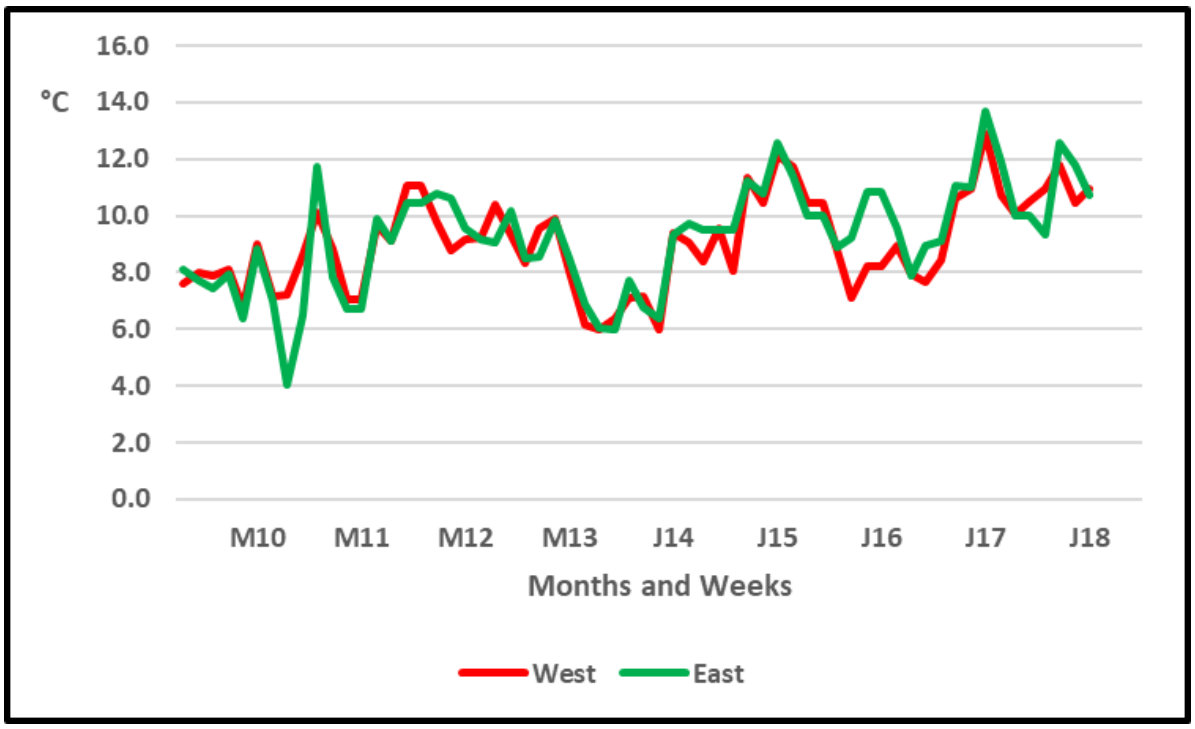
This quarter I am comparing the east side of the country with the west – in this case the Northeast, Yorkshire & Humberside versus Wales & the Northwest. For those in Ireland who believe they should be included, do not worry, you are in the pipeline for next quarter.
The average number of core moths in both areas are compared in figure 11 and it would appear that apart from 2014 (and 2017, where there was a marginal mean difference of one moth), the West has been a little ahead of the East. In both areas the linear trend lines show an increase over the period, slightly greater in the West.

Fig 11. GMS 2022 Q2. Average Core Moth Numbers for the East and West Areas 2012 - 2022.



At first thought, perhaps, the different climates are the cause but looking at the minimum temperatures for this year (figure 12) it may be stretching the point a bit too far. It could possibly apply in the first and last quarters, but this time of the year is usually the quietest when it comes to weather.

Fig 12. GMS 2022 Q2. Average Minimum Temperatures for the West & East Areas in 2022.



Statistics

The top 20 table (table 1) shows the changes between 2021 and this year for this second quarter. Even though we still do not have all the results in for both these years it reflects the welcome rise in numbers of moths this quarter. Despite this optimism we have actually found in our own personal catches that while there is still the wide variety of species there are less numbers of each. This does seem to contradict the first statement when looking at the regional figures but working this out may be a little over my paygrade. Possibly this is something worth looking into and any ideas would be appreciated.

There has been quite a bit of shuffling of positions from last year with some minor and some larger shifts upwards such as the Flame, Flame Shoulder and the Setaceous Hebrew Character. There have also been downwards movements including the Brimstone Moth and the Willow Beauty. This latter one has passed us by this year and the Brimstone Moth has been notable by its occasional appearance in our garden. This of course does not mean its population is suffering but may actually be shifting its emergence time in line with the climate. This report is only a snapshot of the season so an overall picture at the end of the year should be more informative.

The second part of the table deals with the frequency of visits rather than the actual counted number. The negative difference highlighted with the Heart and Dart and Treble Lines is lost in the decimal rounding up of percentages.

Table 1. GMS 2022 Q2. Top 20 Core Species

Position		Top 20	Mean Per Trap				Catching Frequency (% of gdns)		
2021	**2022**	Species	**2021**	**2022**	**Change**		**2021**	**2022**	Difference
1	**1**	Heart and Dart	32.6	36.3	3.7		95	**95**	-1
3	**2**	Uncertain/Rustic agg.	9.7	11.8	2.1		72	**76**	4
2	**3**	Garden Grass-veneer	11	11	0		70	**72**	2
8	**4**	Buff Ermine	5.3	10.7	5.4		69	**80**	11
6	**5**	Marbled Minor agg.	6	8.5	2.5		79	**85**	6
13	**6**	Flame	3.8	7.9	4.1		61	**72**	10
15	**7**	Flame Shoulder	3.4	7.7	4.2		65	**83**	18
9	**8**	Light Brown Apple Moth	4.7	7.6	2.9		65	**68**	2
4	**9**	Treble Lines	8.1	7.2	-0.9		52	**52**	0
32	**10**	Small Square-spot	2	6.5	4.5		34	**65**	31
11	**11**	White Ermine	4	6.4	2.4		64	**71**	7
5	**12**	Dark Arches	6.4	6.3	-0.1		76	**83**	7
22	**13**	Large Yellow Underwing	2.9	5.8	3		73	**85**	13
34	**14**	Setaceous Hebrew Character	1.8	5.8	4		38	**55**	17
7	**15**	Brimstone Moth	5.9	5.8	-0.2		81	**81**	-1
14	**16**	Elephant Hawk-moth	3.8	5.6	1.82		68	**70**	2
17	**17**	Bright-line Brown-eye	3.3	5.5	2.3		59	**69**	10
19	**18**	Riband Wave	3.1	5.4	2.3		69	**76**	7
12	**19**	Common Marbled Carpet	3.8	5.1	1.2		67	**82**	15
10	**20**	Willow Beauty	4.5	4.8	0.4		67	**70**	4
			368 Gardens	315 Gardens					

Then table 2 brings this into local context showing the top ten moths from each region. The Heart and Dart dominates all the regions bar the Channel Islands where it is consigned to ninth position. The Buff Ermine which took fourth position in table 1 changes positions in all regions apart from the East of England where it is absent.

Table 2. GMS 2022 Q2. Top 10 Regional Core Species

Scotland (16)	Mean	North East (33)	Mean	North West (39)	Mean
Heart and Dart	24.4	Heart and Dart	18.2	Heart and Dart	38.4
Bright-line Brown-eye	7.8	Garden Grass-veneer	5.4	Heart and Dart	38.4
Clouded-Bordered Brindle	7.3	White Ermine	5.1	Buff Ermine	12.9
Bordered White	6.6	Large Yellow Underwing	5.1	Garden Grass-veneer	10.0
Small Square-spot	6.6	Buff Ermine	4.6	Flame	8.8
Garden Grass-veneer	5.9	Flame	4.4	Flame Shoulder	8.2
Buff Ermine	5.8	Small Square-spot	4.2	Dark Arches	8.1
Pale-shouldered Brocade	5.6	Common Swift	4.0	Small Square-spot	8.1
Flame Shoulder	5.4	Dark Arches	3.7	Uncertain/Rustic agg.	7.3
Silver-ground Carpet	4.9	Marbled Minor agg.	3.4	Large Yellow Underwing	6.3
Yorks & Humber (20)	Mean	Ireland (22)	Mean	East of England (32)	Mean
Heart and Dart	24.4	Heart and Dart	22.4	Heart and Dart	34.6
Marbled Minor agg.	13.5	White Ermine	19.0	Treble Lines	19.8
Light Brown Apple Moth	11.8	Small Square-spot	14.2	Garden Grass-veneer	19.4
Small Square-spot	11.3	Buff Ermine	13.9	Uncertain/Rustic agg.	16.0
Buff Ermine	9.8	Light Brown Apple Moth	9.9	Marbled Minor agg.	13.8
Uncertain/Rustic agg.	9.3	Flame Shoulder	9.5	Common Footman	13.7
Flame	8.9	Muslin Moth	8.0	Set Hebrew Character	11.5
Garden Grass-veneer	8.6	Garden Grass-veneer	7.5	Elephant Hawk-moth	11.1
Bright-line Brown-eye	8.5	Brimstone Moth	5.9	Light Brown Apple Moth	9.5
Flame Shoulder	6.9	Mottled Beauty	5.6	Shuttle-shaped Dart	9.4
East Midlands (38)	Mean	West Midlands (19)	Mean	Wales (31)	Mean
Heart and Dart	45.6	Heart and Dart	31.5	Heart and Dart	61.6
Uncertain/Rustic agg.	25.2	Common Wainscot	20.6	Buff Ermine	19.7
Garden Grass-veneer	15.1	Uncertain/Rustic agg.	15.7	Flame	16.5
Dark Arches	14.3	Set Hebrew Character	14.1	Garden Grass-veneer	16.4
Setaceous Hebrew Character	13.2	Garden Grass-veneer	9.5	Large Yellow Underwing	16.3
Marbled Minor agg.	13.1	Light Brown Apple Moth	9.1	Flame Shoulder	13.7
Light Brown Apple Moth	12.8	*Crambus pascuella*	8.4	Treble Lines	10.8
Riband Wave	11.9	Marbled Minor agg.	8.3	White Ermine	10.4
Brimstone Moth	11.6	Buff Ermine	7.5	Uncertain/Rustic agg.	9.5
Buff Ermine	11.6	Treble Lines	5.9	Marbled Minor agg.	9.3
South East (32)	Mean	Southwest (32)	Mean	Channel Islands (1)	Mean
Heart and Dart	41.4	Heart and Dart	39.8	Buff Ermine	47
Uncertain/Rustic agg.	16.0	Buff Ermine	16.7	Marbled Minor agg.	30
Light Brown Apple Moth	11.1	Uncertain/Rustic agg.	15.9	White Ermine	23
Treble Lines	10.9	Treble Lines	15.5	Flame	19
Willow Beauty	9.7	Flame Shoulder	11.2	Willow Beauty	15
Garden Grass-veneer	9.1	Common Marbled Carpet	11.1	Poplar Hawk-moth	11
Marbled Minor agg.	8.0	Willow Beauty	10.1	Bright-line Brown-eye	11
Riband Wave	7.8	Flame	9.8	Heart and Dart	11
Shuttle-shaped Dart	6.7	Small Square-spot	9.6	Small Square-spot	11
Flame Shoulder	6.7	Garden Grass-veneer	8.8	Large Yellow Underwing	9

I am always amazed not only at the number of moths some recorders can catch in one night but also their diligence in counting them, especially when it comes to some of the smaller ones. This is shown in table 3 with the maximum catches of the top 7 moths from table 1. Certainly, the recorder from Pembrokeshire in West Wales should be especially commended for his record of 650 Heart and Dart in June 2019 (table 3).

Table 3. GMS 2022 Q2. Maximum Catches 2012 to 2022

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Heart and Dart	297	71	355	200	105	142	210	650	236	115	119
Uncertain/Rustic agg	33	4	105	74	23	109	46	41	62	88	47
Garden Grass-veneer	40	22	188	202	35	235	105	174	200	106	133
Buff Ermine	48	33	32	41	29	91	29		45	36	39
Marbled Minor agg.	36	24	52	42	70	38	37	39	124	24	33
Flame	17	15	46	32	21	67	42	35	29	52	59
Flame Shoulder	46	21	45	27	18	44	55	18	21	27	27

Although the quantity of moths caught per year can fluctuate the number of species over these years has remained reasonably consistent

Table 4. GMS 2022 Q2. Number of Species 2012 to 2022

2nd quarter	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
No. species	354	344	337	337	366	349	339	368	361	315	356

All the trap nights and catches completed by the recorders are summarised in Table 5. The minimum and maximum moth numbers caught in this nine-week period vary considerably, possibly reflecting location, type of trap and/or the individual micro-climates. The minimum number caught ranges from 8 to 104 with the maximum catches lying between 52 and 1753, while the trapping effort (Moth Trap Nights) is remarkably consistent. The third section 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. Certainly, this quarter we have had to frequently vary our trapping nights due to family commitments.

Table 5. GMS 2022 Q2. Regional Statistics

Region	Gardens	Moths			
		Total	Mean	Min	Max
SC	16	3374	211	52	547
NE	33	5301	161	8	763
Y&H	20	6942	347	33	1753
NW	39	10175	261	15	650
IRL	22	5793	263	22	595
EE	32	14008	438	104	1618
EM	38	16899	445	78	1077
WA	31	12527	404	35	52
WM	19	5044	265	56	549
SE	32	11003	344	36	774
SW	32	13972	437	94	1303
CI	1	346	N/A	N/A	N/A

Moth Trap Nights		
Possible	Actual	Percent
144	135	94
297	281	95
180	173	96
351	338	96
198	180	91
288	281	98
342	325	95
279	262	94
171	165	96
288	276	96
288	274	95
9	7	78

Weekday Trap Nights							
Night	Tues	Wed	Thurs	Fri	Sat	Sun	Mon
Days	25	67	286	1209	318	125	68
Percent	1	3	14	58	15	6	3

Additional Species

As mentioned in previous reports, one part of the form which is often ignored is the lower section where you are invited to add moths which are not on the core/regional list. Although not essential to the immediate running of the scheme they are useful for working out any future possible addition to the species list and can produce a more comprehensive list of the moths caught should the need arise in the future. Also, by listing them together with the usual moths, they can be converted into a format suitable for submission to your county recorder.
The number of entries this quarter has been very gratifying due in part to the time of the year but also to the number of recorders entering their results. It brings a whole new life into the scheme.

This quarter there were over 521 rows of data coming from all of the regions giving a total of 4480 moths of 494 species. Some of these may be duplicated when one recorder identifies it as the species whilst others record it as a sp. or an agg. Table 6 below lists the top 20 moths from the section for this quarter. “R” identifies it as a regional species. Six of the species listed are pugs, but in the entire list 24 pugs were identified ranging in quantity from the Common Pug found 293 times down to just one sighting each of eight other pugs. This is of course assuming the identifications are correct (table 6).

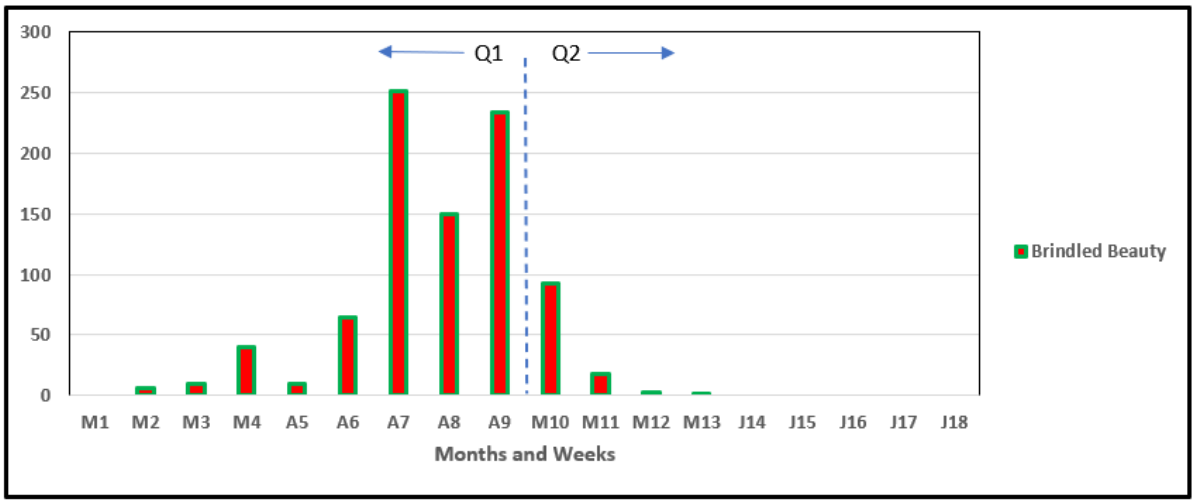
Table 6. GMS 2022 Q2 - Top 20 Additional Species

Latin/Vernacular	Total	SC	NE	Y&H	NW	Irl	Wa	WM	EM	EE	SE	SW
Common Pug	293	6	R	R	22	50	30	8	92	43	0	42
Eudonia lacustrata	247	14	9	30	25	27	15	8	85	13	0	21
Hedya pruniana	105	0	0	63	3	0	7	0	19	4	0	9
Grey Pug	93	9	1	39	6	10	16	2	1	4	0	5
Orange Footman	84	0	0	R	0	0	11	5	24	44	0	0
Mottled Pug	78	1	R	R	11	10	14	6	4	5	0	27
Marbled Orchard Tortrix	75	3	R	R	12	9	15	1	18	16	0	1
Foxglove Pug	75	0	R	R	14	0	55	6	0	0	0	0
Scoparia ambigualis	72	9	3	R	7	3	17	9	8	10	0	6
May Highflyer	72	0	R	R	4	7	47	1	2	4	0	7
Coronet	64	0	2	R	0	0	23	7	28	4	0	0
Bird-cherry Ermine	63	R	0	R	R	2	1	0	15	45	0	0
Eudonia mercurella	63	0	5	R	5	5	7	8	10	12	0	11
Barred Fruit-tree Tortrix	58	7	0	0	0	40	1	0	0	8	0	2
Celypha lacunana	57	9	R	R	5	R	25	18	R	R	R	R
Large Nutmeg	57	0	0	0	0	0	0	0	48	R	0	9
Freyer's/ Edinburgh Pug	56	15	4	5	9	0	2	4	9	4	0	4
Coleophora sp.	50	0	0	49	0	0	0	0	0	0	0	1
Oak-tree Pug	49	1	1	2	0	2	9	3	14	5	0	12
Grass Rivulet	42	0	0	0	0	0	4	0	36	0	0	2
Notocelia cynosbatella	41	2	0	0	0	9	4	4	10	4	0	8

Follow Ups

In my report from the first quarter this year I described the Brindled Beauty whose flight period was rudely cut off by the end of the quarter so I have restored its dignity by completing its flight season for you (fig 13).

Fig 13. GMS 2022 Q2. Flight Season of the Brindled Beauty in 2022.



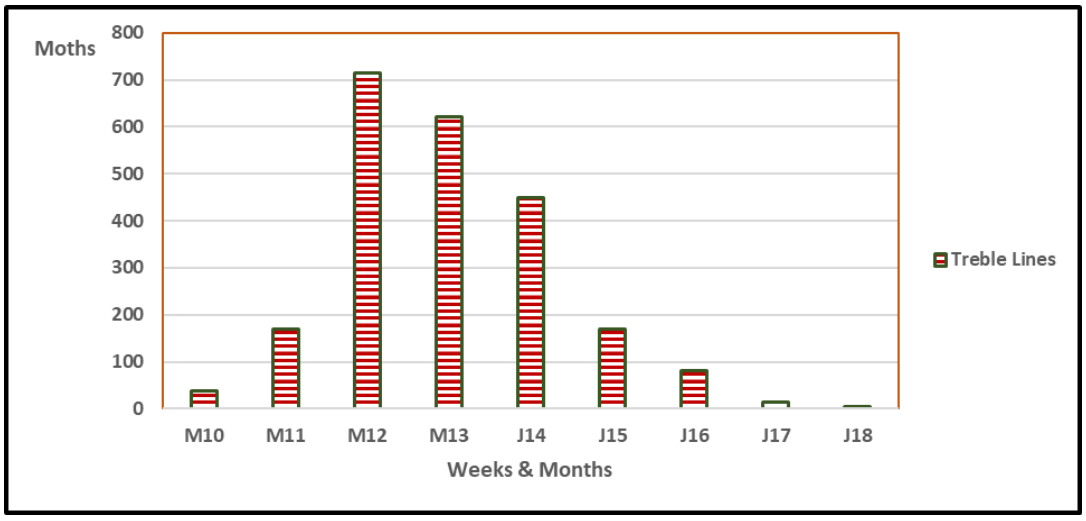
Treble Lines (*Charanyca trigrammica*)

This common moth of the Noctuid family was first described by Hufnagel in 1766. Its vernacular name is self-explanatory and its scientific name translates as - *Charanyca* a nightly delight with *trigrammica* describing its three lines.

In appearance, it is quite thickset with three dark cross-lines, the median line usually the widest with an expansion at the costa, and a partial one at the base. The ground colour varies from pale greyish brown to orange-brown.

It has one generation with a flight season from May to June. It overwinters as a small larva and feeds overnight at ground level chewing through the stems of a number of herbaceous plants including Greater Plantain, knapweeds, dandelions and thistles. During the day it hides in the soil or under vegetation pupating in the ground in the spring. It is a species of open grassy situations including gardens, hedgerows, commons and woodland fringes.

Fig 14. GMS 2022 Q2. Flight Period of Treble Lines



It is a well distributed and often numerous species in the southern half of Britain occurring north to southern Cumbria and very locally in south-west Scotland (where there seems to be an absence of GMS recorders). It is widely scattered but local in parts of Ireland and is found virtually throughout the whole of Europe. It has shown major long-term increases in both distribution (85%) and abundance (137%) between 1970 and 2016 and its flight period has advanced since the 1970s (Atlas of Britain and Ireland's Larger Moths).

Fig 15. GMS 2022 Q2. Regional Distribution of Treble Lines 2012 to 2022

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
SC	0	0	0	0	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0	0	0	0	0
Y&H	0	0	0	0	135	64	6	8	16	24	24
NW	0	0	0	27	58	36	84	128	41	53	93
IRL	0	0	0	5	9	6	10	45	20	30	41
EE	237	0	487	532	587	435	690	1459	984	763	635
EM	36	0	133	44	69	58	108	534	198	214	182
WA	252	0	206	315	436	193	481	834	459	321	334
WM	457	0	199	221	297	145	273	603	321	227	112
SE	455	0	543	459	462	390	352	599	455	683	349
SW	584	0	632	731	516	327	430	1317	574	651	495
CI	0	0	0	0	0	0	0	0	0	0	7

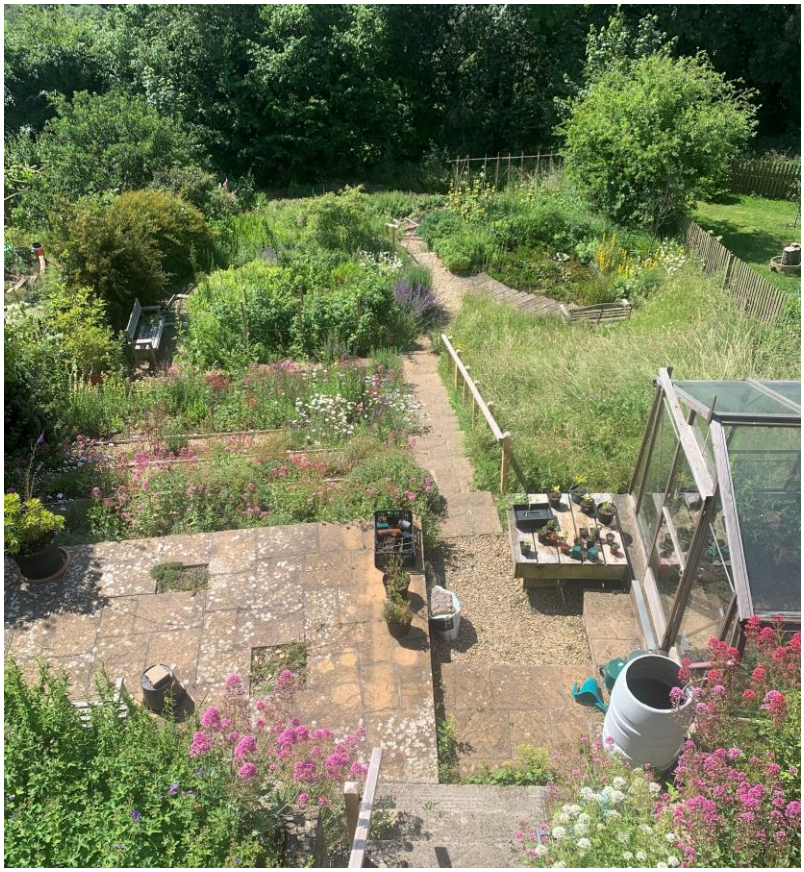
My Garden

Bob Smith

I think my garden is interesting and a very good wildlife habitat so when Norman said he was short of articles again I thought it may interest other people. Moths obviously find it interesting as well because over 600 species have been recorded plus Marbled Whites, Meadow Browns, Ringlets, Gatekeepers, Small Skipper, Essex Skipper, Common Blue and the usual 'red' and 'white' butterflies.

I live on the north side of the Golden Valley which is one of the five valleys that converge on Stroud in Gloucestershire; the other four are the Nailsworth, Ruscombe, Slad and Painswick Valleys. My Garden faces directly south.

The opposite side of the valley, which faces north, is covered in trees. From my house I can see bits of the A419 through gaps in the trees as it climbs diagonally across the side of the valley; below that is the railway which is almost hidden as it follows a slightly less steep route than the road, even so it is steep enough to have needed a banker engine for less powerful trains.



In the bottom of the valley is the Stroudwater Canal, the River Frome and Chalford High Street which still has a pub and a community shop and is so narrow that it is inadvisable to drive unless you know how wide your vehicle is and are confident in reversing. Between the High Street and my garden are three or four levels of houses with no road access; they are served by footpaths that were originally used by donkeys with panniers delivering from the High Street shops. I can't see any of this except the roofs of two houses beside the canal during the winter.

As you have probably guessed by now my garden is steep, at least 30% (1 in 3). The photo was taken from upstairs looking down on the garden and the trees at top left are on the far side of the valley. The garden is about 14 metres wide.
The pink and white flowers are Valerian. It is an excellent nectar source for anything with a long enough proboscis; all the butterflies love it as do the Hummingbird Hawkmoths.

Below the greenhouse is the 'lawn'. This has several different grasses which are food plants for many moths and butterflies, including Swifts, some Yellow Underwing species, Skippers, Marbled Whites, Meadow Browns and Ringlets. Among the grasses are both Hedge and Ladies Bedstraw which are foodplants for several moths, e.g. Common, Green and Red Twin-spot Carpets; I have seen a Hummingbird Hawkmoth egg laying on it but never seen a caterpillar although I did once find a pupa in the greenhouse.

The lower half of the lawn has Yellow Rattle well established, this is hemi-parasitic on grasses and weakens them so that other less dominant plants can prosper such as Bird's-foot Trefoil and Ladies Bedstraw. Also in the grass (and in various other places) are one of the Knapweed species which is a favourite nectar source for Marbled White and supports my resident *Aethes smeathmanniana* (Yarrow Conch); Teasel which is host to a few moths and insects, provides nectar for many insects and seeds for Goldfinches; Wild Geraniums which are good for nectar; and marjoram. Marjoram is everywhere, at present it is covered in Gatekeepers; I sometimes

find Double-striped Pug caterpillars in the flowers and most of the Gloucestershire records of *Acompsia schmidtiellus* (Marjoram Crest) come from my marjoram but I haven't found a caterpillar yet.

Acompsia schmidtiellus

The grass is home to all sorts of other creatures such as slow worms; ground nesting bees, which are parasitised by Dark-edged and Dotted Bee-flies; numerous spiders such as the Nursery-web Spider, which creates a web to protect her brood; crickets, mostly Dark Bush Cricket but I think I saw an immature Great Green Bush Cricket this morning; and many different true bugs (Hemiptera family) such as shield bugs and the grass seed mimics.

Dark Bush Cricket

Below the grass is a pond. We have the usual newts, dragonflies and damselflies but the thing that surprised me most was the constant stream of bees between it and the hives in my neighbour's garden. They land on the pond liner or on plants on the surface and collect water to

take home. I also see Elephant Hawkmoth caterpillars feeding on Bogbean in the pond sometimes.

At the bottom of the garden is the really wild area. The trees, which are almost all someone else's responsibility fortunately, include Holly, Hazel, Hawthorn, Ash, Field Maple, Sycamore, some kind of wild plum that seeded itself a few years ago and, next to my neighbour's beehives, his Apple trees and Gooseberries. Between them these trees support a huge range of species, including, for example, Holly Blue, Angle Shades, Brimstone Moth, Buff-tip, Privet Hawkmoth, Alder, Leopard, Copper Underwing, Clouded Drab, Barred Sallow and Mocha. The trees create a small micro-climate with Cow Parsley, Bramble, Nettles and Rosebay Willowherb.

In the main part of the garden there are three more trees/bushes of note: Alder Buckthorn that was planted to encourage Brimstone butterflies about 15 years ago but is actually far more popular with my neighbour's honey bees; a Lilac that hides a nest box and provided food for a couple of Privet Hawkmoth caterpillars that I reared last year (after removing a mating pair from a lady's garden because she didn't like them!); and a Pear tree that supports honeysuckle, provides a safe route to the bird feeders by our upstairs windows for lots of tits, Nuthatches, Greater Spotted Woodpeckers and squirrels – the House Sparrows, Starlings, Jackdaws, etc. come via different routes. The Pear tree also provides quite good pears some years.

On the opposite side from the grass are the 'flowers'. There are some conventional garden flowers that are all good nectar sources such as Hellebores, Penstemons, Hollyhocks, Foxgloves and Alliums. There is also more Bird's-foot Trefoil, Knapweed and lots of Marjoram. One of my favourite flowering plants is the Great Mullein, it can grow to eight feet tall but more often than not is either completely destroyed by Mullein Moth caterpillars or severely stunted but somehow there is always enough seed in the ground to ensure the next year's supply. There is also Hemp Agrimony, home to the diminutive Hemp Agrimony Plume and an excellent nectar source that attracts all sorts of bees and flies; Cat Mint which is covered with bees, flies and *Pyrausta aurata* when in flower; Comfrey for the Scarlet Tiger Moths; Bindweed for the Common and White Plumes; Honeysuckle for the Twenty Plume Moth; a Dog Rose that self-seeded and grew very upright so was allowed to stay, this hosts the Rose Sawfly whose attractive larvae line up along a twig, each like a stretched letter S; did I mention the Marjoram?

As well as all the 'nice' things around the garden we have other things that eat them or the garden would be overrun. Wasps and Hornets take both caterpillars and adults. Hoverflies and ladybirds feast on aphids, the Harlequin larvae are the most common and look (and behave) like ferocious aliens. Then there are all the parasitoid wasps and flies; I watched one trying to inject an egg into a Cinnabar caterpillar a few days ago and despite all its efforts the caterpillar failed to shake it off; occasionally I see a black wasp trying to drag a larger spider to a safe hiding place so that its larvae can feed in peace.

The greenhouse also plays its part. Most winters I grow some broad beans and they provide an early nectar source for bees, including the Hairy-footed Garden Bee which always seems hyperactive. The leaves are quite often eaten by Ruby Tiger caterpillars which then pupate around the greenhouse. Immature Dark Bush Crickets also feed on the leaves before they become carnivorous and help with pest control.

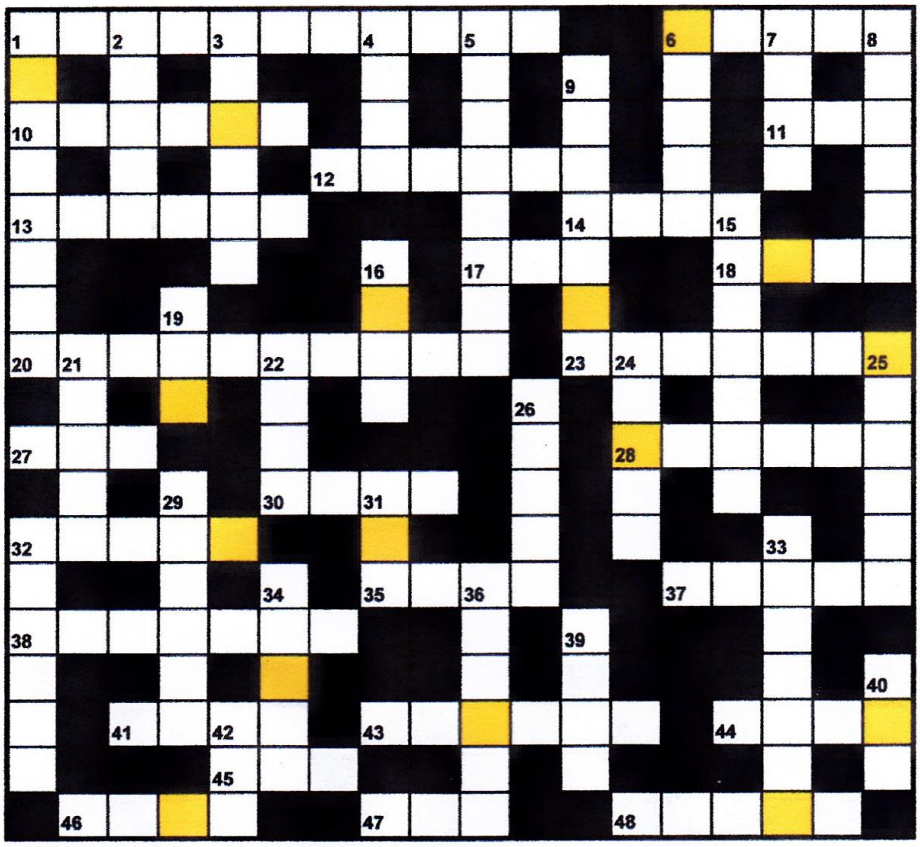
There is a downside to an interesting garden: you spend too long watching things happening such as Marjoram almost shimmering in the sunlight because of all the insect movement or red soldier beetles grazing on Golden Rod while they are copulating or looking for Orange-tip eggs and caterpillars on Honesty or Sweet Rocket. Lucky we are both retired!

I hope that has given a good overview of a garden that is geared towards wildlife. There is lots more I could have mentioned, for example the front garden (lots of Marjoram!)

Puzzle Corner

Lepidoptera Crossword 20 Nonconformist

As usual the answers form a vernacular name of, or a part of, a moth on the British list.
The letters in the coloured squares form an anagram of another British moth.



Clues Across

1.The jeweller decided to plan dog-legs with his shelves to attract customers.
6. They say that Omar Sharif once used a Skean-dhu in “The Wetlands”.
10.Can be found on Xmas cards but is more often in diverse rental schemes.
11.Enjoy any evening at this location by starting to buy all rounds.
12 & 19d.We make the student peg out the trapping area after getting rid of Bob.
13,20a,32a.It would help the Rectors handy round heal a seemingly prickly problem.
14.I heard that Shakespeare came back in a dismal condition.
17. A starter on the Chinese menu? Sounds Greek to me!
18.The tradesman went up the dale to Adel to deal with old piping material.
20.See 13a.
23 & 16d.For this visitor make sure you let him bring mud to aid in identification.
27.The Cockney would say “Listen ‘ere, it’s pinna not Pinner”.
28.Language used repeatedly from late September to the end of December.
30 & 26d.I believe that a stork sang on the way to find this species.
32.See 13a.
35 & 48a.The tailor was persuaded by the ghost to do a chequered pattern to attract the moths.
37.When taking part in the fun I only ever dared to complete this association.
38.See 4d.
41 & 26d.Being in Dorset we would expect to pay Margy less for playing on this.
43 & 25d.Met up with a foreign relation, but after the song came ruin in the family.
44.We have only the odd species likely to show conservative tendencies.

45.Initially this would be a safe habitat for a species of 19d.
46.See 31d.
47.Being tarred and feathered one could easily end up in this state.
48.See 35a.

Clues Down
1 & 3d.A cutting comment to really cause a slur! “Gosh, who cares anyway?”
2.An unusual visitor making its arrival at intervals, Mediterranean perhaps?
3.See 1d.
4 & 38a.A glass of poteen dints the ability to recognise this species.
5 & 21d.After the stifling heat cattle hid amongst the framework on the moorland.
6.Give me a mo! Charging around in the southern sun makes me want a drink.
7.Every burning desire can be turned on its head by this feline.
8.Take a right, then a left, into the head of the cave to find this near troglodyte.
9.We must let Sid herd us around to finally end up as a sunburnt mason.
15 & 33d.We may have to trouble evil Mrs Brown to find ourselves this lovely species.
16.See 23a.
19.See 12a.
21.See5d.
22 & 24dInto the woods, sort out a bud marker, and you’ll hopefully find this species!
24.See 22d.
25.See 43a.
26.See 30a & 41a.
29.Flight feathers could follow the start of perhaps, really, each timely trip you make.
31 & 46a.We should find this species residing in footwear with numerous offspring.
32.When asked “What is suet”, I told him a real mixed up pack of lies.
33.See15d.
34.Please welcome this species back to our southern shores.
36.The valet probably resided on this floor.
39.One of a pair found at Windsor and possibly at Winchester also.
40.A representative type found in the heart of England’s marshlands.
42.Perhaps this is to many, just as our moth is to the month.

Crossword 19 solution

P	E	B	B	L	E	P	R	O	M	I	N	E	N	T	■	■	L
E	■	R	■	■	■	■	O	■	■	■	■	■	■	H	■	■	U
A	N	O	M	A	L	O	U	S	■	W	I	L	L	O	W	■	N
S	■	K	■	■	■	■	N	■	■	I	■	■	■	R	■	■	A
E	■	E	■	■	P	O	D	■	■	N	■	■	U	N	D	E	R
B	O	N	D	S	■	■	W	H	I	T	E	■	N	■	O	■	■
L	■	■	O	■	■	■	I	■	■	E	■	S	C	A	R	C	E
O	■	M	U	S	L	I	N	■	■	R	■	■	E	■	S	■	■
S	■	■	B	■	■	■	G	■	C	■	B	A	R	R	E	D	■
S	A	L	L	O	W	■	E	X	I	L	E	■	T	■	T	■	■
O	■	■	E	■	A	N	D	■	N	■	L	E	A	D	■	W	■
M	■	■	■	■	V	■	■	K	N	O	T	■	I	■	B	A	R
■	C	A	R	P	E	T	■	■	A	■	E	■	N	■	■	I	■
S	■	R	■	E	■	■	L	O	B	E	D	■	■	D	■	N	■
A	■	G	■	A	■	■	O	■	A	■	■	■	M	O	U	S	E
B	E	E	■	C	L	O	V	E	R	■	S	P	O	T	■	C	■
L	■	N	■	H	■	■	E	■	■	■	■	■	T	■	■	O	■
E	■	T	■	■	■	C	R	E	A	M	■	■	H	E	A	T	H

The Hidden moth was LUNAR MARBLED BROWN

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 - over 2500 'Likes'.
Facebook Group - https://www.facebook.com/groups/438806469608527/ - currently with more than 2700 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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