

E-moth Update December 2024

Welcome to the most recent edition of E-moth, apologies that it is slightly later than normal!

As we approach the shortest day, summer, what there was of it, is a distant memory. Anecdotal reports from around the UK suggest it wasn't a great year for moths (again), numbers were down but there was a reasonable diversity of species. It wasn't until around about mid-summer that reports of an upturn in moth numbers in traps was reported, with sightings of summer favourites pouring in across social media.

Michael Bradley, County Recorder for VC 34, West Gloucestershire, has kindly provided some of his highlights for the year. These include the first recent UK record (subject to confirmation) of *Mythimna riparia*, taken at light near Stroud in early November at the same location as the first record for UK of Spiny Hook-tip last year. Spiny Hook-tip has

been recorded at a number of sites in Gloucestershire and appears to be moving up the Severn Vale. There has also been a lot of migrant activity and along with the more common migrants, the Gem and Radford's Flame Shoulder have been recorded in reasonable numbers which has made up in some small way for the generally poor summer especially for moth recording. The late fine weather has seen some odd records for this time of year including a Swallow-tailed Moth. The tortrix *Exapate congelatella* for which there is only one previous record in VC34 has been recorded at several sites this year. The reasons for this are unclear, possibly the late fine weather has encouraged recorders to run moth traps late in the year than usual.

Wishing you all a pleasant winter season and if you're keen to get your trap out please consider taking part in January Moth Challenge 2025 – details in this edition of E-moth.



There has been an incredible recent influx of the rare migrant Levant Blackneck (Martin Cade)

UK Moth Recorders' Meeting 2025

The next UK Moth Recorders' Meeting will be held on Saturday 25 January 2025 via Zoom. The programme has been finalised, (view it [here](#)) and it is looking like a great line up. There will be an update on the National Moth Recording Scheme along with a talk on Clearwings in Mid-Wales from County Recorder, Dr Norman Lowe, and our very own David Hill will be talking about surveying Argyll's rare moths. We also have presentations on the latest in moth research: How Blue-tit populations are influenced by moth numbers, the behaviour of moths around lights is unravelled, and all the way from Cambridge, Massachusetts, we'll hear from Dr Avalon Owens about the most effective ways to limit light pollution impacts on moths.

The meeting is open to everyone and anyone with an interest in moths, moth recording and conservation. Advance booking is essential, please click [here](#), to secure your free place. We look forward to you joining us virtually for the meeting that brightens up the gloom of January!

National Moth Recording Scheme update

A monumental change within the NMRS team is looming... Les Evans-Hill our Senior Data Manager is leaving Butterfly Conservation later this month to take early retirement.

Les was appointed as Data Manager in November 2006, right at the start of the Heritage Lottery funded Moths Count project which, amongst other things, established the National Moth Recording Scheme (NMRS). Although his computing background was in computer networking support, and latterly disaster recovery, he arrived with a huge passion for moths and moth recording, being the County Moth Recorder for Bedfordshire. Les led all of the technical work to create the NMRS database and ensured that the new infrastructure was rigorous. I remember the team's excitement at the import of the first vice-county datasets from Hertfordshire and Middlesex, approximately 170,000 moth records, into the NMRS in December 2007. This milestone truly marked the beginning of the NMRS and set the stage for the exponential growth of the scheme.



Les proudly showing off his hardware!

With the support of the County Moth Recorder network, the NMRS has gone from strength to strength. By the end of July 2010, the NMRS held 11.3 million moth records, each and every one imported by Les. Les then used these data to publish the first ever complete set of macro-moth distribution maps for the UK in the *Provisional Atlas of the UK's Larger Moths* (2010). Les later played a huge and vital role in the work to produce the landmark *Atlas of Britain and Ireland's Larger Moths* in 2019. Back at the start of Moths Count, none of us imagined that the NMRS would have amassed some 43 million moth records in less than 20 years! Over the years Les has provided technical support to County Recorders and BC staff. He's been responsible for providing NMRS data to many successful scientific research projects. And Les was vital to us achieving the major milestone of data provision to the NBN Atlas!



Butterfly Ball 'gate crashers'

Les was also our 'Tech Guy' at the annual UK Moth Recorders' Meetings, having the responsibility to ensure all ran smoothly on the day. I remember one meeting where the speaker accidentally shut down the projector mid-talk - fortunately Les was on hand to save the day and we proceeded with minimal delay! Les and I were also keen to get on the guest list for a swanky 'Butterfly Ball' fundraising event back in 2008, we managed to 'gatecrash' by running a mothing lamp and sheet at this prestigious event to delight the party goers!

I've worked closely with Les over the past 18 years, and it will be odd not to have him on the team. Although we will still be working with him in his capacity of County Moth Recorder for Staffordshire. Les, you will be missed by the Recording and Monitoring and wider BC teams and no doubt by the County Recorder network who you have supported over the years. We wish you all the best for your retirement, may it be long and rewarding.

Prior to his impending retirement Les has been busy importing datasets into the NMRS, around 1.7 million new records have been imported since May this year. There are now 36.2 million macro-moth, and 7.4 million micro-moth records held in the NMRS database, giving us a total of 43.63 million records!

Macro and micro moth data for 2020 have been received (imported or pending import) for 90% of datasets. Over three quarters of macro and micro-moth datasets have been received (imported or pending import) for 2021 and 2022. Around two-thirds of macro and micro-moth datasets have been received (imported or pending import) for 2023. See table 1 below.

Table 1 : Dataset status in the NMRS

Macro-moths	2020	2021	2022	2023
Not received	10%	21%	23%	38%
Received (pending import)	11%	34%	38%	34%
Received and imported	79%	45%	40%	28%
Micro-moths	2020	2021	2022	2023
Not received	10%	19%	22%	35%
Received (pending import)	34%	35%	40%	34%
Received and imported	56%	46%	39%	31%

Many thanks to the County Moth Recorder network and their Verification Assistants for mobilising these data for inclusion into the NMRS. Your efforts are much appreciated. We've still a way to go to be completely up to date and we urge the network to get any outstanding datasets to us as soon as possible. We continue to receive datasets to recording@butterfly-conservation.org.



An end of project update from Kent's Magnificent Moths

Butterfly Conservation's Kent's Magnificent Moths project shone a spotlight on eight threatened moth species from 2021-2024. Here's our end of the project update on these species:

The Black-veined Moth is Critically Endangered, with only a dozen chalk grassland meta-populations surviving. Our searches for larvae uncovered that their preferences are becoming less specific. Larvae were discovered in grassland that wouldn't have previously been considered suitable, due to a low coverage of coarse grass tussocks. Habitat connectivity is improving as more chalk grassland is restored by farmers into one joined-up landscape. This, combined with changing habitat preferences, is enabling Black-veined Moths to colonise new areas.

Despite having broadly similar habitat preferences on chalk grassland to the Black-veined Moth, the Straw Belle is not increasing in distribution in the same way. The project's targeted chalk grassland restoration, involving scrub clearance and reinstating sensitive grazing, has provided more habitat for this moth to colonise in the future. Until then, more volunteer surveyors are now helping to monitor colonies and locating the larvae to identify what specific requirements limit the moth's ability to spread.

Anania funebris the White-spotted Sable, is an elusive day-flying micro-moth, rarely recorded in Kent away from the main colony. Increasing awareness of this species, encouraging their native Goldenrod foodplant and searching for larvae led to increased sightings and site rediscoveries for this beautiful species across Kent woodlands.

When Kent's Magnificent Moths started, Bright Wave was only known to live amongst wildflowers in warm coastal habitats, where colonies are vulnerable to droughts. During the project, a new colony was discovered inland on a former arable site, reverted to a wildflower meadow 15 years ago. This one meadow now holds more Bright Waves than every other known UK colony combined! We are now

discovering the moths' larval preferences at this site so that further habitat creation in the area can be fine-tuned to benefit the Bright Wave.



Top Row Left-Right: Straw Belle (Nigel Jarman), Fiery Clearwing (R Levey), Bright Wave (R Levey), Sussex Emerald (R Levey). Bottom Row Left-Right: Black-veined (Mark Joy), Fisher's Estuarine (Mark Joy), Marsh Mallow (R Levey), *Anania funebris* (Mark Joy)

Sussex Emerald was, similarly, only breeding on coastal shingle and other warm, sparsely vegetated habitats in Kent. However, project surveys confirmed they are also living in the same wildflower meadow as the Bright Waves and are breeding for the first time in Sussex!

Fisher's Estuarine moths have been helped by local volunteers who are championing this species and engaging people in the seaside towns where they live. Volunteers have grown their larval foodplant, the rare Hog's Fennel, cleared scrub invading habitat areas and led multi-recorder surveys that have improved our understanding of how this species is faring, finding over 100 moths in one evening!

The Marsh Mallow Moth had its best year on record in 2023! This species benefitted from ditch work and the particularly wet spring weather. These factors combined to increase availability of their Marshmallow foodplant. Their larvae feed on multiple roots, so foodplants grown by volunteers and plant nurseries were very densely introduced to provide habitat that will become suitable for the moths once the plants establish.

Finally, Fiery Clearwings have gone from one of the UK's rarest clearwings to the most frequently recorded clearwing in Kent with 5,846 eggs counted in 2023! Volunteers learnt to identify eggs which revealed their distribution is increasing. As availability of foodplants at traditional coastal sites decreases, females have laid eggs in a wide range of habitats as they move inland. New



Kent's Magnificent Moths Project Staff, Partner Organisations and Volunteers at the End of Project Celebration Event and Wall Mural Unveiling in Canterbury (Jim Higham)

breeding sites are still being discovered and the first adults were sighted in Essex this summer as Fiery Clearwings continue to spread!

The project has been a huge success with more than 26,000 people have taking part in 345 events over the project's duration. We thank everyone who has got involved to help and support Kent's Magnificent Moths.

Contributed by Rebecca Levey, Ecologist, Southeast England



MapMate Users

Following on from the announcement in November regarding MapMate we'd like to share the following with you to ease any concerns you may have.

Firstly, it is important to state that MapMate isn't just going to stop working, it will work and continue to work on all Windows platforms up to and including Windows 11.

Windows 10 was released on 29 July 2015 and Windows 11 was release on 4 October 2021. Microsoft has a 'fixed lifecycle policy' - all major versions of Windows receive 5 years of mainstream support from their release and 10 years extended support at a minimum. This means MapMate should continue to run until at least 2030 on Windows 10 and 2036 on Windows 11, assuming Microsoft retain their current lifecycle policy and their annual update releases don't affect MapMate in any way. In the event MapMate does stop working due to a released annual update, then simply uninstall the offending update.

Les Evans-Hill took on responsibility for updating the MapMate Lepidoptera Taxa Library at the beginning of 2024 and will continue to manage this until further notice. Les has also requested with MapMate Support they forward the tools to create the patch files required to update the MapMate Lepidoptera Taxa Library. Les is also thinking how best to distribute these patches but no decisions have been made yet. We understand the MapMate Web Server is being maintained as long as possible.

With respect to licensing – this pays for support direct from MapMate Support to 31 December 2024. After that date, future support and patches will continue with private funding until the last licence has expired which will be during October 2026. After this date, the MapMate application will continue to work on supported Windows platforms, with taxonomic patch updates managed by the appropriate taxonomic interest groups.

We are aware some users struggle to get MapMate to work. Following exactly the installation and upgrade instructions at <https://www.mapmate.co.uk/alex/> should solve the vast majority of Windows problems. We recommend all users upgrade to the latest version of MapMate as soon as possible - this version includes the up-to-date MapMate Lepidoptera Taxa Library. We also urge all Facebook users to join the 'MapMate Users' group, set up by Les Evans-Hill, for further updates and support.

Derbyshire Moths

After the sudden and sad death of David Budworth, the former County Moth Recorder for Derbyshire, a new team were keen to get established and continue where Dave left off. With the support of Butterfly Conservation and Derbyshire and Nottinghamshire Entomological Society (DaNES), they have done a fantastic job of getting Derbyshire Moths back on the map, re-invigorating the moth recording scene in the county with the creation of a [Derbyshire Moths website](#) in August 2024.

Since May 2023 there have been monthly Derbyshire Moth newsletters, these can be found on the website, and in November this year the [VC57 Derbyshire Macro Moth Report 2019-2023](#) was published.

In addition to this, the team have produced a Guide to the Pugs of Derbyshire. This booklet is on the Derbyshire Moths website and for ease can be downloaded [here](#).

Butterfly Conservation are extremely grateful to the new team - it is never easy to find people to take on the role of County Recorder due to the demands and expertise required to perform the role. Along with other counties, Derbyshire's successes demonstrate the benefit of adopting a team approach in collating and verifying local moth records to support the 'grass-roots' recorders, local organisations and the National Moth Recording Scheme alike.

January Moth Challenge

The January Moth Challenge is a challenge to record 10 species of macro-moth and/or five species of micro-moth from a single site during the month of January, with the ultimate objective of generating more records for the NMRS from an under-recorded time of year.

The 2024 challenge saw participation by 86 recorders from 46 different vice-counties, from VC3 South Devon up to VC103 on the Isle of Mull. Together they recorded nearly 4,000 moths (3,189 macro-moths of 38 species and 777 micro-moths of 43 species). Hopefully with your help we can make January Moth Challenge 2025 even more successful.



Winter Moth, the most recorded moth in JMC 2024 (Mark Parsons)

This is the link to the [Facebook group](#), which explains how moth recorders can participate in this challenge, and prospective participants are encouraged to join the group. It is appreciated that not everyone is on Facebook, so people can get in touch with Peter Bent directly by [email](#) and Peter can provide all the information you need to participate in the Challenge this January.

Contributed by Peter Bent, January Moth Challenge Coordinator

Mountain Burnet Monitoring Summary 2024

Mountain Burnet is restricted to just three 10 km squares in the UK, all centred on hills around the village of Braemar. It is a montane species occurring at an altitude of 600-850m, although nectaring individuals can be seen at lower altitudes. The species occupies dry Crowberry-rich heathland and also the edges of blanket bog where Crowberry and heathers are plentiful.



Adult Mountain Burnet on Carn nan Sgliat (Ben Dolphin).

To improve our understanding of how the species is faring, monitoring commenced in 2020 using standard butterfly monitoring protocols, namely transects and timed counts. A transect, which is walked weekly on one hill, Morrone, during the flight season, allows the peak of the population to be calculated and determine when this peak occurs.

At other sites, a timed count method is used which allows the population to be calculated from a single visit. Data are converted to the encounter rate, the number seen per hour, to allow comparison between sites. The monitoring is carried out on an annual basis so a population trend can be generated over time. This is the fifth year of data collection and soon we will be able to produce the first population trend for the species.

Morrone Transect

This year proved to be very tricky for monitoring this species. The weather was extremely changeable during the flight season being windy and wet, with only brief spells of sunshine. A total of four counts were conducted on Morrone. Adults were first observed on 24th June (six days later than the earliest record in the NMRS) and peaked on 9th July with only 11 individuals (Table 2). This is the lowest count since monitoring began in 2020, just 4% of the numbers from the peak in 2022. In addition to the transect data, Neil Sherman reported six late flying individuals on Morrone on 24th July. This is the latest date on record for flying adult moths according to the NMRS and points to the moth having a protracted flight season where it emerged in small numbers. With five years of data, it is now clear that the phenology of the adult season can vary by two-three weeks between years.

Table 2. Peak adult counts at Morrone.

Year	Peak Count	Date of Peak
2020	104	25 th June
2021	69	1 st July
2022	286	9 th July
2023	142	22 nd June
2024	11	9 th July

Timed Counts

Some populations fared better in 2024, despite the conditions. The Culardoch population again appeared strong with 289 individuals recorded, equivalent to 145 per hour. In contrast to Morrone, numbers were slightly higher than 2023. Figure 1 shows the fluctuations in population size at Culardoch since monitoring began, with peaks (2021 and 2022) and troughs (2020 and 2023). In 2024, the peak count in numbers was 21% of the highest recorded count in 2022. It is remarkable how a relatively small site can hold such a high density of moths! A timed count was also carried out on Carn na Drochaide on 23rd June where only five individuals were reported, as the season was still early. Unfortunately, another count was not possible. Happily, we did have a report of hundreds of the moth flying across a wider area of the top of Carn na Drochaide on 7th July. This indicates that when sunny conditions did occur the species still had a decent year in places.

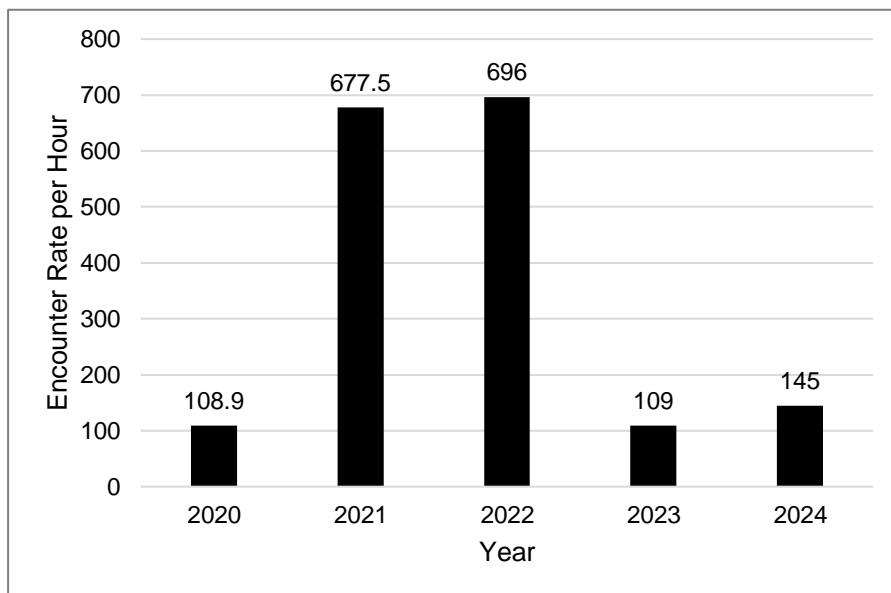


Figure 1. Peak counts of adult Mountain Burnets at Culardoch.

Other Observations

Judith and David Elston carried out a survey around Loch Phadruig and surrounding hills. It has long been suspected a colony exists in this area as the habitat looks highly suitable and there is an old unconfirmed record of the moth from this location. Three individuals were seen at Creag Loisgte, including one very fresh individual and another individual at Meall an t-Slugain. This confirms there is a colony in the area and further work will be needed to confirm whether a hotspot occurs (as with Culardoch) or if the population exists at a low density across a wider area (similar to populations at Carn Liath and Creag an Dail Bheag).



Figure2. Vacated Mountain Burnet cocoons from Ben Avon (Patrick Cook)

A singleton moth was reported from Carn nan Sgliat by Ben Dolphin. This was most likely a wandering individual that had been blown by the prevailing wind direction from the adjacent Morrone colony. Mountain Burnet is well documented to turn up in odd locations, for instance there is a record from Loch Builg, a great distance from the nearest known colony. We know very little about the moth's dispersal ability but, given a favourable wind, it is clearly capable of moving several kilometres.

In late August, Patrick Cook visited the Ben Avon site. The site is the highest altitude for the species, at 1000+m, but the habitat patch is remarkably delineated from the wider plateau. Three vacated pupal cocoons were found attached to Crowberry and lichens (Fig. 2). An interesting difference on this site is the common occurrence of Bog Blaeberry *Vaccinium uliginosum* which could well be used as a foodplant.

Acknowledgements

Thanks to everyone who helped with monitoring and surveys for the species this year.

Contributed by Patrick Cook, Ecologist, Butterfly Conservation

New moth species colonising Britain at an increasing rate

Against the backdrop of long-term declines in moth abundance, we're all aware that new species continue to arrive and become established in the UK. In a series of papers in the Entomologist's Record, Mark Parsons has chronicled these new arrivals, which currently amount to 142 moth species that have colonised Britain over 120 years (from 1900 to 2019). [New research](#) by Butterfly Conservation, published in October in the journal Insect Conservation and Diversity, has examined whether the rate of establishment has changed over this time period.

For the new study, each moth species was classified as either having colonised Britain naturally (i.e. by immigration), such as Tree-lichen Beauty, or as an adventive, which had arrived with human assistance, e.g. *Caloptilia azaleella* Azalea Leaf-miner. This assistance usually involves the importation of plants (or food stuffs) among which moth species are lurking, usually in immature stages of the life cycle. It's not always straightforward to determine how each species arrived and, if there was uncertainty, we excluded them from the study, leaving us with 116 colonisers to assess. Two-thirds of these moths had become established naturally and the other third via human assistance.

We found that the rate of moth species establishment in Britain has accelerated steadily over the 120-year period and shows no signs of slowing down. The rate of increase is 21% per decade i.e. in each decade, 21% more moth species had colonised than in the previous decade, and so on. Thus, for example, while only one moth species (*Tachystola acroxantha* Australian Orange-tip) colonised Britain in 1900-1909, 24 became established in 2000-2009, including Raspberry Clearwing, Jersey Mocha, Plumed Fan-foot and Sombre Brocade.

The change in rate of colonisation per decade was not significantly different between the species arriving naturally by immigration and the adventives. have been colonising Britain faster than immigrant species. We also checked, within each of these two groups, whether moth species that use native larval hostplants were colonising at a different rate to those that use non-native plants. Again, statistically, there was no difference.

In all of the analyses the rate of increase in colonisation over time shows no sign of slowing down, so we can expect many more moth species to colonise Britain in the coming decades.

We are, of course, hugely grateful to all of the moth recorders who have detected moth colonisations in Britain since 1900 and to the Heather Corrie Fund from Butterfly Conservation for funding the research.

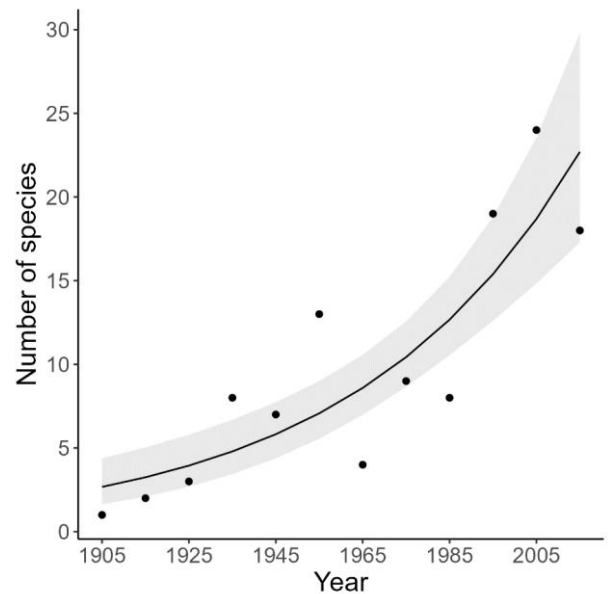


Figure 1. The total number of species becoming established in GB each decade (1900-2019, represented by mid-decade years). The trend line indicates a steady significant acceleration in the rate of establishment over time



Azalea Leaf-miner (left), a native of Japan, has been accidentally introduced to many parts of the world through the horticultural trade, and is now found widely across the UK. Rosy Underwing (right) is a recent natural coloniser that has established itself in places along the south coast of England.

Contributed by Richard Fox, Head of Science and Nigel Bourn, Chief Scientist

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