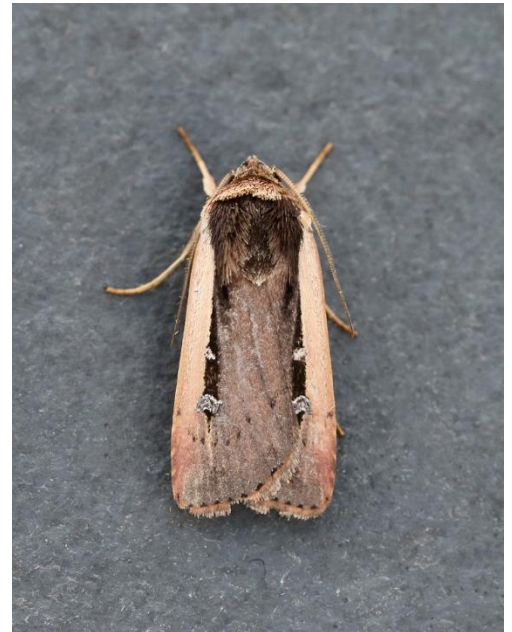


E-moth Update November 2021

Although the nights have drawn in, the unusually mild weather has kept a good variety of migrant and resident species coming to our traps.

Stewart Sexton had an unexpected visitor in his trap one morning in October. Here is his story; "Being located on the North Northumberland VC68 coast, we don't get too many migrant moths, however, in early October 2021 it was better than usual. I had caught my second garden Gem, a few Rush Veneer, a Dark Sword-grass, Rusty Dot Pearl, several Silver Y's and Diamond Backs. My neighbour at a nearby farm caught a Delicate. However, there was a bigger surprise waiting... Overnight on 10 October it was cooler and there didn't seem much activity around the lamp. The next morning it only took a few minutes to identify and count the 20 moths of 16 species in the egg trays. That is until I noticed a single moth lying in the bottom of the trap. A long looking, Setaceous Hebrew Character shaped 'flame shoulder'? Straight away I sort of knew what was instore here. The moth was soon processed, photographed and discussed with Tom Tams, former County Recorder, who had it confirmed by Steve Nash. We agreed it was Northumberland's first and most unlikely Radford's Flame Shoulder, a rare migrant to the south coast of England and around 400 miles north of its main known range."



Radford's Flame Shoulder (Stewart Sexton)

Many thanks to Stewart for sharing his experience with us. It goes to show that you never know what will turn up in your trap which is one of the reasons why mothing is such an enjoyable activity.

UK Moth Recorders' Meeting 2022

The date for the 2022 UK Moth Recorders' Meeting has been set for **Saturday 29th January**. This meeting will be held via Zoom due to the ongoing Covid-19 situation. Bookings are now open, and you can book your place by following this [link](#). The programme is currently being drawn up, so far we have scheduled the usual update on the National Moth Recording Scheme, an update on our Supporting Science project and Peter Hall, County Moth Recorder for Herefordshire will be giving a talk on the Moths of the West Midlands website and the recently published Moths of the West Midlands book. Further details will be available on the Butterfly Conservation website in due course. In the meantime, please do [book your place!](#)

Virtual UK Moth Recorders' Meeting

29 January 2022

 **#UKMRM**

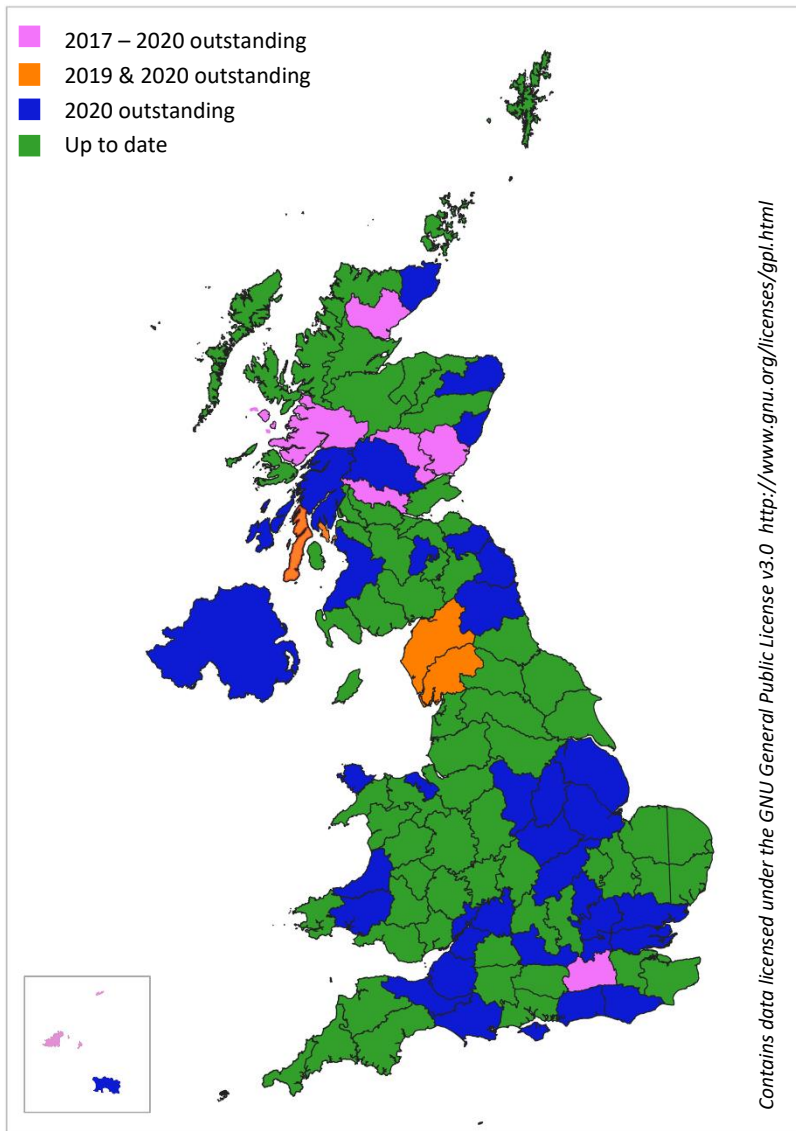


National Moth Recording Scheme Update

As you are probably aware, the huge effort required to produce the Moth Atlas meant that we had to temporarily suspend the processing of datasets kindly supplied by County Recorders into the NMRS. As

a result, a substantial backlog (several years) of data built up and, since the Atlas was published at the end of 2019, Les Evans-Hill has been working very hard to get the NMRS up to date. Over the past year, an incredible total of 6,581,633 new, verified macro-moth records have been added to the NMRS, provided by the County Recorders of 91 vice-counties (see map). As of 2 November 2021, the total number of macro-moth records held by the NMRS now stands at 31,958,677. This is a superb achievement, many thanks to the moth recording community and all the County Moth Recorders who have submitted their datasets in a timely fashion and, by doing so, really helped us to catch up.

It is great news that the NMRS is now up to date for many vice-counties, however, there are still obvious gaps; eight areas where 2017—2020 data are outstanding, three areas where 2019 and 2020 data are outstanding and a further 45 areas where 2020 data are awaited. Winter is approaching, and this time of year is traditionally when data management work is done in earnest. If you are a County Recorder and haven't yet sent us your recorders' verified records for any of the 2017—2020 period, please do so as soon as possible. We need to complete the update of the NMRS as a matter of urgency. The lack of complete coverage



NMRS dataset status as of 2 November 2021

over the past four years is now holding up a whole range of conservation activities, including supplying records to our staff and partner organisations to use for action to protect moths on the ground.

The NMRS also holds 3.3 million micro-moth records, 30 vice-county micro-moth datasets have been submitted to us over the past year. These data will be imported as soon as possible, but our current focus and priority remains with getting the macro-moth data up to date.

New additions to the Recording and Monitoring Team

There have been some welcome additions to the Recording and Monitoring team at Butterfly Conservation over the summer. Chloë Smith has joined us as Head of Biological Data, Rachael Conway has joined as our Supporting Science project officer and Karen Purdy is our new GIS Officer.

Chloë will be leading the implementation of the Data Review which will help support County Recorders, streamline data flows and enable BC to make much greater conservation use of all the fantastic data gathered through the NMRS. Prior to her appointment at BC, Chloë worked for Greenspace Information for Greater London CIC (GiGL), the environmental records centre for Greater London. She brings a wealth of experience and knowledge with her that will benefit BC, the recording community and the moths and butterflies we are passionate about and wish to conserve.



Chloë Smith



Rachael Conway

Rachael has already worked for Butterfly Conservation for five years in the Northern Ireland team, initially on Polli:Nation a school based conservation and citizen science project and latterly as Senior Engagement Officer, where amongst many duties she was responsible for events, training, volunteer support and facilitation of the Northern Ireland Butterfly Verification Committee. In her new role Rachael will be helping with UKBMS administration and also delivering an exciting new project Supporting Science, which aims to improve data flow and encourage new people from diverse backgrounds into recording and verifying. You can read more about the Supporting Science project on page 11.

Karen Purdy joined us in at the end of September as our part-time GIS Officer. Karen has worked as a GIS specialist for over 20 years in a range of organisations including Forest Research, county councils, the Peak District National Park and, most recently, in the Science Division of the Health & Safety Executive. She is looking forward to finding out more about the GIS data and systems used at Butterfly Conservation and getting involved in our important work and training volunteers in QGIS.



Karen Purdy

In memory of Douglas Boyes (1996-2021)

The moth recording community and all of us at Butterfly Conservation were shocked and deeply saddened to learn of the recent sudden loss of Douglas Boyes. A supremely talented young scientist, a very knowledgeable moth recorder and a passionate conservationist whose generosity and enthusiasm has touched so many people.

Douglas first became hooked on moths aged 12, inspired by moth trapping with Nick Baker and then mentored by Peter Williams from the Montgomeryshire Moth Group. By 16 he was the County Butterfly Recorder, the youngest person ever to hold such a position as part of the Butterflies for the New Millennium recording scheme. With his mother, Clare, Douglas recorded 828 Lepidoptera species in their Welsh garden and in all he added 121 new county records to the Montgomeryshire list.



Douglas took this love of moths with him into his studies and scientific career. His undergraduate and master's degrees at Oxford University both included research projects focussed on moths: on the under-recorded micro-moth fauna associated with bird nests and on the diversity of moths that have increased in distribution or abundance in recent decades, respectively.

Having excelled at Oxford, Douglas started a PhD focusing on the effects of light pollution on moth populations with Newcastle University, the UK Centre for Ecology & Hydrology and Butterfly Conservation. His research was ground-breaking, demonstrating the first real-world impacts of light pollution on moth populations, and already making a major impact (see article on p.4). His potential was enormous, and his passing is a great loss to the academic community.

Douglas had a boundless energy and passion for recording, studying and promoting moths and was a keen user of modern technologies and social media to achieve this. At the same time as his PhD research, Douglas was undertaking a comprehensive moth survey of Wytham Woods (and had already recorded 684 species there, 126 of which were new for the site), collaborating with the Darwin Tree of Life project to sequence the genomes of UK moth species, unearthing forgotten datasets as part of the EntoGEM project to assess global insect biodiversity trends, and contributing his expertise to review the

impacts of invasive non-native moths for the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services.

Many people will know Douglas best, however, through the support and encouragement he gave so freely to other moth recorders on Twitter, where his online name @diarsia came, of course, from a genus of moths that includes Barred Chestnut, Purple Clay and Small Square-spot. He had a great talent for communicating science, natural history and conservation and his blog (<http://www.douglasboyes.co.uk/blog/>) is a goldmine of interesting information.

Whether through online interactions, his publications or meeting face-to-face, Douglas had a positive impact on so many people in the moth and butterfly recording community. All our lives were enriched by knowing him and he will be greatly missed.

Butterfly Conservation is supporting Douglas's family to inspire a new generation of Lepidopterists to share his passion and further the work of young researchers. If you would like to contribute to this legacy, please [make a donation](#).

New research finds that UK streetlights reduce moth populations

An important study published during the summer by Butterfly Conservation, the UK Centre for Ecology & Hydrology and Newcastle University has provided the first clear evidence of real-world light pollution impacts on moth populations. The research was led by PhD student Douglas Boyes, who sadly passed away recently (see tribute on p.3) and demonstrated that streetlights in southern England reduce the abundance of moth caterpillars in grass verges by one-third (33%) and in hedgerows by almost a half (47%) compared to comparable unlit roadside habitat.

Douglas spent over 400 hours sampling for caterpillars along roadsides at 27 pairs of lit and unlit sites in Berkshire, Buckinghamshire and Oxfordshire over the past three years. The grass verge sampling was done by sweep netting at night when the caterpillars climb up vegetation to feed and could have been biased by changes in behaviour due to the presence of streetlights. Indeed, in another part of the same study, Douglas proved that artificial light at night does make it less likely that caterpillars will come up to feed. However, the hedgerow sampling was carried out during the daytime (by beating) and therefore cannot be subject to such bias. We don't yet have a clear understanding of how streetlights cause the substantial reductions in moth populations found in the study. One likely hypothesis is that the egg-laying behaviour of female moths is inhibited by light pollution leading to lower caterpillar abundance close to streetlights, but this requires further study.



Caterpillars sampled with sweep-netting (Douglas Boyes)

Another worrying finding of the study is that the white LED streetlights that are rapidly replacing older sodium lamps (which produce a yellow-orange light) across the UK had a more detrimental impact on caterpillar abundance. Populations under LED streetlights were reduced by 52% in hedgerows and 43% on grass verges compared to unlit comparisons. Thus, the shift to LED lighting, driven in part by a desire to reduce energy consumption (to benefit both the climate crisis and save public money) is ironically having a greater impact on biodiversity. This aspect of the research has attracted huge interest both from the global media and also from the lighting industry and local councils. Where possible, without impacting the safety of road users or pedestrians, the intensity of LED streetlights should be reduced and, ideally, they should be switched off altogether during quieter times of the night.

While such impacts are severe wherever streetlights are installed, the findings do not reveal much about the importance (or otherwise) of artificial light at night as a driver of the substantial decrease in moth abundance in Britain over the past 50 years. Even in the crowded landscape of south-east England, where the study was undertaken, streetlights directly illuminate only about 1% of the landscape that is available as habitat for moths. It is possible that the much lower levels of diffuse light pollution ('skyglow') which affect much more of the UK landscape are also impacting moth populations, but we don't yet know if this is the case.



LED streetlighting at the study site (Douglas Boyes)

The full research can be read at <https://www.science.org/doi/10.1126/sciadv.abi8322>

Yellow-ringed Carpet surveying in Yorkshire

Yellow-ringed Carpet is a nationally scarce moth listed as a High Priority Species in BC's Conservation Strategy. Their larval foodplant is Mossy Saxifrage in Yorkshire. In mainland Scotland and the Inner Hebrides, the species has been found on English Stonecrop, Yellow and Purple Saxifrage, and sometimes Roseroot. The Limestone Lepidoptera Project aims to learn more about this species and its distribution across the Yorkshire Dales National Park.

This year volunteers continued to monitor a known population in the Dales, and I set out to find new locations and follow up historical records. Many sites left me with no sightings of the larva or the adult, but one site of particular interest was Malham. Malham Field Centre staff had caught one Yellow-ringed Carpet back in 2007 in their regularly run trap but had no records since and with no known habitat close to the field centre it became top of the list for surveying. Armed with knowledge passed to me from volunteers and thanks to the help of Mossy Saxifrage records sent to the BSBI database and volunteers confirming locations of the foodplant, I was able to narrow down where to target the surveys. Two traps were set right beside some good patches of Mossy Saxifrage and to my extreme delight I managed to trap my first Yellow-ringed Carpet moth, albeit a very worn specimen (see image above) requiring confirmation from Yorkshire's vice-county Moth Recorder. The record confirmed species presence and the location of potential breeding habitat, which will aid future habitat management decisions.



Yellow-ringed Carpet (Kay Andrews)

With support from recorders and partner organisations we hope to continue to gather and update essential data on the distribution of this species and all the Limestone Lepidoptera Project species. If you think you can help or would like to know more about the project please get in touch: kandrews@butterfly-conservation.org

With support from recorders and partner organisations we hope to continue to gather and update essential data on the distribution of this species and all the Limestone Lepidoptera Project species. If you think you can help or would like to know more about the project please get in touch: kandrews@butterfly-conservation.org

Contributed by Kay Andrews, Limestone Lepidoptera Project Officer

Scottish Clearwings

During 2021 Butterfly Conservation Scotland ran a series of online training workshops over Zoom, kindly supported by NatureScot, focusing on priority species as identified in our Scottish Conservation Strategy. This included butterflies e.g., Dingy Skipper and Northern Brown Argus, as well as iconic Scottish moths e.g., Kentish Glory and the bearberry specialists Small Dark Yellow Underwing and Netted Mountain Moth, but also some of Scotland's extremely rare micros, e.g., *Choreutis diana* and *Eana argentana*.

One of the sessions focused on Scottish clearwings looking in detail at the distribution and ecology of the six species that occur in Scotland, this included Red-tipped Clearwing that was last recorded in Scotland in 1942 and Currant Clearwing that was found in a garden in Melrose in 2010, being the first Scottish record since 1998, but sadly last seen in 2015 where it has now been lost.



Large Red-belted Clearwing and pupal case (David Long)

The Zoom session focused on two Conservation Strategy species: Large Red-belted and Welsh Clearwing. The former was very much based on the work of David Long who has been studying this species in his woodland near Lauder, also in the Scottish Borders, since a chance encounter with an empty pupal case protruding from a cut birch stump in 2013 sparked his interest. This was also the first record for the Borders since 1902. David has been converting the woodland from a former Sitka plantation into a native woodland whilst also actively managing part of it specifically for Large Red-belted Clearwing. Annual monitoring of cut birch stumps has revealed large fluctuation in numbers with a max count of 135 pupal cases in 2019 and lows of 14 in 2015 and 2021. These fluctuations are due to the availability of fresh stumps but also winter predation by Great Spotted Woodpeckers. David's observations have shown that the moth has an annual life-cycle, favours stumps in sunny locations, and that stumps are primarily occupied in their first year and only occasionally in their second. David is also actively damaging birch trees to encourage breeding in more natural conditions.

David gave an excellent talk, "*Clearwing News from Berwickshire*", at Butterfly Conservation Scotland's annual autumn supporters gathering. You can see David's talk, along with the rest of the programme, on the following link - <https://youtu.be/jzSm6iUYDaE> (David's presentation starts 52 minutes in).

By only focussing on Scottish species the Zoom workshop completely ignored the nine other species of clearwing that occur in Britain and Ireland as being irrelevant to moth recorders in Scotland, especially as their current distributions were considerably south of the Scottish border.



White-barred Clearwing
(Laura and Richard Connor)

It was therefore astounding when a sighting of an adult White-barred Clearwing was reported by Laura and Richard Connor from near Loch Ard, just west of Aberfoyle, in the Trossachs. What is more remarkable is that they were out looking for dragonflies and not armed with pheromone lures as most clearwing hunters are these days. Luckily, they were able to get a photograph to confirm its identification, otherwise it would have very likely been dismissed as a Welsh Clearwing that is known from the general area. The nearest extant White-barred Clearwing colonies are in Cannock Chase, almost 400km to the south, so a remarkable record and the first for Scotland.

Contributed by Tom Prescott, Senior Conservation Officer Scotland

Barberry Carpet has a great year

It has been an exceptional year for the rare and endangered Barberry Carpet moth *Pareulype berberata*. Across eleven monitored sites in southern England, in Oxfordshire, Dorset, Wiltshire and Gloucestershire, 393 caterpillars were recorded compared with 78 at the same sites in 2020 and 97 in 2019.

Larvae are sampled using a beating tray, which allows the number of caterpillars to be counted for each Barberry bush that is sampled. When survey effort (larvae per bush) is factored in, the 2021 counts equate to a staggering 433% increase compared with last year.

The reasons for the dramatic upturn are currently unclear. Weather factors are likely to have played a part. The Barberry bushes recently planted as part of the Heritage Lottery-funded Back from the Brink project are establishing well, though Barberry is a slow-growing plant and most bushes are still too small to support caterpillars of the moth. We hope that the high caterpillar numbers recorded on established bushes this year will be maintained in coming seasons, acting as a springboard for colonisation of the recently planted bushes in the future. This will put the survival of the Barberry Carpet in Britain on a much safer footing.

Contributed by George Tordoff, Senior Ecologist

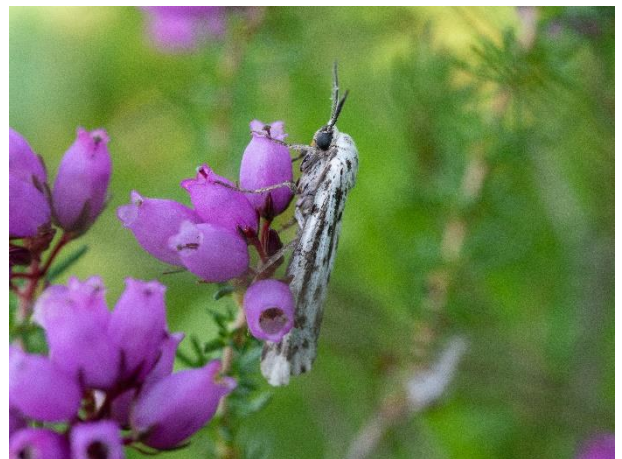


Barberry Carpet larva (Will Langdon)

Speckled Footman in Wareham Forest

In 2021 we made a concerted effort to search for Speckled Footman in Wareham Forest. A single capture in 2020 had given hope that the species was still present in the area. Formerly restricted to Dorset and Hampshire, as far as we are aware, the 2020 record was the first of the native subspecies (migrants do also occur) since 2014, and prior to that the previous records were in 2010.

With the close liaison of Forestry England (and under permit from them) and with a small team, it was possible to try trapping in a range of locations. Our overall total for the year was 20 (and we were also aware of 1 other local record); the majority of records from one quite localised area. On two separate nights we had catches of 7 individuals, far exceeding our expectations.



Speckled Footman (Durwyn Liley)

We are planning to undertake larval searches in the spring and further trapping in the summer 2022, to hopefully better understand the habitat requirements and local distribution. The larval searches will hopefully help to inform future management and conservation of the species. There was a major fire in Wareham Forest in 2020 and the habitat changes associated with the fire may well have had some benefits for Speckled Footman. Furthermore, the flight season in 2021 coincided with a period of very warm weather which may well have had an effect.

There may be limited opportunities for volunteers to join the trapping or larval searches in 2022 and if you are interested, please contact Durwyn Liley: durwyn@footprint-ecology.co.uk

Contributed by Durwyn Liley and Mark Parsons

Larger moths of the London area – thirty years on

The year 2023 will mark the 30th anniversary of the London Natural History Society's (LNHS) book "Larger Moths of the London Area", authored by Colin Plant. The work was extremely well-received by the wildlife recording community. The atlas included text and distribution maps for all of the 715 macro-moth species that had ever been recorded in the London Area by the end of 1991.

Thirty years later there have been many changes. Animal communities are fluid by nature, but various reports have been published alerting us to massive declines in the populations of moths and many other invertebrates. At the same time other species seem to have expanded their distribution and, in some cases, may have become more numerous. Several species that previously affected the London Area only as immigrants from overseas are now established breeding residents! The Larger Moths of the London Area provides a baseline of moth data, against which comparisons can be made and changes detected.

Changes have also been made to the organisation of moth recording. In addition to the vice-county of Middlesex, the LNHS continues to record wildlife in those parts of the surrounding vice-counties of Buckinghamshire, Hertfordshire, North and South Essex, West Kent and Surrey that protrude into the LNHS 20-mile diameter recording circle which, effectively, creates a giant transect from rural, across suburban and urban and out again the other side. The merits of having such data available for analysis speak for themselves.

So, the time has come. At the initial suggestion of myself to Colin Plant, plans are afoot to update the London moth book. The new work will be authored by me and Colin Plant. It is pleasing that the CMRs from the counties surrounding the London Area have unanimously agreed to provide relevant data to the project.

The new book will not be merely an updated copy of the 1993 effort! Technology now allows us to deal with data in many different ways. We can, for example, select numerous different background maps, not necessarily the same background for every species, and we can have more than one map per species if it helps to interpret the patterns of distribution. We can also analyse changes in populations and status over the past 30 years and we can create graphs or other visual aids to show not just adult flight periods, but also changes in these where they have occurred.

Most people who record moths already submit their records to the appropriate CMR. However, if you have a backlog of macro-moth data from the London area, please try to get the backlog submitted to your County Moth Recorder by the end of 2021.

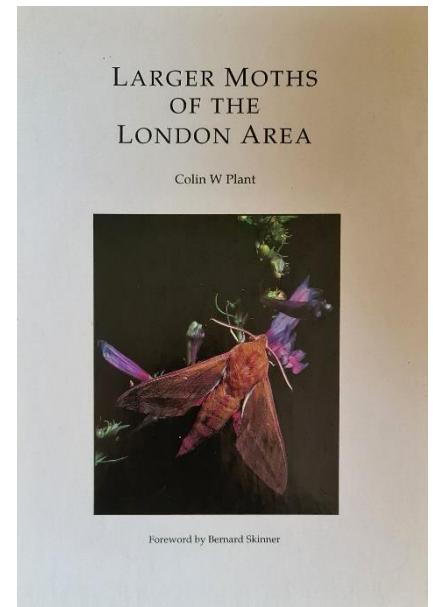
Contributed by Les Evans-Hill, Senior Data Manager

Supporting Science project

Earlier this year, Butterfly Conservation began this exciting new project which aims to improve data flow, support County Recorders, and improve online collaboration in digital natural heritage. The Supporting Science project is made possible by The National Lottery Heritage Fund, thanks to National Lottery players and the Department of Culture Media and Sport.

Project officer Rachael Conway has been working hard, supported by other members of BC's Recording and Monitoring Team, to get the Supporting Science project plates spinning. The project will deliver:

- A digital 'County Recorder Toolkit' of guidance and resources to help with verification and data flow.



- A 'Data Management Portal' to enable more data to be processed in one place, with additional functions to help with verification.
- A revamp and relaunch of the Garden Butterfly Survey to increase participation, include new people and get better data to help us understand how butterflies are faring in gardens.
- A programme of three iRecord training courses aimed at County Recorders, beginners and those interested in joining County Recorders to assist with verification.

An Expert Working Group of butterfly and moth County Recorders from across the UK joined us for our first meeting in October to outline the project context and discuss upcoming priorities. It was also a good opportunity for the group to share concerns and contribute ideas to help progress the project. A great deal of feedback has been generated from meetings and emails and Rachael is collating the suggestions in order to direct the delivery of the project.

Evaluation consultant Amy Shepherd will help us measure the success of the project and a brilliant turn out of Expert Working Group members at a recent workshop helped build an Evaluation Framework and generated lots of useful discussion.

Software developer Jon Van Breda is creating a new Garden Butterfly Survey website and work is progressing well. We are hoping for a soft launch and testing period in January 2022. If you would like to contribute to software testing, please contact Rachael Conway at gardenbutterfly@butterfly-conservation.org

The Recording and Monitoring Team have been progressing the procurement process for selecting a developer for a Data Management Portal and we hope to get started on this exciting element of the project very soon.

Rachael has collaborated with Keiron Derek Brown, BioLinks Project Manager at the Field Studies Council to develop the iRecord courses. Our first course 'iRecord Verification: Butterflies and Moths' opened on Monday 15th November 2021. This is a two-module course of online self-directed study and two webinar tutorials. The course is aimed only at County Recorders and assistants helping them with the verification of records. Further introductory iRecord courses open to a wider audience of recorders and potential verification assistants will be offered in Summer 2022.

It's not too late to join in the self-directed course above, if you are a County Recorder, a verification assistant or intending to train as a verification assistant and wish to attend the course, please contact Supporting Science Project Officer Rachael Conway at rconway@butterfly-conservation.org by 22nd November.

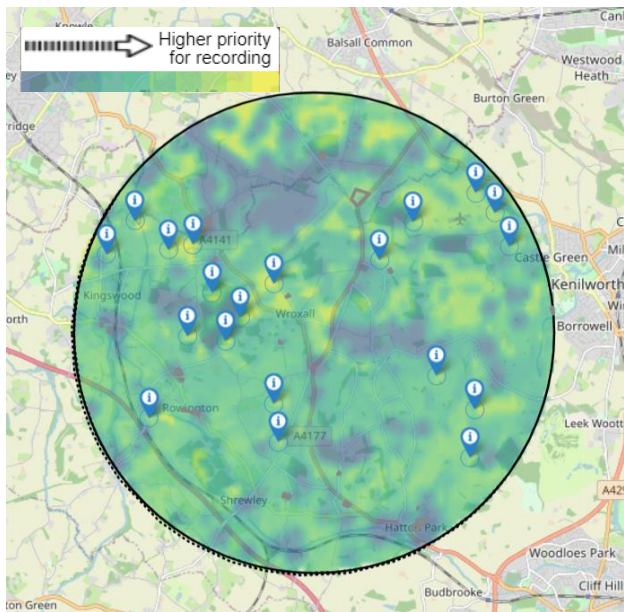


The DECIDE Project - recording nature where it matters

DECIDE is an exciting two-year project being led by UK Centre for Ecology & Hydrology alongside an interdisciplinary team of partner organisations, including Butterfly Conservation. The project team are using a novel approach to identify recording gaps, with the ultimate aim of improving access to fine-scale butterfly and moth distributions in Great Britain and help people to make good decisions for management.

Species Distribution Models are increasingly used in conservation to predict where butterflies and moths are likely to occur and how their distributions might change under different environmental scenarios and

management. These predictions come with uncertainty, but this uncertainty can be reduced with more records from the right places.



It would be impossible to get enough fine-scale records of species to cover all of Great Britain, so the DECIDE project uses models to predict species distributions for each hectare (100m square). The project team have been developing an online tool which highlights the areas on a map where new records would be most valuable in improving these models. Additional information about suggested areas is provided, such as land-use types and access, to help recorders select places they would like to visit.

Importantly, the DECIDE Tool is being developed with input from the recording community; it is developed with recorders and for recorders.

Feedback on early versions of the tool has informed functionality of the current version. We are keen to engage with a wide range of recorders to find out how it can work for them.

DECIDE tool showing higher priority recording areas (yellow) and suggestions of where to go (pin drops)

You can explore the DECIDE Tool [here](#). Take a look and see what you think. There are more details of the project on the website, including details of how you can take part in the tool's co-design. Please get involved if you can.



Moth Night 2021

Moth Night, the annual celebration of moths and moth recording, organised by Atropos, Butterfly Conservation and the UK Centre for Ecology & Hydrology, took place on the nights and days of 8th - 10th July this year. The theme for this year's event was Reedbeds and Wetlands.

So far 12,739 records from 430 trapping events have been submitted for 809 species. Please enter your Moth Night records via the online system on the Moth Night [website](#). Data submission is open until **30th November 2021**.



Elachista maculicerusella (Patrick Clements)



Six months of Kent's Magnificent Moths

It has been six months since Butterfly Conservation's largest ever area-specific moth project started. Kent's Magnificent Moths has got off to a wonderfully positive start.



Litter pick at Tankerton slopes (Anna Festa)

Throughout summer 2021 we have run inspiring events to introduce this project to the county's residents. For Moth Night 2021 the Kent's Magnificent Moth team ran a virtual 'Moths & Muffins Morning', still available on our local branch Facebook for those that missed it, showcasing the variety of moths found at Stodmarsh NNR with help from the Kent Moth Group. Our live broadcast reached over 1,200 people with some eye-catching species for people to enjoy from the comfort of their own home, whilst restrictions were still in place.

We have been fortunate enough to partner up with several organisations in Kent such as Whitstable Paddles, Eurotunnel and White Cliffs Countryside

Partnership in our first year. Whitstable Paddles, a stand-up paddling boarding and open water swimming organisation, aided in a moth-inspired litter pick along Tankerton Slopes (North Kent), collecting 12 large bags of rubbish along their way! Alongside the litter pick, they identified the intriguing 'frass volcanos' left by larvae of Fisher's Estuarine Moth. The Kent's Magnificent Moth's team were able to show over 40 people the importance of the Tankerton slopes. When chatting to individuals that attended, they had previously thought that these slopes were 'pointless and overgrown' stating them as 'a waste of space'. Continuing to work with these local groups over the next few years could help be instrumental in getting local residents to take ownership and pride over these local areas of conservation interest and allow us to enjoy them and the moths there for years to come!

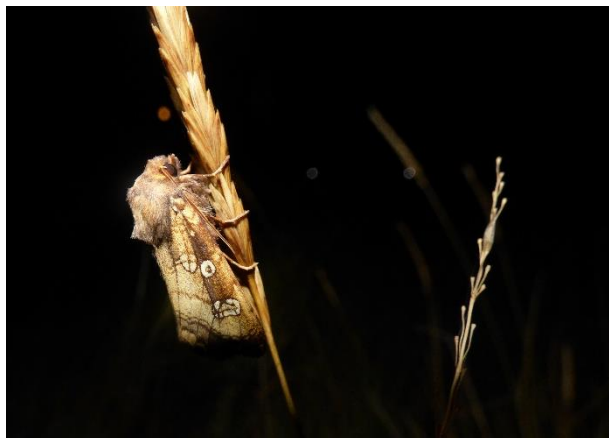
The summer ended with a large event at Samphire Hoe. Over the evening and the following morning, we talked with over 60 people showing them several moths from Jersey Tigers to Leopard Moths and the crowd favourite Elephant Hawk Moth. Children came back to see us gleefully, cupping day-flying moths showing us what they had caught on their adventures (don't worry no moths were hurt in their excitement!).

We have been working with a number of schools and community groups and these relationships are already deepening and diversifying, giving each community a chance to steer the project into something special for themselves. Groups have been interested in transforming their spaces into moth havens from concrete parking areas or propagating seed for moth foodplants, e.g., a Dungeness school growing Wild Carrot for Sussex Emerald. We even have one group that are art focused, interested in creating artwork murals and poems to celebrate the rare fauna of Kent!

The Fisher's Estuarine Moth has several breeding sites in Kent, but until this year, not all these sites had been surveyed both for the adult moths and their larval feeding signs. Sensitively timed management is vital on their sites. This species overwinters as eggs laid in the autumn on grass stems, so areas should not be cut over the winter. The eggs hatch in the spring, when the larvae then must make their way to a nearby Hog's Fennel stem they can bore into. The larvae feed within the stem at first, producing small amounts of frass that can be seen pushed out of the stem and trickling down the outsides. The time to confirm whether a larva is feeding on a Hog's Fennel plant is July. By this time the larvae are eating the plant's root and large mounds referred to as 'frass volcanoes' appear by the base of a plant's stem.



Prospect Field Moth Night- Emma Pestrige



Fisher's Estuarine moth (Rebecca Levey)

The presence of *Agonopterix putridella*, another moth that exclusively feeds on Hog's Fennel, was also confirmed on all Kent sites! This moth does not compete with Fisher's Estuarine as they feed on the leaves of Hog's Fennel, which they spin together. The spinnings are still visible in July although the larva will have vacated and be flying as adult moths.

With thanks to the help of many volunteers and their torchlight, a peak count of 166 Fisher's Estuarine moths were found across the Kent sites during their autumn flight period this year. Knowing their abundance and distribution across Kent provides us with a baseline that can be monitored as this project works to extend areas of suitable coastal grassland habitat for these moths.

Contributed by Emma Petridge, Kent Magnificent Moths Conservation Officer

NBN Record Cleaner rules – October 2021 update

NBN Record Cleaner is a free software tool to help people improve the quality of their wildlife records and databases. It can be used by individual recorders, County Recorders, organisations or Recording Schemes to help identify common problems in wildlife records. NBN Record cleaner is designed to aid the data cleaning process and improve the quality of datasets. A variety of file formats can be uploaded into the Record Cleaner e.g., text files, Excel spreadsheets and databases.

The NBN Record Cleaner runs automatic checks against your data using a set of built-in rules. It can spot bad dates such as 31st June or invalid grid references (e.g., SP123), as well as checking the spelling of species names. This first step is called validation and any errors highlighted can be edited in the original source datasheet, the dataset can then be re-loaded, and the validation checks re-run. All data that passes the validation stage can then be run through a verification process, which aims to alert you to species records that might need closer examination. The verification rules are selected, tests run and any records that fall outside of the species' currently known range, or outside of its flight period, are flagged for further investigation.

NBN Record Cleaner also allows you to map your records, which is particularly useful to County Recorders, enabling them to spot records outside of their areas for repatriation to the relevant counties.

It is important to note that NBN Record Cleaner does not change your original dataset - it produces reports of records that need further investigation. The NBN Record Cleaner is a useful tool to help validate and verify datasets in an efficient manner.

Butterfly Conservation and the Biological Records Centre have recently updated the moth (and butterfly) rules for Record Cleaner. The changes include:

- The species distributions for macro-moths have been updated based upon observations from 2000 to 2016 taken from the NMRS.
- The identification difficulty, flight period, and recording period rules have been expanded to include micro-moths. There are not currently any distribution rules for the micro-moths as the NMRS data are too sparse.
- The butterfly rules have been separated out from the moth rules.
- The nomenclature has been updated to match the current UK Species Inventory list.

We will be running a training course on the use of NBN Record Cleaner this winter. If you would like to register your interest in this please contact Les Evans-Hill via levanshill@butterfly-conservation.org. In the meantime, if you already use NBN Record Cleaner and wish to update your existing rules please contact Les who will be able to provide guidance and support for this process.

A new traits database for the butterflies and macro-moths of Great Britain and Ireland

There is a wealth of ecological information about butterflies and moths, especially compared to many other invertebrate groups. This is thanks to the large group of people such as the readers of this newsletter interested about the ecology of these beautiful species. Information about butterflies and moths exists in a wide range of resources such as field guides, books and journals. Until now, however, most of this information was not available in a single location or in a digital format. There was a need to collate this important information into one usable, digital resource for both researchers and conservationists alike.

At the end of 2019 BC staff began the task of collating these resources into one place, the so called 'Traits database for the butterflies and macro-moths of Great Britain and Ireland'. The focus was on butterflies and macro-moths due to the availability of distribution and abundance trends for these groups, especially after the publication of the Moth Atlas. Such data are currently lacking for the micro-moths, which is why they have been excluded from the database for now.

The database consists of a spreadsheet with ecological information on 968 species of butterfly and macro-moth. There is also a helpful ReadMe file containing information on how data were collected and what sources were used for each column. Within the database each species has a range of data available including details on distribution and abundance trends, habits of various life-cycle stages, body measurements such as forewing length, life-cycle timing and habitat use. Phil Sterling, Barry Henwood and Bloomsbury Publishing also kindly allowed us to use the data from their caterpillar identification book. This means the database contains important information regarding species hostplant use and specificity, allowing us to easily answer questions such as "how many species feed on oak?".

Hopefully this is a useful resource for researchers and conservationists. The full database can be downloaded from the CEH Environmental Information Data Centre at the following link <https://catalogue.ceh.ac.uk/documents/5b5a13b6-2304-47e3-9c9d-35237d1232c6>. You'll need to make an account to download the dataset.

Undoubtedly there will be additions needed to the database as new information is received and, due to the size of the task, there will be the odd mistake too. The database will be updated on an annual basis so if you do spot anything please let me know via the email at the bottom of this article. We hope you find the traits database a useful resource and if you have any questions regarding the dataset please contact Patrick Cook via email at pcook@butterfly-conservation.org.

Contributed by Patrick Cook, Ecologist

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National Moth Recording Scheme contacts

General enquiries recording@butterfly-conservation.org 01929 400209

GIS queries gis@butterfly-conservation.org

Richard Fox rfox@butterfly-conservation.org 01929 507011 @RichardFoxBC

Les Evans-Hill levans-hill@butterfly-conservation.org 01929 507015 @LesEvansHillBC

Zoë Randle zrandle@butterfly-conservation.org 01929 406006 @Moth_Lady



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