

**Butterfly  
Conservation**

Saving butterflies, moths and our environment



## E-moth

### Moths Count Update October 2017

Autumn is here again according to the chilly misty mornings, falling leaves, not to mention the moths to be found in the trap. In recent weeks there have been many sightings of Clifden Nonpareil, it's had its best year ever in Devon with eight individuals, all recorded during September. To our knowledge the moth has also been seen in Somerset, Wiltshire, Gloucestershire, Hampshire, Isle of Wight, Sussex, Kent, Hertfordshire, Suffolk and South Wales. Apologies for any omissions, there may well be more sightings but they're not all submitted in way that we can report on them in a timely fashion.

I loved this quote posted on the Sussex Moth Group website from Mike and Karen Galtry from Worthing "Saturday night's trap was dreadful: a

small handful of very common and particularly drab moths to show to our visitors... until the worst trap of the year became the best, when this huge Clifden Nonpareil spread its wings."



Clifden Nonpareil (Les Evans-Hill)



*Cydalima perspectalis* (Tom Tams)

The Box Tree Moth *Cydalima perspectalis* appears to have had a spectacular year. We have received numerous enquiries and identification requests, far more than in previous years, about this species from members of the public. The Box Tree Moth was accidentally introduced to the UK. The first report was in 2007 in Kent and by 2011 caterpillars had been found in a private garden. This species is well established in the London area, it is spreading in distribution and the population appears to be growing. It may also be resident, very locally, in other parts of southern England between Essex and Gloucestershire, and has been recorded from Cornwall north to Northumberland.

Fundraising for the Atlas of Britain and Ireland's Larger Moths is going well. In total, 70% of moths have been sponsored. Around three-quarters of these were sponsored via the auction and about one-quarter were reserved in advance of their auction. This is absolutely marvellous; huge thanks to everyone who has sponsored a moth and in doing so has supported the production of the atlas.

There have been some interesting bidding 'wars', the highest bids in each auction were: 1. Sussex Emerald – 11 bids; 2. Waved Black – 17 bids; 3. Champion – 24 bids; 4. Red Underwing – 14 bids and 5. Uncertain – 13 bids. We are currently running the penultimate auction, which will run until 31 October, and to bid to sponsor a species please follow this [link](#).

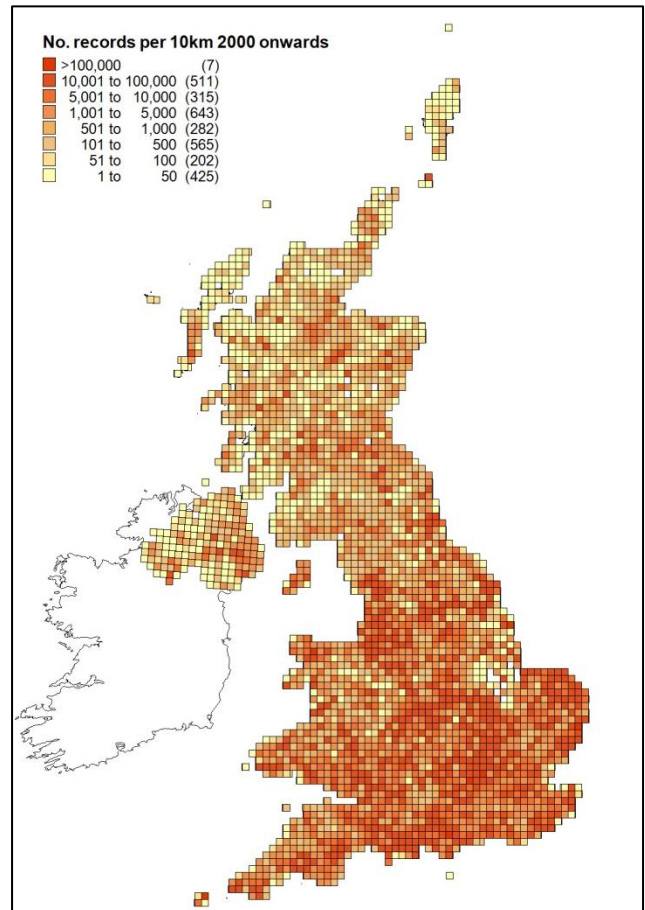
## National Moth Recording Scheme update

The National Moth Recording Scheme (NMRS) database now holds an incredible 25 million moth records. Almost three-quarters of these are recent records (from 2000 onwards). The map to the right shows the density of recent macro-moth records at 10km resolution.

Since June of this year Les Evans-Hill has imported 1.8 million macro-moth records. The five vice-counties that have grown the most in terms of the number of records are as follows: VC49 Caernarvon 2029% increase; VC51 Flintshire 301% increase; VC102 South Ebuades 147% increase; VC97 West Inverness 99% increase and VC26 West Suffolk 58% increase in records. Many thanks to the moth recording community and to the County Moth Recorders in particular who do a fantastic job of collating and verifying the records locally prior to submission to the NMRS.

Work towards the Atlas of Britain and Ireland's Larger Moths is now starting in earnest. The data are imported, the provisional maps have been produced ready for checking, images are being sourced and the species accounts will be drafted shortly – we have some busy months ahead of us.

The number of micro-moth records in the NMRS continues to increase too. We have received 1.3 million records from 58 vice-counties. Many thanks to all involved.



Map 1: Density of macro-moth records in the NMRS database at 10km resolution from 2000 onwards.

## Moth Night 2017

The annual celebration of moths and moth recording is almost upon us, running from Thursday 12 October through to Saturday 14 October, and this year's theme is Ivy and sugaring. Flowering Ivy is a fantastic nectar source for moths and many other insects at this time of year and searching Ivy blossoms at night is a great way to record moths for Moth Night. An alternative is to create your own sweet bait to lure moths, and 'sugar' has traditionally been made and used by moth recorders for this purpose. A recipe for sugaring can be found [here](#). As always, participants are free to pursue their activities for Moth Night and do not have to follow the set theme. Whatever you do, please make sure you add all your moth sightings for the three nights (12-14 October) via the online recording system on the [Moth Night website](#). Moth Night provides the perfect opportunity to trap somewhere new or to simply introduce friends and family to the incredible world of moths. Many moth groups run public moth events for Moth Night, you can find out what is happening in your area by following this [link](#).

## UK Moth Recorders' Meeting 2018

Our eighth UK Moth Recorders' Meeting will be held on Saturday 27 January 2018 at the Birmingham and Midland Institute, central Birmingham. The programme is currently being drawn up and will be available in due course, please check [www.butterfly-conservation.org/UKMRM](http://www.butterfly-conservation.org/UKMRM) for details. As always, there will be plenty of time to mingle and chat with fellow moth enthusiasts and shop. The attending stall holders who are confirmed to date are Atropos, Hachiware Art and Watkins & Doncaster. If there is anything specific that you might require, please contact the traders in advance who can take pre-orders for collection on the day. Advance booking is essential via [www.butterfly-conservation.org/UKMRM](http://www.butterfly-conservation.org/UKMRM). The registration fee is £10.00 per person and includes morning tea/coffee and a buffet lunch all subsidised from Butterfly Conservation budgets.

## Testing hedgerow management for moths

Hedgerows are an important habitat in the UK, particularly in intensively-farmed agricultural landscapes. The length of hedgerow in Great Britain is estimated at 477,000 km (2007 Countryside Survey). Hedgerows provide habitat for many moths, including several conservation priority Section 41 species, and are also important in providing shelter and helping to connect fragmented habitats. However, not all hedgerows are equally good for wildlife. Their structure and composition varies greatly as a result of different management regimes, and this can have pronounced effects on the species that use them. A hedgerow management field experiment has been run at five sites in lowland England since 2011, by the Centre for Ecology and Hydrology. This provided an opportunity to test how hedgerow cutting regimes affect the moth species whose caterpillars feed on hedgerow foliage.



Experimental hedgerow at Woburn, Bedfordshire (Jo Staley)

Sections of hedgerow were cut under trimming regimes that varied in frequency (once every year vs. once every two years vs. once every three years), timing (autumn vs. late winter) and intensity (standard cut vs. incremental trimming – leaving a little bit of recent hedge growth each time the plot was cut). Each combination of trimming regime was applied three times at each experimental site, resulting in hedgerow sections that varied in height and width as the photo shows. Hedgerows were cut using flails, by the contractor who usually cut the hedges on each experimental farm.

Previous studies have demonstrated hedgerows can be important for moths, for a variety of reasons including shelter. We aimed to determine which species were directly using hedgerows as habitats and how management affects this. We surveyed Lepidoptera larvae inhabiting the hedgerow habitat in early summer by beating each experimental section of the hedgerows, and collecting caterpillars in lengths of guttering inserted through the width of the hedge. A total of 1,100 caterpillars were collected over the three years of the study, of which 789 were identified to 61 species. Where possible the caterpillars were identified and released. The remaining caterpillars were reared through to adults for identification, apart from those that were parasitized. Species of conservation interest (Section 41 species) that were collected included Figure of Eight (*Diloba caeruleocephala*), Lackey (*Malacosoma Neustria*), Green-brindled Crescent (*Allophytes oxyacanthae*) and Brown Hairstreak (*Thecla betulae*). We also found a Small Eggar (*Eriogaster lanestris*) caterpillar at an experimental hedge in the Blackdown Hills in Devon.



Lackey (Nick Greatorex-Davies)



Small Eggar (Dan Hoare)

Overall, there were slightly more caterpillars (an increase of 4%) on hedge sections cut once every three years, compared with those cut every year. The timing of cutting had a bigger effect on caterpillars feeding in the hedgerows. Hedgerow sections cut in winter had 16% more caterpillars than those cut in autumn if trimmed every 1 or 2 years (for plots cut once in 3 years there was no effect of timing on caterpillar abundance). The diversity of caterpillar (Shannon-Weiner index) was 24% greater on hedgerow sections cut incrementally, compared to those cut back to the same height and width each time (standard practice in hedgerow cutting with a mechanized flail). The Lepidoptera species were split into those that are present as eggs, larvae or pupae on the

hedge in September, vs. those that are either in the soil or leaf litter at the hedge base, or adults in September. As expected, the first group of species were found to be more vulnerable to frequent cutting and cutting in autumn than the second group of moth species.

In addition to the larval surveys, we also surveyed Brown Hairstreak butterfly eggs on the experimental hedges in Devon, for four years, following the discovery of two larvae in the first year. Egg surveys were carried out in late winter, when the eggs contrast with the Blackthorn (*Prunus spinosa*) bark. More eggs were found on hedge sections cut incrementally, compared with those cut back to a standard height and width. Hedges cut in autumn also had nearly twice as many Brown Hairstreak eggs as those cut in winter. Brown Hairstreak females can be present in September, so may have laid eggs following the autumn hedgerow cutting, which took place in early to mid-September each year.



Brown Hairstreak eggs (Lucy Hulmes)

Winter cutting increased the overall number of caterpillars, and the diversity of those species that were present on the hedgerow plants in September, but autumn cutting resulted in more Brown Hairstreak eggs. This shows the potential conflicts in managing hedges for Lepidoptera conservation, and the need to understand the life-cycles of those species that are present. This suggests that having heterogeneity within a habitat, both in terms of the physical structure and the

species of plants present is important in maintaining biodiverse hedgerow habitats, as studies on other habitats have shown.

Incremental cutting, whereby some recent growth is left on the hedge each time it is cut, benefitted both the general Lepidoptera community and the number of Brown Hairstreak eggs. Some of the hedgerow cutting regimes we tested (cutting once every two years in winter, or cutting once every three years) are currently funded under agri-environment schemes such as Countryside Stewardship (<https://www.gov.uk/government/collections/countryside-stewardship-get-paid-for-environmental-land-management>). Incremental cutting could form part of future schemes.

Jo Staley and Marc Botham, Centre for Ecology and Hydrology

The results described above were first published here:

Staley JT, Botham MS, Amy SR, Hulmes S, Pywell RF (2017) Experimental evidence for optimal hedgerow cutting regimes for Brown hairstreak butterflies. *Insect Conservation and Diversity*, doi: 10.1111/icad.12239 <http://onlinelibrary.wiley.com/doi/10.1111/icad.12239/abstract>

Staley JT, Botham MS, Chapman RE, Amy SR, Heard MS, Hulmes L, Savage J, Pywell RF (2016). Little and late: how reduced hedgerow cutting can benefit Lepidoptera. *Agriculture, Ecosystems and Environment*, 224: 22-28 doi: 10.1016/j.agee.2016.03.018 <http://www.sciencedirect.com/science/article/pii/S0167880916301463>

### A story of mixed fortunes on the Sefton Coast

The Liverpool World Museum entomology library contains much historic moth information that when added to the Lancashire Moth Group records, particularly those of recent years, shows dramatically changing fortunes for two Sefton Coast moths, Belted Beauty (*Lycia zonaria*) and Lyme Grass (*Chortodes elymi*).

Both require a coastal situation and also exist very near the edge of what is possible and what is not possible for their survival. Lyme Grass (*Leymus arenarius*), the plant for Lyme Grass moth larvae, is amongst the earliest coastal colonisers and along with Marram Grass (*Ammophila arenaria*) and Sea-couch Grass (*Agropyron pungens*) are

regularly inundated with new blown sand, salt sea spray and on some high-tide occasions covered in sea water. The larvae of Belted Beauty on the original Crosby sand dunes would have eaten Common Bird's-foot trefoil (*Lotus corniculatus*), Kidney Vetch (*Anthyllis vulneraria*) and some Clovers (*Trifolium* sp.).



Belted Beauty (Mark Parsons)



### Belted Beauty

1891 Entomologist's Records, vol. 2, page 180 states "Belted Beauty has turned up again in good numbers at Crosby. It is almost impossible to walk on the sand hills without treading on them." The following year it reported "Belted Beauty occurs in 100s at Crosby, more than have ever been seen before and similar numbers at Wallesey". Richard South writing on Belted Beauty in the Moths of the British Isles (1946), states "Locally common on sand hills, on the coast of Cheshire, Flintshire and Carnarvon. Wallasey is a noted locality. The earliest British specimen was taken in 1832 at Wallesey. Occurs on the Lancashire coast near Liverpool and Blackpool districts".

The last record was a single seen at Crosby in 1948. So what happened to the site? The sand dunes were levelled off completely and turfed over to create a walking area just inland of the "Iron Men" at Crosby. A protective sea wall and promenade was built so the dunes were totally destroyed and with it went the moth.

### Lyme Grass

Richard South (Moths of the British Isles 1946) states "Not recorded until 1861. Known to occur from Norfolk to Durham". Also noted as occurring on the Forfarshire coast of Scotland. Much more recently, in British Moths (2015), C Manley states "In coastal sand dunes and salt marshes from Suffolk northwards and at Camber Sands, Sussex."

In 2010 a single example turned up in Crosby. In 2012 and 2013 it was recorded at Altcar, Formby in singles and Ainsdale Green Beach in small numbers all in the first half of June by a number of recorders. Last year, 2016, John Dempsey of Sefton Council showed me photos of a "wainscot" he wasn't sure of; these were four Lyme Grass moths. At Formby National Trust, MOD Altcar and again on the Green Beach small numbers came to light. But during a session with John Girdley and myself with three traps near the Ainsdale Discovery Centre, Southport on 12th June we recorded 20 plus. Two nights later Simon Tobin and myself recorded 29 between 9.30pm and 11.30pm. C Manley 2009 mentions and illustrates two colour forms; of the darker we recorded only a single example. One of the big issues of light trapping for Lyme Grass is getting generators and MV traps onto the foreshore. Sand dunes are hard enough to walk over but at night with heavy equipment it's almost impossible!

The loss of Belted Beauty was understandable; human requirements forced it to fail. But like King Canute who failed to stop the tide, so Crosby Council are failing to stop new dune formation against the promenade and if the small colony of Belted Beauty at Wallesey can cross the Mersey .....? For Lyme Grass, on the other hand, I cannot easily understand how it jumped or flew from the east coast to the Sefton Coast on the west or, had previous entomologists really overlooked it?

Richard Walker. VC59. March 2017

### Conservation updates

The following notes cover a small selection of moth species and projects that Butterfly Conservation staff have worked on/ been involved with over the summer months.

In late May/early June we encouraged surveys for the Liquorice Piercer *Grapholita pallifrontana* (Section 41, NERC Act), with staff also undertaking some surveys. Remarkably, eight sites that appear to be new for the species (or at least with no recent, post 1980 record) were discovered thanks to the volunteer effort. This included a new vice-county record for Hertfordshire. Sightings were also reported from Somerset, Gloucestershire, Herefordshire, Oxfordshire, Buckinghamshire (the last record for the county being in the 19th century), Berkshire, Bedfordshire and Northamptonshire. Three sites in Somerset were checked by BC staff, with one site being a speculative search based on a recommendation, but only having a single large specimen of the food plant, Wild Liquorice *Astragalus glycyphyllos* (the moth was not seen nor is it known from this site). Pleasingly, the species was found at the other two Somerset

sites, especially as the moth had not been seen at one of them in 2016. Food plant numbers are also counted at these two sites. At one, 170 plants were counted compared to 102 in 2016 and 198 in 2015, while the other had 162 plants compared to 61 (2016) and 176 (2015). Management recommendations have been forwarded to the tenant farmer at one of these sites, and it was clear from the visit that previous recommendations had been acted upon. There is still time to search for signs of *G. pallifrontana* and holes in the seed pods of the larval food plant are indicative of this species, although it is probably prudent to follow up any sightings with a search for the adults next year.

In July we welcomed Fiona Haynes to the moth team at Butterfly Conservation. Fiona has taken up a part time role with the team, part of which is to oversee the implementation of the Heritage Lottery Fund *Back from the Brink* project on the Barberry Carpet *Pareulype berberata*. The main objective of this project is to plant 3,000 native Barberry *Berberis vulgaris* bushes in and around extant sites for the moth in Dorset and Wiltshire. This approach has been in place at a small scale for many years, and has been shown to be effective in strengthening the local population. For example, at the Dorset site bushes have been planted with the help of the local site manager and volunteers since the late 1990s, and a few bushes are still being planted in and around the site each year. The Dorset population now appears to be one of the strongest in the country.

Another aspect of Fiona's work will be on the Striped Lychnis *Cucullia lychnitis*. Surveys were undertaken over July (surprisingly a few nearly full-grown larvae were found in early July, but there were also very young larvae present) and early August. Again BC staff were assisted by several volunteers. Over 40 sites were checked in Hampshire and West Sussex, with c.3,100 plants searched. Just over 390 larvae were found covering 29 sites over nine 10km squares. Fiona will be discussing management for the species with various site managers/owners in a few areas to try to build and strengthen a network of sites. This is likely to include small scale ground disturbance and seeding of local provenance Dark Mullein *Verbascum nigrum*, the larval hostplant. We have undertaken management work for this species on a larger scale at a few sites around Winchester, Hampshire, after numbers of larvae were found to be declining, with just one counted at a well-known layby for the species on the A31 in 2014. With funding from Veolia we inverted the soil exposing the chalk and burying the enriched topsoil along a few strips of roadside. By 2016 the larval count had risen to 33 at one site, with an astonishing count of nearly 160 larvae at an adjacent site. The peak counts in 2017 in late July were 28 and 49 respectively, although it should be noted that the larvae were of varying ages, from very young to nearly full-grown, indicating that the larval period was rather spread out.

Surveys were undertaken on the Shoulder-striped Clover *Heliothis maritima* in the New Forest and at one former site in Dorset. Unfortunately it was not refound at the Dorset site and was only found at three of the nine sites visited in the New Forest (six of these known to have supported the species). Very few larvae were found over the survey effort, but, as with the Striped Lychnis, ranged from tiny larvae to one that was virtually full-grown. This survey is part of a longer term study into the habitat requirements of the species. Over the years various vegetation measurements have been undertaken where many of the larvae have been found, and to date we have data for 64 Shoulder-striped Clover larvae. For example, the data include vegetation height measurements and in the period 2011 to 2017 larvae have been found in heights ranging from 5.3 to 23.1cm with the annual average vegetation height ranging from 8.9 to 14.2cm. Whilst these surveys focus on the New Forest and Dorset, we would strongly encourage surveys of the Surrey heaths where the last records would appear to be from 2003.

Fiery Clearwing *Pyropteron chrysidiformis* egg counts took place at seven localities in Kent, focussing on sites that had not been surveyed recently. Generally counts were quite low but extensions were made to the known range in one area.



Barberry planting (Mark Parsons)



Dingy Mocha (Keith Tailby)

During late August and September we surveyed 23 sites for the Dingy Mocha *Cyclophora pendularia*, 20 of these in Dorset and three in the New Forest. A minimum total of 480 bushes were sampled over these sites, resulting in 59 Dingy Mocha larvae being found over 16 sites covering eight 10km squares. No larvae were found in the New Forest, and none were found on Purbeck south of Wareham, although only one site was surveyed in this area. There have been a number of challenges for this species in recent years, which has a preference for young, small willows *Salix* spp. in open situations. These have mostly been through the introduction of grazing on several sites, where the cattle end up grazing the young willows,

inappropriate cutting and habitat succession. We have been providing advice on how to manage for this species, and the good news is that, as a consequence of this advice, this has led to the recolonization of a site in north Dorset last year and a further adjacent site this year. However, grazing is still being seen as the preferred option on many Dorset heathland sites, and is also likely to explain why this species is so hard to find in the New Forest. Partly to get the message of the importance of young willows across, we also participated and led an afternoon session on the Dingy Mocha and its habitat at a Natural England organised scrub workshop run in Dorset, with c.35 people attending including many local site managers and land advisors. A spin-off from this event was the confirmation of a further breeding population of the species in the east of Dorset from a site where the occasional adults had been recorded recently. A summary report has been compiled and circulated to a range of organisations and individuals.

Further north, surveys were undertaken at Fenn's, Whixall and Bettisfield Mosses NNR, where Natural England and Shropshire Wildlife Trust have secured funding to restore parts of the raised bog by removing secondary woodland and scrub. Butterfly Conservation raised concerns about the impact of tree removal on a suite of rare moths that are dependent on stunted birch trees at the site. Impacts could potentially be direct, through removal of foodplant, or indirect, by removing sheltering trees and creating more exposed conditions. Surveys sought to identify key areas for Silvery Arches *Polia hepatica*, Argent & Sable *Rheumaptera hastata* and the psychid moth *Sterrhopterix fusca*, and to identify more clearly the habitat requirements for the poorly-known *S. fusca*. Light trapping for Silvery Arches was unsuccessful,



Silvery Arches (Mark Parsons)

possibly because the 2017 flight season was rather early and light trapping was carried out late in the season (in early July). Daytime searches produced a total of 20 larvae of Argent & Sable on birch and 58 larval cases of *S. fusca* on a range of trees and also Heather *Calluna vulgaris*. *S. fusca* proved to be widespread and locally common in both wet and dry bog conditions, including both sheltered areas close to the bog margin as well as more exposed open bog conditions. Argent & Sable appeared more restricted, with all larvae being found in relatively sheltered conditions near the bog margin. Bog restoration work would therefore appear more likely to impact on this species than on *S. fusca*. We are working closely with Natural England to try and ensure that sheltered conditions are maintained in key areas for Argent & Sable. We are grateful to Shropshire Moth Group for help with the surveys.

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