HERTFORDSHIRE AND MIDDLESEX BRANCH

NEWSLETTER

ISSUE 83 Autumn 2021

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Chair's Report, by Malcolm Hull

Welcome to our Autumn Newsletter, I hope you enjoy reading it and I'd be very interested to get your feedback

The Summer Season

Despite a rather a grey end to this summer's butterfly season, there were plenty of highlights. It was great that we were able to run a good number of butterfly walks and moth trap events again. I've never seen so many grounded Purple Emperors as I did this July and I was very pleased they turned up for the



Branch Butterfly Walk at Heartwood Forest (see video clip on the HMBC YouTube Channel here. [https://www.youtube.com/watch? v=bdSVyEEAVdE] Great news too that Brown Hairstreak is continuing its spread across London, with adult sightings reported from the boroughs of Brent, Enfield and Ealing. It can only be a matter of time before this species finds its way back into Herts after an absence of nearly 25 years.

Big Plans for the Future

There's been a significant increase in interest in wildlife during the pandemic and BC will be unveiling an ambitious new strategy during the Autumn. Restoring damaged locations and improving habitats on a landscape scale are key features of our new approach. Herts & Middx are already in the vanguard of this new approach through our involvement with Big City Butterflies and our Low Mow Road Verges partnerships. We are ambitious to do more and are actively planning to establish major new projects to make real improvements to habitats for butterflies and moths around our two counties.

Winter Events

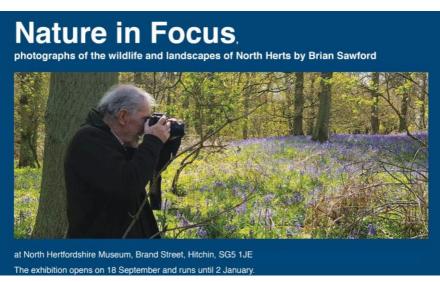
This winter we will be holding some Brown Hairstreak egg hunts and a programme of topical presentations on Zoom. Constitutional changes mean we no longer need to hold an AGM, but we are planning an event that members can attend in person on **April 2nd**, **2022** at the Welwyn Civic Centre. More information will be sent out by email nearer the time. The new Branch Guidelines can be accessed here.

[https://www.hertsmiddx-butterflies.org.uk/committee-new.php]

Instagram

The Branch now has its own Instagram account which showcases a good range of member's butterfly and moth photos. Many thanks to Chloe Lisley who set this up for us (see link on back page)

Very many thanks to everyone who has submitted records or supported the Branch in other ways over the last six months. To help us get our Annual Report out promptly, it would be much appreciated if all records and observations can be submitted to Andrew Wood zoothorn@ntlworld.com before 9th November.



Our Spring newsletter included a tribute to the late Brian Sawford. In addition to being an expert naturalist, Brian was also a keen photographer, and built a wide-ranging portfolio of images. A new exhibition, comprising 50 of his photos, selected by his widow, Terri, has now opened in Hitchin, and will run until 2nd January 2022. In addition to butterflies and moths, there are also excellent images of birds, mammals, reptiles, amphibians, other insects and the local landscape. Some of his field notebooks are also on display. (*I attended the preview and can strongly recommend that anyone able to visit takes this unique opportunity - editor.*)

Big City Butterflies, by Ele Johnstone & Steve Bolton

Introduction and update from Ele

It's been such an amazing first few months on the project and we have been busy meeting our project partners at their beautiful sites across London, spotting lots of butterflies and moths along the way!

As the Engagement Officer my role focusses on delivering school workshops, community events and public events. Alongside Steve, I will also be introducing people to butterfly identification and recording and encouraging them to get out and about to let us know how London's butterflies are doing.

I have been busy delivering school workshops and a range of engagement events with our partners throughout the summer. It has been wonderful to see how readily everyone has got involved and how much enthusiasm there is towards learning more about butterflies and moths, as well as how to help them.

My first community event of the project was a butterfly planting morning at Holland Park Ecology Centre (Kensington and Chelsea). We had a morning full of butterflies and moths, including planting and crafts. We have made excellent links with the ecology staff from the borough and we look forward to collaborating with them in the future, including on the Kensington and Chelsea's BEE Superhighway.





Images from the Holland Park event

We have met with several other partners in boroughs across the Hertfordshire and Middlesex area and continue to build these relationships through site visits and meetings.

Although butterfly and moth season is coming to an end for the year, the Big City Butterflies team will still be busy! As the autumn approaches, I will be delivering more school workshops and events. Throughout the winter we will continue to build relationships with partners around London, work on resources and plan for an exciting programme of events, training, and school workshops for next year!

Steve writes..

My role as Conservation Officer focuses on providing habitat management training and advice to support butterflies and moths and training on butterfly identification and recording with lots of opportunities to get out on sites across London to spot butterflies and inspire Londoners to get involved.

A butterfly ID and training workshop in Brent reached numerous groups online and was followed by a guided walk at Gladstone Park, the project's flagship site in Brent, where local people are keen to do a weekly transect. I will be returning to the site to help set this up in collaboration with the Friends group.



Images from the Gladstone Park walk, including a Marbled White



In Kensington we will be providing advice and training to land managers in support of their Bee Superhighway project which seeks to increase wildflower habitat and pollinator friendly planting. The partnership will also extend to working with local community groups to give them greater skills and knowledge to support habitat improvements and to establish new butterfly monitoring schemes. Over the autumn and winter we will continue to develop relationships with partners and community groups and will be delivering more training and site advice. It's been a brilliant start to the project and we are excited by the numerous opportunities across the project area.

Brown Hairstreak and the Blackthorn (Sloe) Survey – Winter 2021 – 2022, by Liz Goodyear

Details of this project can also be found on our website here.

[https://www.hertsmiddx-butterflies.org.uk/BrownHairstreak survey.php]

The first Brown Hairstreak (Thecla betulae) eggs in Middlesex were found at the end of 2016, in a park just north of the River Thames in the London Borough of Richmond. However, it soon became apparent that this wasn't just a one-off find with more eggs being found at a nearby site in 2017 (London Borough of Hounslow). However, the highlight came in September 2018 when the Branch had a report (with photo) of an adult Brown Hairstreak in an Ickenham garden (London Borough of Hillingdon). This led the Branch to discover a previously unknown but thriving colony at Stafford Road Open Space, South Ruislip and in the hedge lines of the adjacent meadows at Ickenham. The hedgerows and scrub belt are blackthorn-rich and winter egg searches have found numerous eggs, with adults being reported in the summer. Since then, several very determined surveyors have found even more sites and at the end of 2020, a single egg was found at Totteridge Fields in the London Borough of Barnet, close to the M25 corridor. The summer of 2021 has proved very exciting with several adult butterflies being seen again at Stafford Road Open Space but the first adults have also been photographed at Horsenden Hill (London Borough of Ealing) and Fryent Country Park (Brent). Garden records continue to be reported including one seen in a Sunbury garden and an adult was reported from Whitewebbs Park in Enfield which is a new area but where blackthorn is present.

There are several theories behind the discovery of all these previously

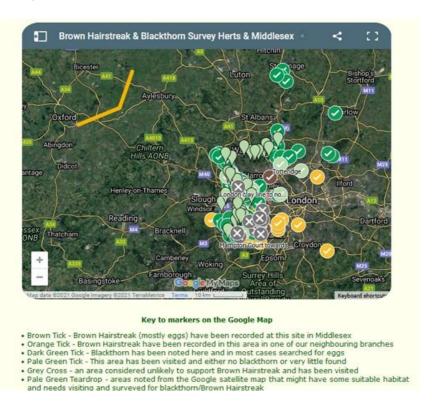
unknown sites. What is acknowledged is that colonies of Brown Hairstreak in south London and north Surrey are expanding northwards. What is also thought is that they are using the river corridors so that the River Crane and River Pinn/Yeading Brook are being favoured and acting as conduits. However, whether the butterfly is expanding from Ickenham southwards as well can't be discounted. The majority of sites found have blackthorn and/or prunus species but not necessarily in large quantities but the butterflies do tend to prefer sites with plenty of ash. The males use the ash as a master tree somewhere to gather, meet up with females and feed on aphid honeydew. The geology is also relevant but this gets more complicated but will probably explain why one site is thriving but a large swathe of blackthorn/prunus a short distance away is ignored.

The adult is very elusive and hard to find - the colony found at Ickenham is an illustration of this because there was an historic report from 1983 of a Brown Hairstreak close to the A40, but the butterfly was only rediscovered in 2018 but already present in good numbers! We have also heard of a sighting in 1987 of an adult seen just south of Cranford Park! The eggs, although very small, are much easier to find than the adults and most sites are found through egg hunting and not relying on adult sightings. The eggs become even easier to find once the leaves have dropped off the blackthorn or prunus species but before they start to flower. Trees covered in lichen are best avoided and relatively new growth is preferred. Much literature discusses suckering growth but also younger stems on uncut hedges with no suckering growth can be searched with equal success in our area.

However, we still need more site details, so this is what we hope our members will continue to do this autumn and winter - find even more blackthorn and/or prunus species before or in spring whilst flowering. And of course you can also start looking for eggs although, we recommend you don't start looking until all the leaves have fallen off! The Brown Hairstreak and Blackthorn (Sloe) Survey was originally launched in the winter of 2020-21 to provide activity during lockdown. Last winter very few Brown Hairstreak (Thecla betulae) egg searches could be undertaken, as for some it involved unnecessary travel, which was being discouraged at the time. During lockdown we were still allowed to take daily exercise and although daily exercise didn't necessarily mean you could stop and search blackthorn for eggs (!), it did however, allow you on your permitted daily walk to look for blackthorn (sloe) (Prunus spinosa) or other prunus species such as

cherry plum (Prunus cerasifera), especially in Middlesex and the London area as well as south Hertfordshire.

Since 2017 a lot of sites have been visited and a Google Map is linked to show where the butterfly or its eggs have been recorded and where we know there is blackthorn and/or prunus. However, there are still many places waiting to be visited. Maybe just a footpath by a railway line or stream-side path might just hold a few bushes but could have been found by the butterfly. If the hedge looks to be regularly cut back unnecessarily, we still would like to know where it is because we might be able influence the managers to change their management plans. If you can identify ash trees, please tell us if there are any nearby as well.



[https://www.google.com/maps/d/embed? mid=1ujkzozXlMEacrLuuGFePZSf9xzAPF7rm&ll=51.62329663944095%2C-]

It is known that Brown Hairstreak will lay their eggs on a variety of prunus species but blackthorn is the recognised favourite. However, when confronted with a hedge line of prunus it isn't always that easy to tell them apart. Identifying prunus species? That's really hard unless you are a tree/flower expert! One key factor with regard to cherry plum is that it flowers earlier than blackthorn. For an example it was already starting to flower at the beginning of March in 2020, whereas blackthorn was nearly a month later. However, we know they use cherry plum so examples of this are also welcome. Photos of stands of blackthorn/prunus species will also be welcome as it will give us a better understanding of the quality and quantity. A reminder, despite its thorns, hawthorn (Crataegus monogyna) is not in the same family and not used by Brown Hairstreak.

Below are a few examples of a fairly typical blackthorn or prunus hedgerow that you might encounter on a local walk in December -January.



Photos © Andrew Middleton



This YouTube video from BC Surrey Branch is very informative and gives lots of additional information, on looking for blackthorn and finding eggs of Brown Hairstreak plus the occasional moth egg! Please have a watch but we are also having our own presentation on the 1st December!



https://www.youtube.com/watch?v=oIS9Yr0vFok&feature=youtu.be

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So this winter if you feel able to search for eggs do have a go but remember eggs of several species of moth are also laid on blackthorn and these are shown in the video as well. BC Upper Thames Branch has published a very helpful guide to the eggs found on *prunus* at this link on Twitter.

[https://twitter.com/UpperThamesBC/status/1200787163899715587]

Some of the sites in Surrey are a slightly different habitat type especially in the more rural settings so don't compare everything. Many of our sites are just small areas of blackthorn tucked away along a footpath or on the edge of a recreational area. One site was even found under the flight path of the north runway of Heathrow Airport.

We shall be holding a Brown Hairstreak egg hunt at Stafford Road Open Space, South Ruislip on **Sunday 5th December** – booking is essential and to reserve your free place visit here.

[https://www.eventbrite.co.uk/e/brown-hairstreak-egg-search-at-stafford-road-open-space-ruislip-gardens-tickets-170528996820]

(If the forecast for the day is bad, we may have to postpone the hunt for another day)

Before the hunt, we shall be holding a Zoom evening presentation on **Wednesday 1st December** (Call opens at 7.45pm for 8pm start. Click here to join) to help guide you through the techniques of searching for Brown Hairstreak eggs (no booking is necessary).

[https://us02web.zoom.us/j/86232645208]

Up-to-date information will be available on the Branch website here.

[https://hertsmiddx-butterflies.org.uk/fieldtrips-2021.php]

Here is a link to a video prepared by David Howden, discussing Brown Hairstreaks and showing images taken at Horsenden Hill (https://happs.tv/post/sd0xPwfLEuR9UUZCmZZZ).

There is also a video posted by Andrew Wood on the Branch YouTube channel here, showing a Brown Hairstreak filmed at Stafford Road Open Space near Ruislip Gardens.

[https://www.youtube.com/watch?v=4hD0KLbt6gs]

A Wildlife Pond for Millhoppers Reserve, by Chris Hilling (one of the Reserve Managers)

Water, water everywhere...well, no it's not anymore!

Up until just after the Millennium, the stream which runs through the reserve had a continual flow of water. Now, the stream is dry for much of the year and only has flow after excessive rainfall. The presence of water creates specialised habitats which support a unique and diverse range of plant, amphibian and insect species, a few of which are present at the reserve.

While we do manage the site primarily for lepidoptera, we cannot ignore the bigger picture. Habitat loss is a huge problem nationally and we need to do everything we can to help wildlife and improve biodiversity.

So, with that in mind, it seemed like a great idea to have a permanent freshwater wildlife pond at Millhoppers. How does a pond help butterflies? Well, it will allow us to replace plants once present on the site that will be a valuable nectar source for butterflies and moths. It would also be great if we could attract some of the China-mark moths whose larvae are entirely aquatic. Plus, let's not forget all the potential invertebrates, amphibians and mammals that benefit from a pond.

The second, equally important part of this project involves all the soil dug up to make the pond. Rather than removing it from the site, it will be used to create the foundation of a chalk bank just a few metres away from the pond. We will plant this with Birds-foot Trefoil, Common Rock-Rose and Common Sorrel. These are the larval foodplants of the Common Blue, Brown Argus and Small Copper respectively, of which we have existing small populations. Additionally, we will plant Kidney Vetch to encourage the Small Blue of which there are colonies in the local area.

In mid- August, our contractors (Jack and Zach) came in to do the heavy work of digging our pond for us. With their machines they made it look easy and we soon had a large hole and a nice big pile of soil for our chalk bank. Not long after



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and with the help of some of our volunteers, we installed the liner and temporary protective fencing.

This double-barrelled project will now continue through the autumn/winter months with our monthly work parties. It would be great if some of you could find time to join us with this exciting activity. If you would like to help us, please get in touch with us at -

millhoppers@hertsmiddx-butterflies.org.uk



The new pond being dug at Millhoppers

Photos © Chris Hilling



Go Wild in Your Local Area, by Malcolm Hull

Less mowing in parks and on road verges is great for wild flowers, butterflies and moths.

More than half the local authorities in our two counties have reduced mowing in some parts of their area.

And the results have been fantastic. In St Albans, where Branch volunteers have been monitoring butterfly numbers, some low mow plots have recorded 12 different butterfly species.

A special mention to Alison Debenham who recorded a Dark-Green Fritillary at King Harry Lane in St Albans – a species almost never seen before in that area.

I am keen to get more councils on board and support from local residents in each district is very important. If you'd like to see more butterflies in your area please do get in touch.

All that's needed is to write a letter of support and be willing to monitor a local low-mow site nearby. (Three visits of fifteen minutes each per year is all that's required.) We could use more help anywhere in our two counties, but if you live in one of the following areas I'd be really pleased to hear from you – Broxbourne, East Herts, North Herts, Harrow, Haringey, Hounslow.

malcolmhull@hertsmiddx-butterflies.org.uk

If you missed the presentation by Dr Phil Sterling at Members Day this year, which explains the rationale and the benefits of the low-mow approach, you can watch it on our YouTube Channel here.



[https://www.youtube.com/watch?v=faneUTCoJI0&t=226s]

Highlights from the 2021 Guided Walk Programme

Once Covid restrictions had sufficiently relaxed, we were able to commence our guided walks programme. Thanks go to all the leaders, whose subsequent reports have formed the basis of this article. As always, these events were at the mercy of the weather, both on the day itself, but also in the days beforehand. Nevertheless, it is clear that there were many enjoyable and interesting sightings.

At Fryent County Park (3rd July), co-led by Leslie Williams and Ele Johnstone from the Big City Butterflies project, heavy rain showers limited the species seen, with most being Meadow Browns. There was some interest in the identification of the grasses and other hay meadow plants, not least because of the role of grasses as larval foodplants. A range of questions were raised during the walk covering species, identification, biology and habitat management for this park that includes also hedgerows, paths and woodland. The park is managed by Brent Council with active volunteers from Barn Hill Conservation Group.

The following day at Cassiobury Park, Peter Fewell led a walk in marginally better conditions, although they did get lucky for a short while with a few sunny breaks. In addition to more common species, the highlights were sightings of two Silver-Washed Fritillaries and a White Admiral.



Silver-washed Fritillary in Whippendell Woods Photo © Peter Fewell

The Ruislip Woods NNR walk led by Dick Middleton on 7th July also took place in less than favourable weather. A field behind the main Ruislip Lido car park yielded a Ringlet and 10+ each of Meadow Brown, Marbled White and Small Skipper. A brief period of light rain welcomed them to Copse Wood where the only butterflies encountered were 2 White Admirals, one of which was of the aberrant form 'obliterae'; both gave excellent photographic opportunities on a low bramble patch. The ascent to St Vincents at the top of Park Wood was not rewarded with a sighting of Purple Emperor and the group had to be content with a Purple Hairstreak and 2 Speckled Wood.



White Admirals in Copse Wood. Normal form (left) and form *obliterae* (right) Photos © Mark Morgan

On 13th July, two days prior to his scheduled walk, Peter Clarke visited Norton Green & Knebworth woods for a recce. His first target was White Admiral which he hadn't seen there since 2017, and he saw one alight on a bramble patch off the track west of Newton Wood just north of The Firs. His next main target species was Purple Emperor. He was walking in the common scanning the oak tree tops at around 1 pm when a gentleman (to whom he owes many thanks) came up and asked if he knew much about butterflies. The man mentioned that he had seen a 'purple admiral' on the track. There, a male Purple Emperor was grounded sipping salts and minerals, and oblivious to all the humans walking past (photo on next page). Peter also saw good numbers of Marbled White, Meadow Brown, Ringlet, several Purple Hairstreak and a single Silver-washed Fritillary.



Male Purple Emperor Photo © Peter Clarke

Predictably, it had already clouded over by the start of the scheduled walk to the site on 15th July, and attendees did not hold much hope for seeing many butterflies. Although the Browns were happy to fly in the meadow in the overcast conditions, it wasn't until around noon when the skies brightened without any strong sunshine that there was



more butterfly activity. The group found Silver-washed Fritilaries and Purple Hairstreaks, one of which of the latter alighted low down on the brambles.

There were no sightings of White Admiral or Purple Emperor, despite the group visiting the locations where they had been seen two days earlier. However, on returning to Norton Green, Richard Crabtree spotted a Comma egg-laying on nettles and found an egg.

Egg of a Comma butterfly

Photo © Bob Clift



Purple Hairstreak at Norton Common Photo © Richard Crabtree

The walk at Heartwood Forest on 17th July was so well attended that it was split into 2 groups, one led by Malcolm Hull and the other by Andrew Steele. By this time the weather had decidedly improved.

Marbled Whites and Small/Essex Skippers were the most numerous species in the meadows. The skippers really lived up to their name and just would not stop. Eventually people got a close enough look to identify one of each species. At one point there were 6 or 7 skippers together taking moisture/salts from the mud around a drying Meadow Brown, Ringlet, Gatekeeper puddle. and brood Brimstone were also seen along with Large White, Small White and Green-veined White and a solitary Small Tortoiseshell. At Wells/Pudlers Wood they also saw Comma, Red Admiral and several Speckled Woods. The highlights were several sightings of Purple Emperor on the ground, as well as at least two in the oak - so 5 at a minimum. Both male and female emperors posed obligingly for photos. The male already had a nick in its wing, probably from a previous bird attack.





Purple Emperors in Heartwood Forest Photos © Malcolm Hull

There was a moment of high drama when the two groups of butterfly spotters met on the path alongside Well Wood. When they were 20 yards apart, the male Emperor landed on the track halfway between the two groups. As they watched, a blackbird sprang out of a bush and launched an attack on the butterfly. Luckily it took swift avoiding action, shot up in the air and vanished into the woods. From 1pm they surveyed the canopy through binoculars, but without seeing any treetop action. The heat was intense and as butterfly spotters wilted and retreated to the car park there was a brief appearance from a new brood Peacock and several sightings of Oak Eggar tearing through at high speed. Finally after nearly an hour a single Emperor sailed across the canopy, though no chase ensued, perhaps too hot even for butterflies that afternoon!

A video of the Purple Emperors is on our YouTube channel here.

[https://www.youtube.com/watch?v=bdSVyEEAVdE]

The following day (18th July), Malcolm led another walk, this time at Bricket Wood Common, near St. Albans - it was another very hot day but turned out to be very rewarding. Sightings included Ringlet, newly emerged Brimstone and Peacock plus Purple Hairstreak. Silver-washed Fritillaries were soon bombing along the ride. One individual had lost

over 50% of its wing, but still engaged in duals with other males. Small and Large Skippers completed their tally along the ride. A White Admiral kept leaving and returning to the same Holly - a puzzle until they realised that honeysuckle (the larval foodplant) was growing on the Holly. In the clearing was added Marbled White, Painted Lady, Speckled Wood and finally Purple Emperor, which flew in through around and above a group of mature Sallows multiple good viewing offering opportunities.



Painted Lady photo © Malcolm Hull

Martin Johnson led a trip to Therfield Heath the next day (19th July) "in blistering heat without the shade enjoyed by those who joined the recent scheduled woodland walks!" Chalkhill Blues were easy to find in the area east of the Sporting Club (Lankester Hill and the Old Rifle Range), but they were only seen in big numbers where extracting salts from the (sadly) many clumps of dog poo! Marbled Whites were still common although declining, whilst lots of Dark Green Fritillaries were still zooming about, barely ever stopping to rest. A total of 18 species were seen, to which was added Whiteletter Hairstreaks, seen circling above Wych Elm trees on the Icknield Path between Royston and Therfield.



Essex Skipper, showing the black undersides of the antennae Photo © Martin Johnson



White-letter Hairstreak Photo © Ian Tulloch

On 11th August, Dick Middleton led a trip to Stafford Road open space, a walk where the primary target was the Brown Hairstreak. Given the report on the Branch website sightings page for 4th August, down to an actual Grid reference, it was going to be relatively easy wasn't it? Not so! The butterfly list built up en route, but the area of interest was reached and every thistle flower examined without success. The dilemma was, how long do you stand around staring at a patch of thistles? The group moved on out into the field where the males can possibly be seen up at the tops of the ash trees, without success. So, it was back to the thistle patch but still no luck. At this point they were joined by Andrew Wood who had come independently and already seen three Brown Hairstreaks, so he guided them back to the spot. It was not long before the elusive butterfly was

seen, not on thistles but on top of a bramble leaf. The narrow path made it a bit of a scramble to get a view. Totally unnecessary as it turned out, as it stayed around and moved to a thistle flower virtually at eye level and totally ignored the battery of cameras now concentrated on it.

A video of the Brown Hairstreak is on our YouTube channel <u>here</u>.

[https://www.youtube.com/watch?v=4hD0KLbt6gs]

A total of 17 butterfly species were recorded, plus several moths. Matt Lilley missed the group walk so went round on his own that day, and saw the Brown Hairstreak shown below.



Brown Hairstreak, 11th August Photo © Matt Lilley

Garden Butterflies in Herts & Middx

Since the start of the Covid outbreak, the Branch has not been able to offer dedicated in-person 'welcome' meetings for our new members. These had provided a brief introduction to the Branch and our activities, an overview of the more-common species likely to be encountered in gardens and public spaces, and an introduction to the value of recording and submitting butterfly observations.

This year, we offered an on-line Zoom session for new members, focussing on garden butterflies, essentially the same presentation as

would have been provided in a face-to-face meeting. Unfortunately, only a few new members were able to attend at the time. However, a recording can be viewed on our YouTube channel here.

[https://www.youtube.com/watch?v=WB14s KDQk8]

The presentation covers topics including identification, lifecycles, flight periods, larval food plants and good nectar sources for butterflies in your garden.

Banking on Butterflies

We have previously described the creation of chalk banks in our area in relation to habitat creation, particularly for the Small Blue. The project described below is a new project that extends this concept to explore the use of such banks as a way of helping butterflies cope with climate change. The test areas are just outside our Branch area, at reserves in Bedfordshire that will be familiar to many of our members - editor.

The Banking on Butterflies project links Cambridgeshire and Bedfordshire Wildlife Trusts with the University of Cambridge Zoology dept, looking at mitigating impacts of climate change for temperature sensitive butterflies. Topographical features (banks) will be created in Bedfordshire chalk grassland providing suitable niches to help butterflies including the Small Blue, the Chalkhill Blue, and the nationally rare Duke of Burgundy. E-shaped banks at Tottenhoe and Pegsdon in Bedfordshire will create both warm and cool environments.

The project is one of 12 Wildlife Trust projects across the country which will help the UK achieve its ambition of reaching net zero carbon emissions by 2050, now in development thanks to almost £2 million in funding raised by players of People's Postcode Lottery Nature Based Solutions Fund.

The four novel habitat structures are being constructed on chalk grassland at Bedfordshire's Totternhoe and Pegsdon nature reserves, and the study will look in detail at how man-made sheltered and unsheltered banks can provide a range of micro- habitats and microclimates to benefit a wide variety of species in a changing

climate. This is pioneering research being the first experiment looking at the effectiveness of bank design in relation to mitigating the effects of climate change. Researchers will record and analyse data (including the temperature of the butterflies themselves) to determine the success of the scheme, which could then be mirrored at other sites. Protecting and boosting the abundance of insects is central to restoring functioning ecosystems, which are so critical to tackling the climate crisis.



The project builds on previous collaborative studies investigating microhabitats for butterflies on Wildlife Trust nature reserves. From this research, the team have a detailed understanding of which types of habitat features are important to butterflies. The next step is to design and test features providing microhabitats with different climatic conditions. As the climate changes, other factors may become more important – for example cooler, north-facing areas may potentially provide greater protection from higher temperatures. The creation of habitat features can also help the movement of wildlife through the landscape – improved connectivity can prevent species becoming trapped in dwindling pockets of suitable habitat.

The proposed E-shaped banks have been designed to provide a variety of conditions and degrees of shelter that will be studied over several years, and results from careful monitoring will enable these expert conservationists to improve habitat management and to better advise others on creating similar features.

Complementing this, four identical banks will be built at Pegsdon

nature reserve, funded by the Cambridge Conservation Initiative (CCI) who have awarded a knowledge-exchange PhD student for work researching chalk grassland butterflies.

The project's specific outputs are:

- Building four topographical features in chalk grassland, providing sheltered and exposed slopes and different microclimates
- Clearing a large area of scrub in an existing gully to expose a new area of sheltered chalk grassland, providing additional microhabitats for a range of specialist species. Existing grassy gullies are known to be of particular importance to butterflies, especially the rare Duke of Burgundy.
- Build dataset of the microhabitats, microclimates and butterflies using them: these data will be analysed to determine which features are most beneficial for species conservation with predicted climate change effects.
- Produce a clear, practical guide for others on the creation and monitoring of similar habitat features.
- Communicate the benefits of this work to a wide audience, developing a legacy for the continuation of the project and rollout at other sites.



Committee Contacts & Internet Links

Chair: Malcolm Hull 11 Abbey View Road, St. Albans, Herts. AL3 4QL
Branch Organiser: Liz Goodyear 7 Chestnut Avenue, Ware, Herts., SG12 7JE
Membership Secretary & Newsletter Editor: Ian Small 59 Penn Way, Letchworth, Herts. SG6 2SH(01462) 677654 ian-small@virginmedia.com
Records Collator: Andrew Wood 93 Bengeo Street, Hertford, Herts. SG14 3EZ
Moth Officer: John Murray Field End, Marshalls Heath, Wheathampstead, Herts. AL4 8HS(01582) 833544 J.B.Murray@open.ac.uk
London Contact: Paul Busby 113 Southbourne Gardens, Ruislip, Middx, HA4 9TA
EBG Liaison: Roger Gibbons
7 Lowlands, Hatfield AL9 5DYgibfam@ntlworld.com
Treasurer: Clifford Mullet
Millhoppers Reserve Managers:millhoppers@hertsmiddx-butterflies.org.uk Paula Reid, Christine Ridley and Chris Hilling
Press Officer: Alex Lewislemsfordalex@gmail.com
Webmaster: Peter Clarke, 13 Lyndale, Stevenage, SG1 1UB

ouTube: https://www.youtube.com/channel/ UCaCAEhhhxWKlw7iTJA9G5GA

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