ISSUE 75 SPRING 2024

Cornwall Butterfly Observer



Butterfly Conservation
Saving butterflies, moths and our environment

Cornwall Branch
www.cornwall-butterfly-conservation.org.uk



Front cover: An American Painted Lady seen on 24th October 2023 on St Mary's, Isles of Scilly, and one of several seen there last autumn. Thanks to Will Scott for this superb photograph.

This page: Monitoring Pearl-bordered Fritillary. Hard Hills, Marsland Nature Reserve (Photo: Andrew Thomas)

Back cover: Flame Brocade (Photo: Richard Wall, Paul Fallon)

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Post from the Chair

Dear Reader,

I am writing this in the final days of February under a hefty downpour.

There are reasons to be cheerful though, as you will see in this edition of the Cornwall Butterfly Observer.

First and foremost, we have had the best habitat management season since before the pandemic, with nearly weekly work parties. Membership has increased significantly and our finances are looking very healthy.

(If you still need cheering up then you could take a look at the list of Field Trips, which begin just around the corner in May. Guaranteed to remind you of sunnier days.)

Moving on to recording, you'll be delighted to discover not only a wealth of notable sightings and range expansions of several nationally scarce moths, but also the first-ever British record of the Prickly-Juniper Pug. On the butterfly front, the year has seen a record-breaking 160,000 records across 41 species, thanks to the dedication of our recorders.

Now, if you've ever thought the Meadow Brown was one of the less interesting butterflies, Jerry Dennis' article is about to change your mind. He reveals hidden aspects of its life cycle that will surprise you.

Speaking of fascinating behaviours, you might know that Marsh Fritillary caterpillars feed on Devils-bit Scabious. But what happens after they demolish the whole plant? Alan Stapleton, a keen observer, has uncovered many surprises not mentioned in the books, offering a glimpse into their hidden world.

Looking for a real-life example of successful collaboration in conservation? Sue Allen's piece on landscapes demonstrates how committed volunteers, expert consultants, and organizations like CWT, Cormac, Natural England, and the Cornish Mining World Heritage Site are the stuff that CBC's work is built from.

A great many of you enjoyed our resumption of CBC Day last September - well make sure you put the date of the next one in your diaries for 28th September 2024 at St Erme Community Centre, Trispen.

On a personal note, Liz and I will be handing over the baton as Chairs of CBC in June. We wish our successor all the best!

Andrew Thomas
Joint Chair, Cornwall Butterfly Conservation

Introducing your Branch Committee

Continuing our series of who's who on the CBC Committee. Find out more about Mac McLeod.

My name's Mac McLeod. I grew up on the edge of Bodmin Moor near St Breward in a hamlet of two domestic houses and two farms before moving to live in Falmouth at the age of 11. My early years were spent out doors exploring the lanes, fields and woods and the banks of the River Camel. Looking back I had an exceptional amount of freedom to roam at will in the local landscape. I'm now in my 70s and remember seeing the farmers hand milking cows, using horse-drawn ploughs and reaping machines, stooks, haystack building and the community of local farmers gathering to help each other bring the harvest in. An agricultural way of life not unlike Thomas Hardy's rural landscape. My love of the outdoors has continued throughout my life.

"My love of the outdoors has continued throughout my life."



The post second world war drive to intensive agriculture has transformed farming and, as we are now aware, has been the cause of declining populations of flora and fauna. Much of our countryside is a barren desert, a flowerless monoculture of fast growing rye grass. Walking in the countryside I have witnessed how Government Country Stewardship grants improve, enhance and protect the natural environment. I thought about how I could contribute to nature recovery. Having retired I was motivated by our events committee member, Sue Allen, to get involved in volunteering for Cornwall Butterfly Branch's habitat management events and field trips. When Butterfly Conservation presented their 2021-2026 Landscape Strategy plan I became particularly involved in one of the three identified most important landscape areas in Cornwall: The Cornish World Heritage Mining Site, to improve the condition of the landscape for butterflies and moths.

I also volunteer for Cornwall Wildlife Trust carrying out habitat management tasks.

It's easy for anyone to do their "bit", let your garden go wild and don't cut the grass in May.

Something Spectacular about the Meadow Brown

Jerry Dennis outlines the remarkable life cycle of this common butterfly.

The Meadow Brown is one of the Satyrinae species ('the browns'). Although it is relatively large as brown species go, it is described as 'unspectacular' by Jeremy Thomas in his excellent guide The Butterflies of Britain and Ireland (Bloomsbury, 2014), as it has simple brown wing colouration, and the most notable feature is the eye marking at the



A female (ab. bioculata) displaying ample orange wing patches (Photo: Steve Batt)

apex of the forewing. The females are slightly larger and have ample orange patches on the forewings and more contrasting hindwing colours.

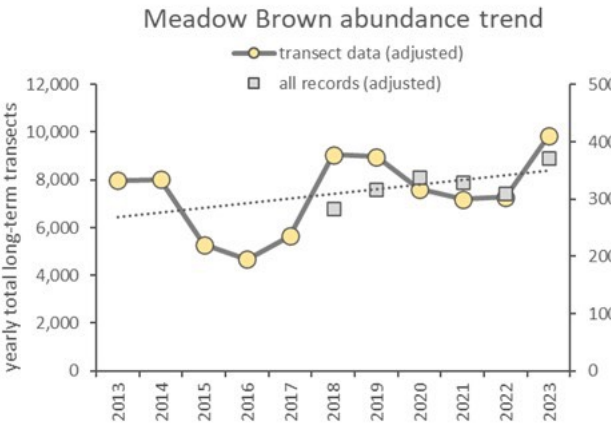
The males are more plainly patterned, and a view of a perching male showing only its lower underwing is one of the drabbest butterfly sights you can encounter. It is, however, effective camouflage.



A male Meadow Brown with two prominent hindwing dots. (Photo: Jerry Dennis)

There is considerable variation in the wing markings across Britain and four different sub-species are recognised. There are small dark-coloured dots on the hindwing, and incidentally, this is a good feature to look for when identifying a specimen and to rule out a Gatekeeper that has white dots. These dot markings vary from place to place and through the summer months. They have been much studied and, along with the eye marking on the forewing, are thought to help to confuse predatory birds into pecking the wings and not the body of the insect. Recent research suggests that the number of Meadow Brown dots on females are fewer when they pupate in warmer temperatures, and this may be a future consequence of climate change.

The Meadow Brown is our commonest Cornish butterfly as its numbers are the highest of any species recorded each year and its yearly distribution is second only to that of the Red Admiral. It occurs



enough transect data available to extend the study further backwards to understand whether this is part of a longer-term trend or a shorter-term episode.

In one regard, the Meadow Brown is spectacular, as its brood is of exceptionally long duration. We will see that this is due to the amazing abilities of its caterpillars. Like the other Cornish Satyrinae species, of which there are seven, the

throughout the county in many places where there is unimproved and open grassland and where the grass is allowed to grow naturally.

There is good evidence that abundance has increased recently. The first graph shows the total number of Meadow Browns seen on the same long-term transects using yellow circles. The dotted trend line indicates that Meadow Brown numbers have increased by c. 3% per year since 2013 on these transects. I have also plotted adjusted total yearly numbers since 2018, shown with grey squares, that have a similar trend and so the transect trend is likely to be representative of the county-wide trend.

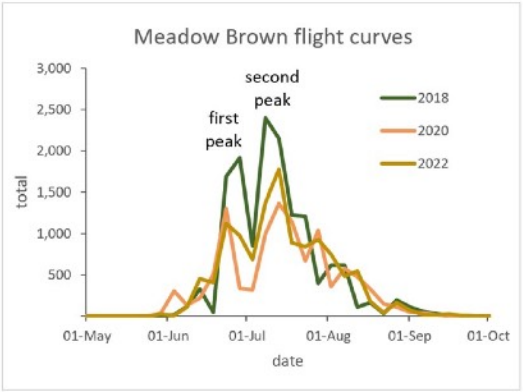
This recent increase is not unique to the Meadow Brown and a dozen other species including the Gatekeeper and Red Admiral have increasing abundance on these transects during this period. A warming of summer temperatures in the last decade may have been a factor, and the reduction of the number of birds that predate butterfly caterpillars may also be significant. Unfortunately, we do not have



A fourth instar Meadow Brown caterpillar (Photo: Peter Eeles)

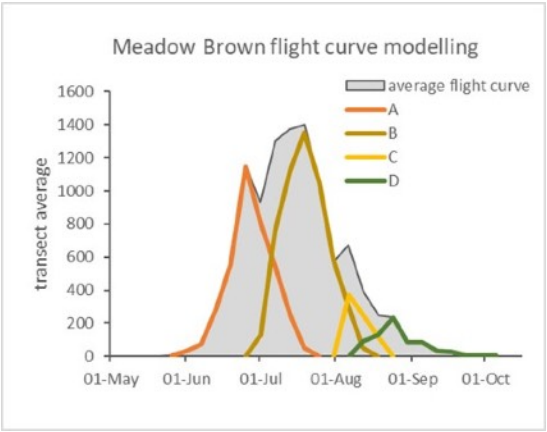
Meadow Brown hibernates through the winter months as a caterpillar. (The Speckled Wood is an exception as it can

also hibernate as a pupa, a subject of one of my previous articles.) On awakening in the spring, the caterpillars begin to feed and mature sufficiently to pupate in the spring and early summer. Emergence begins as early as May, with numbers ramping up to achieve a plateau in late June and July followed by a long population tail extending through August and September. These observations have led to speculation that the butterfly may have a small second brood, although I think this is unlikely as discussed later in the article.



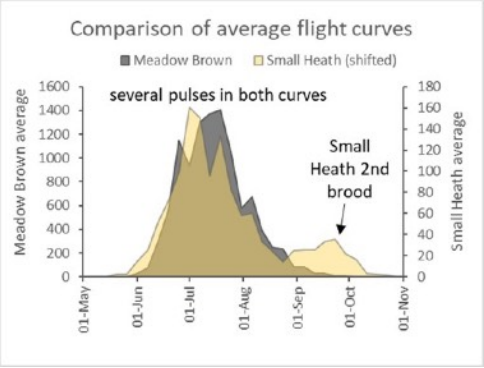
Additionally, there are small numbers of Meadow Browns seen by reliable recording eyes in mild winters between November and April. This is evidence of continuous brooding; a situation where caterpillars can successfully continue their development during the colder winter months, and they can then pupate in winter and early spring.
Three recent Meadow Brown yearly flight curves are shown on the second graph. A close examination reveals that they all have two pronounced peaks, the first in late June and the second in mid-July.

It turns out that this is a consequence of how the Meadow Brown copes with winter hibernation, also known as diapause. Nearly all the thirty-one British butterfly species that spend winter as caterpillars do so in a particular larval instar, usually third or fourth. The instars are the caterpillar growth periods between skin moults. A handful of species are known to be able to survive winter in more than one instar and the Meadow Brown and another brown species, the Small Heath, exhibit this flexibility, or plasticity. Peter Eeles, in his superb book Life Cycles of British and Irish Butterflies (Pisces, 2019), notes that the Meadow Brown is known to be able to overwinter in several of its six instars, specifically second, third and fourth.



A simple deconvolution of the average Meadow Brown flight curve based on transect data is shown on the third graph. The curve is broken down into four population-like components A to D (the average flight curve is the sum of A, B, C and D).

The two peaks highlighted on the second graph correspond to components A and B of the average flight curve deconvolution. Logically, the adults that were the most mature winter instars emerge first, having one less moult and instar to progress than the next maturest instar. It follows that component A is likely to be a pulse of adult emergence in this instar and the best information available is that this is the fourth instar. Consequently, component B is likely to be the emergence pulse of overwintering caterpillars in third instar. The peaks of A and B are separated by c. 24 days, suggesting that this is the time required to complete the third instar in spring.



Components C and D are much smaller and less regular. C may represent the emergence of overwintering second instar caterpillars and, again, the peaks of B and C are separated by c. 24 days. Component D may even represent the adults from first instar overwintering caterpillars. Alternatively, it is the most promising candidate for a small second brood.



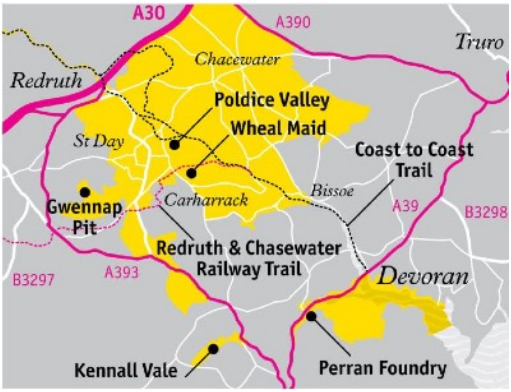
A copulating pair, with the female on the left (Photo: Steve Batt)

The final plot, and apologies to those of you who don't do graphs, compares the average flight curves of two brown species known to have plasticity in larval diapause – the Meadow Brown and Small Heath. I have shifted the Small Heath curve later by 12 days and used the secondary y-axis to roughly overlay the two curves. Both show very similar character, with three peaks between June and August and with a complex first brood of similar overall duration. This is consistent with emergence pulses of at least three overwintering larval instars for both species. The Small Heath second brood, however, has a different character to that of the tail of the Meadow Brown flight curve and strongly suggests that the Meadow Brown does not routinely have a second brood.

I hope that this article has given you a better appreciation of this versatile and still common species and that you will enjoy seeing and recording it on this year's hot summer days.

Landscape News

Sue Allen updates us on CBC's work on the mining sites

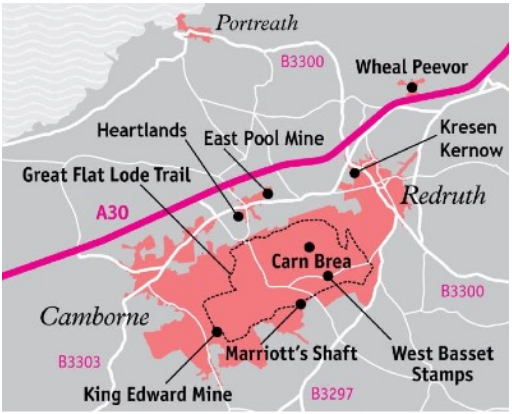


Poldice Valley

Landscapes are an essential tenet of our 5 Year Strategy and the Cornish Mining World Heritage sites (CMWHS) are one of the landscapes we are focusing on. A small team are collating data from previous site assessments and butterfly surveys and are formulating a plan to improve connectivity across the Camborne/ Redruth and Gwennap CMWHS. A network of mining trails intersect here including the Coast to Coast route and The Great Flat Lode which connect some of the important sites.

We hope to commission Marcus Rhodes PhD to do further surveys of selected sites to produce a conservation plan to help some of our rarer species that use these habitats. The butterflies we are focusing on are Silver-studded Blue, Grayling, Dingy Skipper, Small Pearl-bordered Fritillary, Small Heath and Wall.

Our mining sites are heavily polluted but have surprisingly high conservation value. Poldice and West Basset Stamps are designated Sites of Special Scientific Interest (SSSI) for their bryophytes. We have already started work on these sites having gained permission from Natural England, and support from the Mining Villages Regeneration Group, and Cormac who manage them. At Poldice we have cut some buddleia in an area with a small population of Silver-studded Blue butterflies. There is a large amount of this non-native plant dominating the area south of the chimney and spreading into the heathland. Nearby we have also brushcut two10m x10m plots and scraped two more areas where the heather is leggy and dense.



West Basset Stamps

We are aiming to encourage new growth of heathers, covering a range of ages and opening up small areas of bare ground, which we hope will benefit the ant, Lasius niger. Silver-studded Blues use the heather as a larval foodplant and have a symbiotic relationship with the ant.



Scraping at Poldice (Photo: Sue Allen)

At West Basset Stamps we face a different set of circumstances. The dressing floor is very overgrown with vegetation including willow, cotoneaster and brambles. The Wall butterfly has been recorded here and we want to help, carefully, to reveal the archaeology. We have had several volunteer days cutting and treating the woody species and clearing the buddles. Further down the site is a grassy area where Dingy Skipper were recorded last year. We have enlarged this area by pushing back the scrubby willow and cotoneaster and cut back bramble on the other side of the path. The sloping heathland area below the chimney has become invaded by gorse, cotoneaster and bracken so we are clearing this sunny spot that is good for butterflies, bees, insects and birds.

The work we are doing, by removing invasive and non-native vegetation, will improve habitat for Silver-studded Blues, on Poldice, and Dingy Skipper and Wall on West Basset Stamps. It will also help the industrial heritage looked after by CMWHS Office who are supportive of our work.



Clearing scrub at West Bassett Stamps (Photo: Sue Allen)

CORNWALL BUTTERFLY CONSERVATION FIELD TRIPS AND EVENTS 2024

Welcome to Cornwall Butterfly Conservation's programme of field trips for 2024; an exciting mix of new sites and old favourites. As before, we have also organised a few trips in partnership with other local conservation organisations. Increasingly, the importance of recording is recognised so we will be encouraging everyone to note what they find on these field trips so that we can continue to build a better picture of Lepidoptera distribution across Cornwall.

Our field trips are fun and friendly and open to all - including accompanied children - whatever level of experience you have and you do not need to be a member of Cornwall Butterfly Conservation. Please always come prepared for Cornwall's changeable weather and mixed terrain – waterproofs, good walking shoes or boots, sun cream etc., as well as water and lunch/snacks. Please be aware that we would prefer dogs not to be brought because we are in wildlife sensitive areas.

Postcodes have been included. However, please bear in mind that they may not be as accurate as 6 figure grid references in pinpointing meeting places, and What 3 Words can take you right to your parking place! www.gridreferencefinder.com and www.what3words.com Please check our website and social media prior to each field trip in case of cancellation due to weather or other complications. You can also check our website events page http://www.cornwall-butterfly-conservation.org.uk/events.html for upcoming events. Or contact Sue Allen on 01872 240246, 078849 74528 or events@cornwall-butterfly-conservation.org.uk

This year we are looking further afield for our butterfly experiences and have teamed up with Devon Butterfly Conservation who have kindly invited us to look at the field trip list on their website https://butterfly-conservation.org/in-your-area/devon-branch Devon has several butterflies not found in Cornwall, including Small Blue, Brown Hairstreak, High Brown Fritillary, White Admiral and Wood White. They also have several colonies of White-letter Hairstreaks.

Saturday 18th May: FELLOVER BRAKE
Near St. Breward 12 noon
A meeting where we are likely to see some of the UK's most declining and endangered butterflies, the Pearl-bordered Fritillary, and the Small Pearl-bordered Fritillary at this hillside known to be reliable for them. Directions: meet at the St Breward War memorial (SX 09674 77459), W3W belts.scarcely.nuptials. Post code PL30 4PR.

Parking is available along the verge of the road / lay-by nearby. Please bring a packed lunch.
Leaders and contact: Liz and Andrew Thomas (chair@cornwall-butterfly-conservation.org.uk or 01503 221105)

Monday 20th May: THE BUTTERFLIES OF PENHALE

Near Cubert 9:45 for 10am

This is a joint walk with Cornwall Wildlife Trust (CWT) which will be led by Jon Cripps, CWT ranger. We will also be joined by Ian Bennallick of Botanical Cornwall who will introduce us to a variety of spring wild flowers. We hope to find Brown Argus, Dingy Skipper and the Grizzled Skipper which is now only located on this site in Cornwall. Please meet by the M.O.D. South Gate near Treworthen Farm, Cubert (SW783567). Postcode for Treworthen Farm, TR8 5PZ. W3W busy.nest.degrading Please bring a packed lunch. Places are limited so booking is **essential** for this one. Please note there is no phone signal at the South Gate.

Leaders: Jon Cripps and Steve Batt. Booking essential Contact: Sue Allen events@cornwall-butterfly-conservation.org.uk (01872 240246 or 0788 4974528)

Saturday 1st June: CHAPEL PORTH

Near St Agnes 11am

Join us looking for Green Hairstreak butterflies along this beautiful cliff walk. The terrain can be steep and rough in places, so we advise a walking pole and sturdy footwear, but the views are spectacular. Meet at Wheal Coates National Trust (NT) cliff top car park (not the beach car park) (SW702500) TR5 0NT. W3W flute.baguette.crucially Please note that there is a parking charge for non-NT members. Please bring a packed lunch.

Leaders and contact: Kathy Wood (01872 864344) and Sue Allen

Saturday 8th June: GOONHILLY DOWNS

Near Helston 11am

Join us on an exciting new field trip in partnership with the Natural England (NE) team on The Lizard. Goonhilly Downs house a significant number of our rarer butterflies including Marsh Fritillary, Grayling, Silver-studded Blue, Small Heath and Small Pearl-bordered Fritillary. The NE team will lead us to a location in Central Goonhilly where Marsh Fritillary were recorded last year. Meet at Dry Tree car park in the National Nature Reserve (near the Earth Station) on the B3293 St Keverne road (SW730212) W3W magpie.marathons.ticked Bring a packed lunch and wellies in case it's wet underfoot!

Leaders Duncan Lyne and Ed O'Connor (NE) Contact Sue Allen (0788 4974528)

Sunday 9th June: GREENSCOOMBE WOOD

Near Luckett 10:30

Come and join us on a field trip to Cornwall's only site for the nationally rare Heath Fritillary butterfly which is now established here after a successful reintroduction in 2006. This walk has several steep inclines that can be slippery, so we advise a walking pole and sturdy footwear. Local expert on the species, Richard Vulliamy will be leading the trip and we will be joined by members of the Cornwall Butterfly and Moth Society. Meet in Luckett Village car park, (SX 38915 73657). PL17 8NJ. W3W shorter.bring.agreement. Please bring a packed lunch.

Leader: Richard Vulliamy. Contact: Liz and Andrew Thomas (chair@cornwall-butterfly-conservation.org.uk or 01503 221105)

Tuesday 11th June: ST BREWARD
St Breward 11am
Alan Stapleton our Marsh Fritillary Species Champion is leading us through the colonies on his doorstep at Church Hay Down, Churchtown Marsh, Irish Farm and Lady Down. We may also see Small Pearl-bordered Fritillary. This is very rough terrain, wellies are essential and walking poles advised. Bring a packed lunch. Parking at "Treverran", St Breward, PL30 4PE (SX101771) W3W tearfully.comic.fuel
Leaders and contact: Alan Stapleton (01208 850085) and Sue Allen

Tuesday 18th June: CUBERT COMMON
Near Crantock 11am
Cubert Common is one of the few enclosed commons in England. It is a gently undulating area of sandy grassland owned by the National Trust (NT) and designated as a Site of Special Scientific Interest. We will be looking out for a wide variety of butterflies (including Brown Argus, Dark Green Fritillary, Silver-studded Blue and Small Heath); moths; other invertebrates and rare plants. Meeting point is the NT Car Park near Polly Joke beach, (SW776599) TR8 5QS. W3W dusty.advances.duplicity This is a relatively small car park so car sharing is advised. Directions: Drive through Crantock village and shortly after turn left onto the road to Treago farm. Drive through the farm and follow the track and park in the NT car park (note that at Treago Farm there is a gate crossing the track which you will need to open and close). Please bring a packed lunch.
Leader and contact: Tristram Besterman (077966 60057) and Steve Batt

Saturday 22nd or Sunday 23rd June: MOTH EVENT
Near Helston 9am
Two CBC volunteers have kindly invited us to visit their lovely garden and adjacent meadow and wood. Weather permitting, they will put the traps out on the night of 21st June. The traps will be closed early in the morning and kept in the shade until we are ready to unpack them and identify the moths. Because of limited parking space and possible date change due to weather, booking is **essential** and we will send out the details near the time.
Leaders: Kathy Wood and Sue Allen. Booking essential Contact: Sue Allen events@cornwall-butterfly-conservation.org.uk (01872 240246 or 0788 4974528)

Thursday 27th June: UPTON TOWANS
Near Hayle 11am
Join us on a walk through this extensive sand dune complex situated between Gwithian and Hayle: a Cornwall Wildlife Trust (CWT) reserve and a Site of Special Scientific Interest. The main target species will be Dark Green Fritillary and Silver-studded Blue but there will be many other lepidoptera species and other wildlife to see. Meet by the gate, in front of the large chimney at the entrance to the CWT reserve (SW580396) TR27 5BJ W3W last.sprinkler.fortunate Please bring a packed lunch.
Leaders and contact: Dick Goodere (01736 753077) and Jerry Dennis

Saturday 6th July: POLDICE
Near St Day 11am
The landscape in this valley bears witness to the concentrated mining

activities that took place in this World Heritage Site. The area, at first, looks to be the last place to search for butterflies, but even in this barren, polluted landscape plants have become established and butterflies have found a niche, including Silver-studded Blue, Small Heath and, later in the season, Grayling. This large site has many ruined mine buildings and uneven/steep tracks which are shared by cyclists, so we advise a walking pole and sturdy footwear. Meet by the lay-by (SW737430) opposite Truro Auction Centre TR16 5PZ W3W snooping.struck.olive There is more parking a little further along the road towards Crofthandy on the left (SW738429) W3W strong.cookies.forwarded Please bring a packed lunch.
Leaders and contacts: Sue Allen (0788 4974528) and Mac McLeod

Wednesday 10th July: CABILLA WOODS
Glyn Valley (3 miles east of Bodmin) 12 noon
Join us for this walk through the Cornwall Wildlife Trust (CWT) reserve described as "one of the largest and possibly finest ancient woodland in Cornwall". Our target species is the Silver-washed Fritillary with a chance of seeing the aberration f. valezina. There should also be many other butterflies including Comma, Ringlet and Gatekeeper. We will be joined by CWT ranger Stuart Mathieson who will tell us about the practical conservation work he is doing. Please bring a packed lunch. Directions: Proceed along the A38 from the A30 heading towards Liskeard. About a mile past the Bodmin Parkway junction, turn left down Le Ball Hill. Cross over a small bridge and immediately turn right. There are some places for parking (SX129652) PL30 4BE but these are limited, so car sharing is advised. W3W recliner.elbow.nurses
Leader: Kelly Uren. Contact: Sue Allen (0788 4974528)

Sunday 14th July: PENLEE RESERVE AND PENLEE POINT
Near Rame Head 11am
We expect to see a meadow full of Marbled Whites, Meadow Browns and Gatekeepers, as well as seeing Small Heath and Dark Green Fritillary, on this walk. Spectacular views from this south coast meadow that is buzzing with life! Six-belted Clearwing moths are also recorded here and we hope to lure some for you to see! Please bring a packed lunch. Meet in Penlee Battery car park (SX437491) PL10 1LG. W3W outfit.power.butternut
Leader: Steve Batt. Contact: Sue Allen (0788 4974528)

Saturday 20th July: CHURCHTOWN FARM
Saltash 1pm
We are joining Friends of Churchtown Farm (FOCF) for a walk identifying and learning about the butterflies and moths that make their home at this Cornwall Wildlife Trust (CWT) reserve on the banks of the river Lynher. A donation of £2 is suggested for those not members of CWT or FOCF. Directions: Meet by St Stephen's Church opposite The Cecil Arms on the junction of St Stephen's

Road and Farm Lane. (SX417583) PL12 4AR W3W transcribes.toasters.alike It is about a mile from Saltash Railway Station, there is a local bus link to St Stephen.
Leaders and contact: Kelly Uren (074293 54011) and Sue Allen (0788 4974528)

Tuesday 23rd July: CARNON VALLEY
Near Devoran 11am
Join us for a walk along the Carnon Valley in a landscape still dominated by the mining industry. The area has been visited regularly for our Mining for Butterflies project. This gentle walk uses the Coast-to-Coast cycle/walking track from Carnon Valley Car Park to Bissoe Bike Hire and St Piran Cafe (where there are toilets) and back. We hope to see plenty of common butterflies and near the pools along the way, dragonflies, maybe even the Scarce Blue-tailed Damselfly. We will explore Cornwall Wildlife Trust Bissoe Valley Nature Reserve and the Arsenic Works where the Silver-studded Blue butterfly has been recorded. Please bring a packed lunch. Directions: From the A39 at the Devoran roundabout take the road heading towards Bissoe. Go straight over the first cross roads, under the viaduct then take the next left and the car park is on your right. (SW783408) TR37LN W3W thrilled.whispers.clinking
Leaders and contact: Sue Allen (0788 4974528) and Mac McLeod

Sunday 28th July: GODOLPHIN WOODS
Near Godolphin 1.30pm
Join us for this interesting walk, through Godolphin Woods. There will be a wide variety of lepidoptera but the target species will be the Purple Hairstreak. Directions: Coming from Leedstown, turn left at Townshend, then at Godolphin Bridge the road swings to the left; some distance along this section there is a parking area on the left where a track runs down to the river. It is possible to park here, but it is better to drive down the short track and park in the larger car park at the bottom (on the right) at (SW600324) TR13 9RE W3W cabbage.lifeguard.sung
Leaders: Jerry Dennis (07956 041263) and Sue Allen

Saturday 10th August: NEWLYN DOWNS
Near St Newlyn East 11am
Join us in exploring this SSSI and Special Area of Conservation. Newlyn Downs is a large area of wet and dry heath with four heather species, including the nationally rare Dorset Heath Erica ciliaris. It has previously been mined and quarried, resulting in bare ground and areas of gravel. We will be searching for Grayling, Silver-washed Fritillary, Wall and Small Heath and hope to see heathland plants and insects including dragonflies and damselflies. Meet in the layby opposite the entrance TR85LQ (East Wheal Rose Farm) SW836552 W3W bulldozer.ditching.arose Bring a packed lunch.
Leaders and contact: Sue Allen (0788 4974528) and Mac McLeod

Thursday 15th August: GWENNAP HEAD AND PORTHGWARRA
Near Land's End 10.30am
This beautiful location boasts an abundance of butterflies, including Grayling, Small Pearl-bordered Fritillary, Clouded Yellow, Small Heath and many more. Meet in the Porthgwarra car park

(SW370217) where charges apply TR19 6JR (café) W3W stop.dragonfly.path Please bring a packed lunch.
Leaders and contact: Jerry Dennis (079560 41263) and Sue Allen

Thursday/Friday 22nd/23rd August: WINDMILL FARM NATURE RESERVE MOTH EVENT

Near The Lizard 8pm on 22nd 9am on 23rd.

Windmill Farm was purchased jointly by the Cornwall Bird Watching and Preservation Society and Cornwall Wildlife Trust (CWT) in 2001. This 85ha (210 acre) farm is home to an array of habitats including wet and dry heaths, hay meadows, wetland, ponds, and arable land. The mix of habitats means the site is home to a huge variety of plant, bird, and invertebrate species.
Dougy is going to introduce us to the moths found in the area. You are welcome to join us on the evening of 22nd for the launch of this event when Dougy sets up his traps and stay to see the first moths arrive and/or join us the next morning in the Field Studies Centre at the reserve as Dougy opens the traps.
After the moth event Sue will be happy to take you for a walk though the reserve where we would hope to see late summer butterflies, including the Small Pearl-bordered Fritillary and the Grayling, and, around the pools, dragonflies, and damselflies. There is also the chance of seeing Marsh Fritillary larval webs. Meet at the car park by the windmill which is down a lane off the A3083 (SW693152) TR12 7LH W3W lamp.sparkle.prevented Please note dogs are not allowed anywhere on this site. If you want to stay and walk around the reserve, please bring a packed lunch.
Leader: Dougy Wright CWT volunteer warden. Contact: Sue Allen (0788 4974528)

Details of all these field trips can be found on our CBC website: http://www.cornwall-butterfly-conservation.org.uk/events.html
Don't forget to have a look over the border to get the chance to see some different species in Devon (whose field trips need to be booked).

PLEASE CHECK OUR WEBSITE AND SOCIAL MEDIA BEFORE EVERY EVENT IN CASE WE HAVE HAD TO MAKE CHANGES OR CANCELLATIONS

Recording

The latest updates from our County Recorders

Butterfly Monitoring

Kelly Uren describes two monitoring methods

NEW YEAR – NEW BEGINNINGS

After what has felt like an incredibly long, wet winter we are beginning to see signs of brighter days ahead. Spring is starting to show signs of emerging in all her beauty. We have the promise of longer, warmer days to look forward to, and alongside that it will soon be time to say hello to wondrous and diverse insect life, the presence of which I miss so much during the winter months. Insects truly

are jewels which brighten the landscape immensely and they can sometimes appear in the most unexpected of places. The joy of seeing my first butterfly of the year has become an annual highlight for me. Incidentally at the time of writing this article (in late February) I have yet to be treated to this spectacle, but I am hopeful that I soon will be. As the year progresses, I then look forward to seeing various species as they emerge and go about the important business that they need to, to help them ensure species survival into the next year. It is a very delicate web of life, that it truly fascinating and a privilege to observe. If you feel the same way too, perhaps you would like to look into officially recording your butterfly sightings for the coming year? This will soon become an incredibly rewarding pastime, in which, not only will you, no doubt, become completely immersed, but your sightings will prove invaluable in helping Butterfly Conservation to capture vital data regarding the state of our precious butterflies.

Monitoring butterflies is easier than you might think.

BUTTERFLY MONITORING – HOW TO BECOME INVOLVED

Butterfly spotting is an immensely rewarding pastime, and sightings can become even more valuable if they are documented. They not only contribute to the data we gather in Cornwall, which allows us to see where particular species occur, and may in turn help us to protect those areas, but also to national data sets which reflect the state of butterfly populations. Insects have decreased at a startlingly alarming rate over recent decades, and butterflies are a particularly useful insect group to study as they are easy to see, are active during daylight hours, and no specialist equipment is needed to locate them. There are many ways in which you can contribute to the data we collect, and you do not need to have a vast butterfly knowledge as the ID skills required will soon develop as you become more involved. No experience is needed; just some free time and a keen interest in helping nature. Soon, your eyes will become open to a whole new fluttery world that you may not have even noticed. Taking time to explore the natural world also has the added benefit of being good for your physical and mental wellbeing.

Ways to become involved:

Setting up a new transect

One way to become involved is to monitor your own transect site at a location of your own choosing. This could perhaps be a favourite spot you enjoy walking or a new area you have never explored before.

Butterfly transects monitor the number and variety of butterflies present at a specific site from year to year. The data gathered feeds into the UK Butterfly Monitoring Scheme [UKBMS] which has monitored changes in the abundance of butterflies throughout the United Kingdom since 1976. Countrywide approximately 2,500 transects are monitored annually as part of this scheme. In Cornwall we currently have in the region of 50 transects being monitored by a band of invaluable

volunteers. It would be amazing if we could expand this number even further.

What's involved?

The official butterfly monitoring season starts at the beginning of April and continues until the end of September. Transect routes should ideally be walked once weekly for this period of 26 weeks, to enable the number of butterflies present each week to be recorded. Not all butterfly species emerge at the same time and so by monitoring over a wider period of time you increase the chances of seeing as many different species as possible. Additions to the UK transect network are always welcome. Transects should typically be about 1-2 km in length and take about 45-60 minutes to walk. Butterfly activity is very much weather dependent and so transect counts are carried out within specified weather criteria, which involve it being not too cold, not too cloudy and not too windy - butterfly activity is much reduced during these weather conditions. Therefore, these criteria will be helping to ensure that you will be getting out and about in glorious fine weather, and what can be better than that? **If you would like to find out more about this scheme please contact our Transect Co-Ordinators Jim Barker: jimfrances@talktalk.net or Kelly Uren: transect@cornwall-butterfly-conservation.org.uk or p5ktherese@gmail.com**

Whilst the full transect method is by far the most informative, useful data can also be acquired by using a Reduced Transect method, and comparing the data to the full transect flight periods. This ensures the data isn't skewed year on year when a species peak flight period varies from the norm. A Reduced Transect entails walking a transect route as above but only four times a year, once in each of May, June, July and August. The visits should ideally be at least three weeks apart. The transect length can also be shorter and may only be 4 x 100 metres to enable surveys on smaller sites e.g. four sides of a field or an allotment or churchyard.

'Monitoring a Wider Countryside Butterfly Survey square

Another way to become involved is to monitor a pre-determined grid square which has been identified for the Wider Countryside Butterfly Survey [WCBS]. This is a national survey, which is just about to start its 16th season of monitoring. It was established in 2009 to help improve data being gathered relating to butterfly populations across the countryside as a whole. It is an important monitoring tool as it tackles the observational bias introduced by only recording in butterfly-rich habitats. Over 800 1km squares have been randomly identified across the UK which are in need of monitoring during the peak butterfly flight period. Compared to transect recording the WCBS requires less of a time commitment - only two to four visits a year - and so makes an ideal introduction to butterfly recording - but still provides very useful information relating to the status and trends of butterflies throughout the UK. There are 25 WCBS squares located in Cornwall, but currently less than 50% of these are being monitored. Might you be able to help us increase our coverage of the

squares? **Please contact Kelly Uren our WCBS Champion if you would like to find out more details on this project and where the vacant squares are located: transect@cornwall-butterfly-conservation.org.uk or p5ktherese@gmail.com**

Moths, Spring 2024

Leon Truscott, County Moth Recorder, brings us his latest report

The following highlights are of records received for 2023 in addition to those included in the Spring 2024 Report.

On 8 May at Pentillie Castle, Phil Barden (PB) found leaf mines of Ectoedemia heringella on Quercus ilex, as he did at the same site in 2022 – the only Cornish records. Chris Vincent (CV) found Diplodoma laichartingella, unusually three adults together, at Hayle on 21 June. On 9 September at St Mellion, Steve Nash (SN) trapped Ypsolopha



Ypsolopha sequella (Photo: Steve Nash)

sequella. Although it's a common species over much of Britain, this is the first record for Cornwall. Frank Johns (FJ) recorded Barea asbolaea on 22 July at Tehidy Woods, farther east than its usual area west of Penzance. Agonopterix cnicella, a nationally scarce species, was found by Chris Lewis (CL) on St Mary's, IOS, on 27 September, a new species to Cornwall.



Agonopterix cnicella (Photo: Chris Lewis)

Tony Wilson (TW) recorded Aproaerema larseniella at Callestick on 23 June and 7 July, our first confirmed records since 2007. Paul Fallon (PF) and Richard Wall (RW), with Mick Scott, recorded Helcystogramma triannulella on St Mary's, IOS, on 17 October, the third British record, following the first two, also from St Mary's, in 2013. TW trapped Bryotropha similis at Callestick on 11 August, only the second Cornish record and new to VC1. Teleiodes vulgella is a scarce species in Cornwall. SN recorded one at St Mellion on 7 June. Finley Hutchinson (FH) found a female Coleophora peribenanderi at Tremough on 22 June, the fourth Cornish record and the first since 1981. CV found Coleophora adspersella at Godrevy Warren on 22 June, the third record for Cornwall. On 17 September, George Tordoff found tenanted mines of Elachista gangabella on Brachypodium

sylvaticum, the third Cornish record and new to VC2. On 23 June, John Cook (JC) and Marilyn Edyvean (ME) trapped Mompha ochraceella on Goss Moor, just the seventh Cornish record, new to VC2, and the first away from the north coast. PB found Pachyrhabda steropodes at Pentillie Castle on 7 May, the second Cornish Record.

The occasional migrant Tebenna micalis was reported from two sites: at Newquay on 9 October (JC, ME) followed by reports from Bob Dawson from St Mary's, IOS, who found 25 between 12 November and 1 December, including a count of 18 on 25 November. ME added to the huge numbers of Tortrix viridana (Green Oak Tortrix) reported in the autumn report with a count of 269 on the night of 9 June at St Blazey. CV recorded Neocochylis molliculana on 17 June at Hayle, only the third record for the Cornish mainland (with five previous records from St Mary's, IOS). Barry Henwood and Phil Sterling found a larva of the nationally scarce Brevicornutia pallidana in a seedhead of Jassione montana at Rinsey Head on 19 July, only the fourth Cornish site and the first record for 20 years. FJ trapped the nationally scarce Endothenia ustulana on 22 July at Tehidy Woods, the second Cornish record. The seventh Cornish record of the nationally scarce Anania verbascalis was trapped by JC on 27 July at Glasshouse Wood, Herodsfoot. The rare Agrotera nemoralis turned up for the second time this year away from its known resident site (Mount Edgcumbe). One came to light at a "Friends of Kilminorth Wood" moth night, with Rogan Jones (RJ), on 16 June. One was recorded at this site in 2009, before the Mount Edgcumbe colony was discovered. It was a good year for the rare migrant Diplopseustis perieresalis, with five records: from Penryn on 13 June and 30 October (FH), Penzance on 17 August, Scott Barron (SB), Falmouth on 7 September, Steve Ogden (SO) and St Mellion on 1 October (SN). The latter is new to VC2. Another rare migrant is Diasemia reticularis. One recorded by George Davis (GD) on 26 September at Maenporth is only the third for Cornwall. There were six records of the migrant Antigastra catalaunalis: from Porthkerris Farm on 8 October J.H. Clarke (JHC), St Mellion on 18 October (SN), Penzance on 18 October (SB), Maenporth on 19 October (GD), St Erth on 19 October, Mike Spicer (MJS) and from Cury on 19 October (FJ). It was a good year for Hellula undalis (Old World Webworm) with thirty records mostly from the far west and Scilly, but with several from St Mellion in inland VC2 (SN). The migrant Euchromius ocellea most often turns up around January and February, but this year we had two autumn records: on 15 September at St Erth (MJS) and 12 October at Maenporth (GD).

There were two records of the rare migrant Many-lined (Costaconvexa polygrammata): on 8 September at St



Many-lined (Photo: George Davis)

Mellion (SN) and 19 October at Maenporth (GD). The only previous

record is from St Mary's, IOS, in 2018. On 1 October on St Mary's, IOS, CL



Eupithecia oxycedrata (Photo: Chris Lewis)

recorded the first British record of the Prickly-Juniper Pug (Eupithecia oxycedrata).

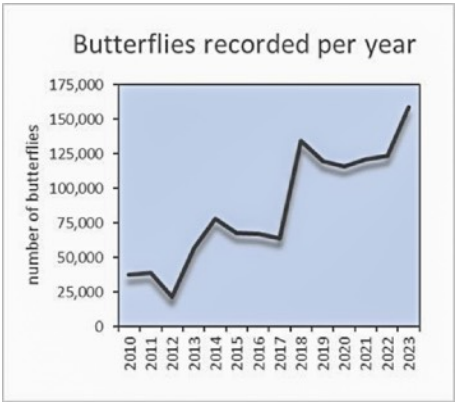
There were two records of Beautiful Marbled (Eublemma purpurina): from Callestick (TW) and Falmouth (SO), both on 5 September. There was another Rosy Underwing (Catocala electa) to add to the four previous Cornish records: on 29 September at St Mellion (SN). Most Cornish records of Slender Burnished Brass (Thysanoplusia orichalcea) are from coastal areas of the west and Scilly, but SN recorded one on 18 October at St Mellion in inland VC2. GD recorded a Golden Twin-spot (Chrysodeixis chalcites) on 23 September at Maenporth. There were two records of Tunbridge Wells Gem (Chrysodeixis acuta): on 10 October at Cury (FJ) and on 10 (&11) October at Porthcurno, by Julian Clarke (JHC). Dewick's Plusia (Macdunnoughia confusa) has previously appeared (30 times) in the far southwest and Scilly, but 2023 brought four records, for the first time, in VC2: at St Mellion on 9 July, 19 August and 16 September followed by one in my own trap in Torpoint on 26 September. It was good to see Scarce Merveille du Jour (Moma alpium) recorded again at Kilminorth Wood by the Friends of Kilminorth Wood, with RJ, on 11 & 16 June, the first success there since 2018. SN trapped a Latreille's Latin (Callopistria latreillei) on 7 October at St Mellion, the third Cornish record. SN also recorded a Tree-lichen Beauty (Cryphia algae) at St Mellion on 6 September, the third record for Cornwall and new to VC2. GD recorded a Dark Mottled Willow (Spodoptera cilium at Maenporth on 18 October. Three records of Porter's Rustic (Athetis hospes) were received: from St Mellion on 14 August and 2 October (SN) and from Maenporth on 9 October (GD). There were two records of Orache Moth (Trachea atriplicis): at Trussel on 10 June, the second VC2 record (Andy Adams) and at St Keverne on 13 June (Joe Jones). PF and RW recorded a Flame Brocade (Trigonophora flammea) on 19 October at St Mary's, IOS, the sixth Cornish record and the third from Scilly. JHC recorded a Langmaid's Yellow Underwing (Noctua janthina) on 8 October at Porthkerris Farm. It's the first documented record received for the Cornish mainland, although there have been three previous records from the Isles of Scilly.

Butterflies

Jerry Dennis, County Butterfly Recorder, reports on a record-breaking year in Cornwall and the Isles of Scilly.

Please email him at records@cornwall-butterfly-conservation.org.uk

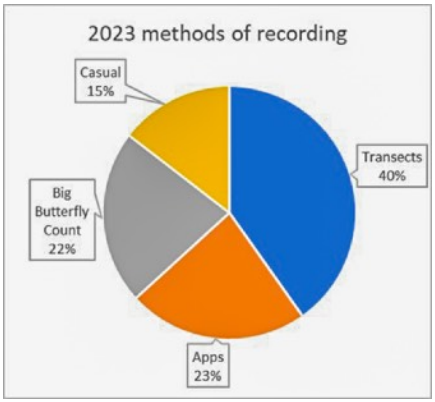
I was perhaps premature in expressing a view in last year's autumn edition that 2023 would turn out to be a 'poor year for butterflies', given that approximately two thirds of our 37 species were showing lower-than-average totals at that time. After all records were received and analysed, the overall picture changed for the better and a revised characterisation might be to recognise 2023 as a 'below average' year, because more than half of the species still fared less well than in recent times and nearly a third of them had their worst year since 2018. As in every year, there were species that did exceptionally well and those did poorly that I will highlight for you.



Importantly, I'm delighted to tell you that the number of butterflies recorded in Cornwall in 2023 smashed all previous records with 160,000 butterflies of 41 species. To put this in context, a graph of the total numbers recorded each year since 2010 trends seriously upwards with an annual increase averaging 9,000 butterflies per year as more and more of you take up the recording habit. A big thank you to all recorders for helping to achieve this amazing result. It is a very positive development in our mission to monitor the health of the butterflies breeding in our county and please continue the good work in 2024.

For those of you who enjoy seeing butterflies but have not yet been able to spend a little extra time to record them, please consider taking a notebook with you on your walks or installing the iRecord Butterflies app. on your phone so that you can make a note of when, where, and how many of each species that you come across. For those of you who are happier sending details in a spreadsheet or in an email please feel free to pass these to me using my email address above. There is a spreadsheet on our website that you can download for this purpose.

A breakdown of how you recorded and reported your sightings in 2023 is shown on the pie chart. A record 62 UKBMS transects were walked in 2023 and thanks to all who carried out the detailed weekly surveys at those sites. Over 63,000 butterflies were seen, and this represents 40% of the 2023 total. The use of phone and computer apps has been steadily increasing each year and they are proving easy to use. They accounted for nearly a quarter of the total. The national survey in July and August, the Big Butterfly Count, provided the highest yet totals with a staggering 35,000 butterflies recorded being 22% of



the total. The remaining casual records were provided in spreadsheets and emails.

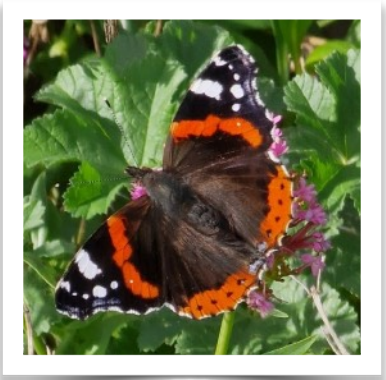
We had the highest-ever number of butterflies recorded in 2023, so why wasn't it a great butterfly year?

Because of the trend of more and more recorders each year, a fair comparison to previous yearly totals requires some sort of adjustment to estimate how many of each species might have been seen in previous years with this year's recording effort. I have analysed and applied this adjustment and then compared 2023 results with adjusted numbers for the previous five years 2018 to 2022. I won't bore you with the data machinations as the results are much more interesting and they are summarised in the table opposite.

I have organised the species into four groups and listed them in order of relative 2023 abundance in each group, the best at the top and worst at the bottom.

In the top half of the table ten of the species are coloured yellow and this signifies that the highest-ever yearly numbers occurred in 2023. Amongst these are two common species, the Red Admiral and Meadow Brown, remarkably both having 50% more sightings than in their previous best years, and the latter having by far the highest yearly abundance (37,112) of any butterfly in any year in our database.

Species	2023 total	Compared to adjusted 2018-22
Holly Blue	2,570	
Red Admiral	19,706	Highest abundance in 2023 (5)
Peacock	5,754	
Speckled Wood	13,540	
Meadow Brown	37,112	
Green Hairstreak	375	
Comma	1,658	
Orange-tip	1,479	
Small White	12,050	Higher-than-average abundance in 2023 (10)
Gatekeeper	21,561	
Grayling	2,795	
Small Pearl-bordered Fritillary	1,482	
Large White	11,213	
Brimstone	479	
Large Skipper	1,337	
Silver-washed Fritillary	649	
Marbled White	334	
Heath Fritillary	549	
Purple Hairstreak	88	
Clouded Yellow	254	Lower-than-average abundance in 2023 (10)
Green-veined White	1,901	
Marsh Fritillary	337	
Brown Argus	185	
Pearl-bordered Fritillary	319	
Painted Lady	1,198	
Wall	1,351	
Small Heath	2,000	
Small Copper	2,129	
Small Skipper	1,699	
Common Blue	4,088	Lowest abundance in 2023 (11)
Small Tortoiseshell	2,150	
Ringlet	3,335	
Dingy Skipper	73	
Dark Green Fritillary	288	
Grizzled Skipper	33	
Silver-studded Blue	2,942	



The Red Admiral was the most abundant species in last year's Big Butterfly Count (Photo: Jerry Dennis)

Species doing well in 2023

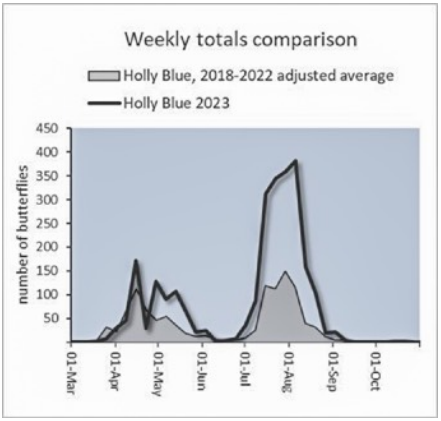
The first group coloured dark green contains five common species that had highest abundance in 2023 compared to the adjusted numbers. Many of you were able to enjoy seeing lots of Red Admirals and Peacocks in your gardens and on buddleia bushes last summer and autumn. The number of Red Admirals seen in Cornwall in the Big Butterfly Count (7,979) followed the national trend of being the species with highest abundance. Highest counts of this species were made along the south coast and Isles of Scilly during the annual southerly migration, with 100 at Looe Island on 6th October and 90 at Old Town on St Mary's on 19th October.

The Holly Blue had a remarkable year – see graph opposite - and the total seen was only lower than the incredible numbers seen in its best years 1998 and 99. Numbers were more than double the average of the preceding five years with an impressive second brood recorded. The butterfly is found in many places but rarely in large numbers and in last year's total the highest counts were only seven of between 10 and 13. There was a handful of third brood sightings made in late September and early October.

Although less colourful and possibly less memorable, two brown species Speckled Wood and Meadow Brown had good success in 2023 and made it into this group. I have written an article on the Meadow Brown in this edition, our commonest and perhaps one of our most overlooked Cornish butterflies.

Ten species are in the second group shown in light green, all with higher-than-average abundance in the comparison. In this group are two popular species highlighted in my autumn report, the details of which I won't repeat here, the Orange-tip and Green Hairstreak. In relative terms, numbers of both species were up c. 15% in 2023. The Pieridae species Large White, Small White and Brimstone and the Comma and Large Skipper also had good years and made it into this group.

Two Section 41 species, the Grayling and Small Pearl-bordered Fritillary, are also included. Monitoring of both species



has been increasing during the six years

and this is the main reason for higher-than-average numbers in 2023. Grayling surveying at Goonhilly Downs alone contributed more than 1,250 which was 45% of its yearly total. Single day counts in different parts of the site found 227 on 17th August and 234 on 19th August. The coastal colonies at Porthgwarra were



177 Small Pearl-bordered Fritillaries were recorded near Cardinham on 31st May (Photo: Jerry Dennis)

walked on 15th August with 226 counted. The highest single day count of the year (303) was at Trelow Downs on 21st August.

The Small Pearl-bordered Fritillary has mixed results with some weekly monitored sites having experienced low numbers such as at Cudden Point and Porthgwarra. Four counts above 100 were made at the prolific site Gwel-An-Nans farm near Old Cardinham in late May - early June with the best being 177 on 31st May. Good numbers (79) were seen at Hudder Down to Hell's Mouth on 5th June, the first decent survey there in several years. Best second brood numbers were 32 at Pendeen Lighthouse on 14th August.

Species doing less well in 2023

The next group of ten species are those where 2023 numbers were less than the adjusted averages for 2018-22 and coloured grey. Notable in the group are four fritillary species.

The Silver-washed Fritillary had a more typical year after its best-ever year in 2022. Reasonable numbers were seen across the county.

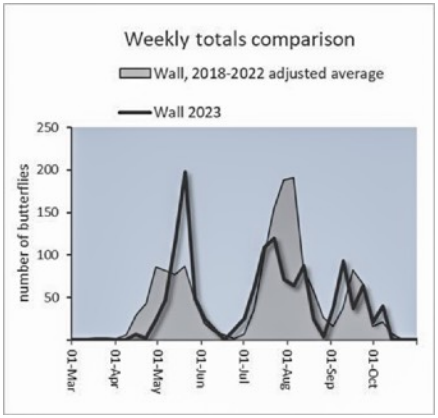
All details of Heath Fritillary monitoring at Greenscoombe Wood are not yet available, explaining why the species has less than average numbers. A near-peak survey of 170 was made on 9th June, indicating 2023 may have been on par with recent years.

Marsh Fritillary numbers were down 40% compared to recent average. In the Bodmin area there was one excellent survey organised at Carkeet on 11th June with 132 counted and many eggs found. Numbers of adults seen on the Lizard were mixed and most of the known colonies were surveyed. Predannack Cliff counts were poor with a maximum of 13 on 28th May. An exciting discovery was made by Natural England staff in the centre of Goonhilly Downs, with 29 counted on 15th June. This is a new location for the butterfly. More than 200 larval webs were recorded throughout the county in 2023.

Numbers of Pearl-bordered Fritillary were down 50% compared to recent average. All three of the known areas were visited. In the St Breward area, numbers were modest with the best count at De Lank and Pendrift of 23 on 17th May. Several counts were carried out on the south coast at Murrayton, the best of which was 41 on 14th May.

Surveys at Hard Hills, Marsland yielded 59 on 13th May.

Other species in this group include Marbled White, Purple Hairstreak, Green-veined White and Brown Argus and two of our three regular migrant species Painted Lady and Clouded Yellow.



The last group contains eleven species with the lowest totals compared to the adjusted data for years 2018 to 2022 and they are coloured white in the table.

Five of these are Section 41 species. The Wall shows an interesting comparison to the recent average as shown on the plot opposite. The first brood, albeit slightly later than average with a pronounced peak, was on par numerically with previous years and the second brood began slightly earlier after relatively warm May and June temperatures, but numbers then tailed off in the second half of the brood. The yearly numbers were 15% lower than recent average because of this.

The Small Heath had 20% fewer sightings than the recent average.

The numbers of Grizzled and Dingy Skippers were more than 60% down on recent average. This is due to a lack of recording at Penhale and Gear Sands, an area where both butterflies can be found in good numbers.

The Silver-studded Blue is at the bottom of the table and sightings were more than 75% down on the recent average and the lowest since 2009. This is a combination of a poor year compounded by a significant reduction in the amount of surveying. Totals recorded at the Upton Towans transect (1,533) were the lowest since 2012.

The single broods of three univoltine species that usually peak in mid-July, the Small Skipper (-30%), Ringlet (-50%) and Dark Green Fritillary (-60%), had poor success in 2023. All peaked about a week earlier than average but had reduced relative abundance as indicated. This suggests something systematic was happening to these unrelated species and the likely culprit was the hot and dry weather in May and June when they were in late larval stage. A speculative explanation is that the less mature larvae that were destined to emerge in the middle and end of the flight period suffered higher mortality than the more mature larvae due to a shortage of larval plants at the critical time. This may also apply to the Wall second brood as illustrated above.

Other species

I have not included the White-letter Hairstreak in the above analysis, simply because it is only known to reside at a few sites in the east of the county and it is not spotted every year. Five were seen in 2023, one in Saltash, one in Millbrook and three at Gooseham Mill, Marsland.

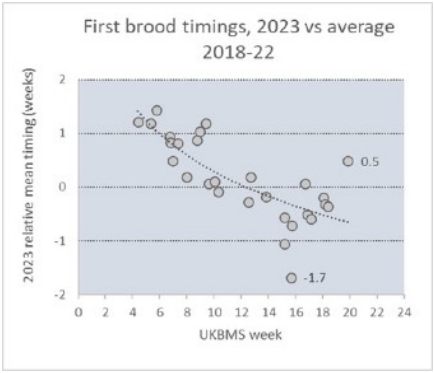
Accidental migrants

We had the best-ever year of recording of accidental species in 2023. An annual record of eight Large Tortoiseshells were seen between late June and mid-July as reported in the last edition. Later in the year in October, two Long-tailed Blues flew in in west Cornwall, three Monarchs appeared, one in Penwith and two on the Lizard.

An estimated nine American Painted Ladies turned up on St Mary's, Isles of Scilly in a three-week period from mid-October to early November to great local excitement. The total number recorded was sixteen, but multiple sightings of the same individual are known and suspected. One was found dead on Trench Lane in Old Town and has been sent for DNA and stable isotope analysis to assess provenance. Most were photographed and careful inspection revealed subtle marking variations that helped to determine just how many of this exotic species arrived on the island. I extend my thanks to Bob Dawson and Will Scott for gathering data and summarising this significant influx. The sightings are consistent with a small number of accidentals being blown to the isles by Atlantic storms and hopefully the provenance work will confirm this.

A bit of phenology

Phenology is the science of relating the rhythms seen in wildlife such as plants and invertebrates to the natural variations seen in the environment, for example air temperatures, rainfall, day length. On this topic, I have calculated the average mean brood timings of the first broods of different butterfly species for years 2018 to 2022 and then compared them to their mean brood timings in 2023. The following plot shows relative timing of each brood in 2023 compared to the average timing between 2018 and 2022. Positive numbers mean the 2023 brood was later than average, negative numbers mean the 2023 brood was earlier than average. I have used the UKBMS week terminology on the x-axis, where week 1 begins on 1st April,



week 2 begins on 7th April and so on. A remarkably clear picture emerges in the analysis.

Mean 2023 timings of all first broods for weeks 4 to 11 (up to 17th June) were relatively later than the recent average. The earlier they occurred, the later they were, and some more than a week later. This can be explained by slower life-cycle development during the cooler-than average temperatures experienced in the early part of the year.

The later the mean timing of the broods, the closer they get to the recent averages, and they cross over the zero on the y-axis around week 12 (mid-June). After week 12, most mean brood timings were earlier than the recent average. This can be explained by life cycle acceleration during the hot May and record-breaking June temperatures experienced last year.

Two outlying late mean brood timings are highlighted. The point with the value of -1.7 weeks is for the Dark Green

Fritillary. As discussed earlier, the brood may have lost more of the larvae destined to emerge in the second half of the brood and this has moved the mean timing away from the trend. The point with value 0.5 weeks is for the Grayling. This unexpectedly had a later-than-average timing despite the warmer early summer temperatures. A similar explanation may apply to this species, but in this case the more of the larvae destined to emerge in the first half of the brood may have suffered the higher mortality.



A female Grayling obliging with an open wing pose at Porthgwarra. The population was later than average in 2023 (Photo: Jerry Dennis).

The results suggest that butterflies react immediately to variations in their environment and that the weather conditions during their development as larvae and pupae affect the timing of when they finally emerge as adults. The variation in weather also affects the timing and success of the larval food plants, and these are of course critical to the success of each brood at its most vulnerable in larval stage and so both brood timing and abundance can be affected.

As our climate changes, it seems that extreme weather events such as heat waves, droughts and floods are becoming more common. Butterfly numbers of any species can be reduced during such episodes and there is not much we can do about that. The most practical thing that we can do, however, is to make sure that each species has enough of its required habitat available to it so that it is able to recover quickly after setbacks. What comes at the front of this is to effectively monitor how our species are doing and we collectively did an amazing job on this in 2023. Let's look forward to seeing all our favourite butterflies again in 2024 and of course recording as many of them as we can.

Committee reports

Treasurer's report

Branch Treasurer Sarah Board's report as of 31 January 2024

Our two Cornwall branch accounts are looking very healthy: the 'general account' for conservation work and the day-to-day operations of the branch, and a 'restricted account', which is solely for the Butterflies of Cornwall: Atlas for the Twenty-first Century publication. The funds from the restricted account can only be used for the branch's conservation work in Cornwall.

The details for each account below are based on income and expenditure for the current financial year up to and including 31 December 2023.

General Account
This account currently stands at £14,096.32 in surplus. Membership subscriptions are up on last year, raising £3,564.00 for the branch. We have raised a further £2,481.81 through our own fundraising efforts – running our stall at events, accepting donations for talks, walks and advice given. This has generated an overall income so far this year of £6,045.81.
Our main expenditure is the publication of two branch newsletters per year, the

Cornwall Butterfly Observer (CBO) and covering Georgie Paul's, our Volunteer Co-ordinator, salary. Other expenditure includes putting on events, including training days and our indoor annual event; covering volunteer travel expenses; insuring our equipment (through Butterfly Conservation nationally); website costs and the purchase of stock to sell at events. In total we have spent £6,250.58 to date.

Any shortfall at the end of the year, will be covered by the transfer of funds from our Restricted Account, which will contribute towards the employment of Georgie (see below for further details).

Restricted Account
The book, Butterflies of Cornwall: Atlas for the Twenty-first Century, published in the summer of 2021 has already broken even, and with sales continuing this year, the balance currently stands at £8,614.77. Income raised through sales of the book so far this financial year is £1,372.00, with only £8.49 spent on direct postage.

Sarah Board
Branch Treasurer
treasurer@cornwall-butterfly-conservation.org.uk

Membership report

Kathy Wood, Membership Secretary, gives her report for Spring 2024

CBC membership has continued to increase. As I write, the most recent figures available are from the end of January. There were 610 households, 841 adults, with a particularly large number having joined in January. You are all very welcome, and I hope to meet some of you in the near future.

Encouraged by the success of last September's indoor meeting, we are again arranging an AGM with several outside speakers. Keep the date-Saturday 28th September 2024- free and look out for further details on our emails, website and social media nearer the time. Speakers will include Max Anderson of Butterfly Conservation staff, talking about his work with Brown Hairstreaks in Devon, and also about moths, and Andy Collins of Cornwall Wildlife Trust on rewilding Helman Tor. Everyone is welcome, please bring any interested friends and relations and help make this another success.

In spite of our membership having almost doubled in the last ten years, we are still getting very small numbers actually taking part in our activities. A typical example was a "scrub bash" (practical conservation day) recently on a lovely day on Bodmin Moor. Obviously everyone has other commitments, nobody comes every time, but I was shocked that there were only seven people, and four of us were aged over seventy. That is obviously unsustainable, and worrying. The rest of you missed a chance to see the rare Marsh Fritillary caterpillars which live on the site and appeared as the day warmed up.

Before Covid we often had twenty or more volunteers at such events. We hold them on different days including Saturdays and Sundays, so there are sure to be some which suit you. We arrange car sharing, provide tools and gloves and pay travel expenses. No specialist knowledge is required. Not all events are on Bodmin Moor, some are on disused mine sites in West Cornwall. It's rewarding and enjoyable work.

When you read this, the "scrub bash" season will have finished, but there will still be other jobs, such as butterfly surveys, to be done; please volunteer if you can. If you would like to receive, without obligation, details of volunteering

opportunities as they arise, please ask our Volunteer Organiser, Georgie Paul, gpaul@butterfly-conservation.org to put you on her mailing list.

If organised, sociable volunteering isn't you, there are other kinds. What about raising some extra butterfly-friendly plants and selling them in aid of Cornwall Butterfly Conservation funds? Or having a coffee morning? Or making something to sell on our stalls? We have had some brilliant gifts of homemade butterfly- or moth- themed greetings cards in the past which always sold well, but none in the last few years and we would love to have some more. They not only raise money but also help to make our stalls more interesting and attractive, which encourages people to stop and talk to us and gives us a chance to tell them about our work and how to help.

Best Wishes
Kathy

Volunteer Coordinator's report

Georgie Paul, Volunteer Coordinator, reports on a great year

This habitat management season has been the best year since pre-Covid with what we have managed to achieve. Almost every week since the season began, we have held at least one work party, thanks to our great volunteer group leaders, allowing us to achieve more together than my time allows. We have been focusing on sites where our top priority species are found, that also require the most amount of habitat management to increase the area of suitable habitat. This has included various sites on the Bodmin Moor landscape to aid the Pearl-bordered Fritillary and the Small Pearl-bordered Fritillary and the mining landscape has been focused on sites for the Silver-studded Blue and the Dingy Skipper.

One of the mining sites we have worked on this winter is West Basset Stamps where we have managed to hold four work parties across the last few months, and it still requires more work! We surveyed West Basset Stamps in spring looking for the Dingy Skipper. It hadn't been recorded here for a long time but still had suitable habitat and we managed to find one! We have focused on expanding this area as much as we could and have also prioritised the buddles of West Basset Stamps, an area of the site with the most archaeological importance, which is also a good habitat for the declining Wall.



Volunteers at West Bassett Stamps (Photo: Georgie Paul)

The buddles are overrun with invasive species, particularly cotoneaster, which is very difficult to remove quickly due to its spreading nature. Nevertheless, our excellent group of volunteers have come back time and time again to keep making a dent and after the four work parties you can really appreciate how much work has gone into this site. It has been so impactful, we have had many new volunteers sign up from the local area to come and help us with this incredible work.

If you are interested in volunteering with us, please email gpaul@butterfly-conservation.org

Marsh Fritillary Larval Web Counts

Alan Stapleton delves into the world of webs

(All photos: Alan Stapleton)

Cornwall Butterfly Conservation follows the UK Butterfly Monitoring Scheme (UKBMS) Specifications for Larval Web Counts. These are conducted in late summer when volunteers assemble and work under a Group Leader following Butterfly Conservation's Risk Assessment procedures on sites that are usually uneven and boggy.

When these surveys are carried out full attention is given to obtaining a number that, as accurately as possible, represents the total number of webs present over the whole site surveyed, although numbers may be counted for separately mapped compartments of the site. It is important that local weather conditions are recorded and any details available of adverse weather on the previous day.

A minimum number of seven volunteers is usually involved and the team will work in close contact with each other to avoid double counting. In recent years CBC has made efforts to conduct more regular monitoring of the butterfly during the year. It is likely that a significant number of the webs found will have had their positions recorded to help in this work but this must not be done at the expense of making good progress during the Larval Web Count, which is likely to give a better indication of population size and extent of the breeding area than other surveys carried out at different times of the year.

Larval web counting is specialised work but all volunteers attending our counts will be given specialist help on the day, if required, and will soon become proficient. Marsh Fritillary webs are easily visible to the naked eye, being formed on Devil's-bit Scabious, the larval food plant (Figure 1). On some of the webs the black spiny caterpillars themselves will be seen crawling over the surface of the web (Figure 2), but at others they will be hidden from view.



Figure 1, Marsh Fritillary web Churchtown Marsh, Bodmin Moor, August 2023

You may wonder how we know where to look for webs. Earlier in the year you could have seen an adult female carefully laying a large batch of bright yellow eggs on the underside of a Devil's-bit Scabious leaf. These eggs slowly turn reddish and just prior to hatching will be grey. Eggs can be found quite easily towards the end of June, especially when they begin to hatch, turning the leaf brown on its upper side. At this point the new season has begun and the tiny caterpillars start producing web material that gives the game away.

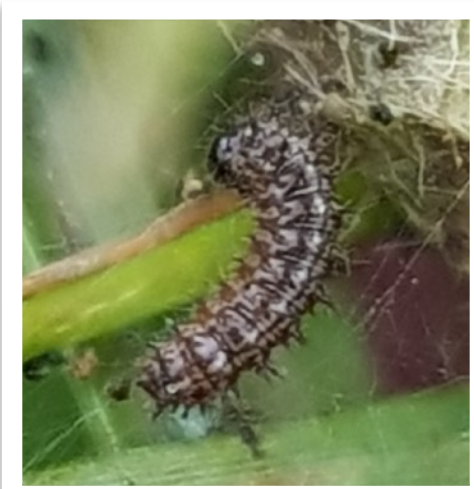


Figure 2. Marsh Fritillary caterpillar. Deacons, Bodmin Moor, August 2023

It is not until August, when the caterpillars are at third or fourth instar stage in Cornwall, that the best time to count them is upon us.

All too soon after then, the caterpillars will begin to move down into the vegetation and become inactive until the days begin to lengthen. Then, subject to favourable conditions, clusters of fourth instar caterpillars can easily be seen once more, basking in bright weather or found by looking more carefully within the vegetation. Soon, they will be feeding on Devil's-bit Scabious and form new webs for basking and feeding from. Last year in April, one group of agile larvae on Church Hay Down, ate all the nearby scabious plants and climbed up among honeysuckle to feed on its leaves.

Later, fully grown caterpillars can be found moving across the landscape (Figure 3) (if the grass is short enough to see them), until sometime in early May, when there are only pupae to find and that is a hard task because their creamy colour blends in with that of the dried Molinia leaf blades that they will be among.

Please get in touch with our Volunteer Coordinator if you would like to help us cover the surveys that we will be carrying out on the Lizard, in Mid-Cornwall or on Bodmin Moor later this year.



Figure 3. Marsh Fritillary web in the landscape. Deacons, Bodmin Moor, August 2023

Current Vacancies

CBC has vacancies for volunteer roles on the Committee.

What if you could make a real, measurable difference to your local wildlife? At Butterfly Conservation we want to create a world where butterflies and moths are enjoyed by everyone, forever.

Chair

We are looking for a Chair to lead the Branch in making a local contribution to our organisational goals. Together, we will halve the number of threatened species of butterflies and moths, improve the condition of Cornwall's most important landscapes and wild spaces for butterflies, moths and people.

This role involves working with local partners, volunteers and Head Office to lead the Branch activities for the year, helping us to create the world we strive for. You will use your passion for butterflies and moths to make a tangible difference and help increase the impact of our work. You can carry out aspects of this role from home and in your local area, but sometimes you may need to travel longer distances – for example to other branches or Butterfly Conservation offices.

Secretary

If you have basic keyboard skills and a talent for organising, then you could be just the person we're looking for.

This is your chance to join the Cornwall Butterfly Conservation (CBC) team of volunteers in the role of Branch Secretary.

Working closely with the Chair, you will organise meetings, make a written record of decisions and actions in the committee – as well as contributing ideas to improve what we do. You will need access to a laptop and broadband and have the use of a car. Experience of Microsoft Teams would be helpful but not essential.

Publicity and Fundraising Officer

We are looking for someone to help promote our Branch activities, fundraise, and generally spread the word about Butterfly Conservation in Cornwall.

In this role, you will work with the Cornwall Butterfly Conservation Committee and local volunteers. You will learn about wildlife in your local area, organise fundraising events, research funding options, and develop and demonstrate your media skills. The main activities of our volunteer Publicity and Fundraising Officer are the following: sending details of Branch events to local radio, and newspapers; writing up events and distributing these to local papers; organising fundraisers; researching grants and funding options.

We hold committee meetings once every two months in either Allet, near Truro, or Lanivet, near Bodmin. Access to your own vehicle would be beneficial for all the roles. For more information about these roles, please contact Andrew and Liz Thomas, Contact: Liz: chair@cornwall-butterfly-conservation.org.uk 07564 444264, or Andrew: chair@cornwallbutterfly-conservation.org.uk 01503 221105.

Committee members and contacts

Cornwall Branch Committee of Butterfly Conservation

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Joint Chairs of Conservation Working Group, Species Champions Coordinators and Branch Contact:
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Secretary:
Vacant

Treasurer:
Sarah Board
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Membership Secretary:
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Publicity and Fundraising Officer:
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Like us on Facebook: https://www.facebook.com/ButterflyConservationCornwall/

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