

**DRAFT Butterflies 2023**

*Keith Balmer*

Despite a mild start to the year, only one Peacock was reported in January, on the 13th. Another mild spell started on the 31st when one Red Admiral was seen.

The mild start to February brought reports of 15 Brimstones, one Comma, seven Peacocks, eight Red Admirals and six Small Tortoiseshells up to the 21st, then colder weather shut down further reports until 11th March.

The season began in earnest on 21st March with 28 Brimstones and two Commas, and records were received for most dates hereafter. Small Whites were the only "hatchings" this month, with three on the 22nd. The cool spring seemed to delay emergence of most of the early-spring species, some by nearly two weeks, and it wasn't until early May that first-sightings became close to their 10-year average dates.

April emergences proceeded with Green-veined White and Holly Blue on the 3rd, Large White on the 4th, Speckled Wood much delayed on the 7th, and Orange-tip on the 8th. The first of a small migration of Painted Ladies appeared on the 20th. Dingy Skipper, a spring species not significantly delayed, was seen on the 27th, Duke of Burgundy and much-delayed Green Hairstreak on the 29th, and Grizzled Skipper on the 30th.

Small Copper, the last of the delayed species, was spotted on 2nd May. Emergences then followed typical timings, with Small Heath on the 3rd, Brown Argus on the 10th, Common Blue on the 11th, Small Blue on the 14th and Large Skipper on the 28th.

Meadow Brown was the next new species to be seen, on 3<sup>rd</sup> June, followed by Ringlet on the 12th, Marbled White on the 13th, and Small Skipper on the 15th. A possible Wood White, reported from King's Wood, Heath and Reach on the 15<sup>th</sup>, remains unconfirmed. Next to be seen was Black Hairstreak on the 16th, then Dark Green Fritillary on the 18th. Essex Skipper, Gatekeeper and Silver-washed Fritillary were noted on the 22nd. White Admiral, Purple Hairstreak and White-letter Hairstreak were seen on the 24th. The fine weather throughout June didn't appear to advance emergences, which remained close to average.

Purple Emperor was seen on 3rd July and the first of only a few migrant Clouded Yellows was reported on the 7th. Chalkhill Blue, the last of the expected species was slightly late to show, on the 9th. Partial second brood Orange-tip, Dingy Skipper and Small Blue were also seen during the month. The highlight of July was undoubtedly the large migration of Red Admirals that peaked this month, a delight to see.

August is sometimes a "silly season" when unusual observations occur and 2023 didn't disappoint. A Swallowtail on the 4th, a Queen of Spain Fritillary on the 7th, and a Long-tailed Blue on the 19th were all surprise encounters this month, none of which breeds in this county, so the origin of each is a matter of speculation.

Abundance then declined through the autumn months without great note, but Holly Blue, Brown Argus and Common Blue probably each had a small partial third brood into October. Small White was the last non-hibernator to be seen flying, on 28th October.

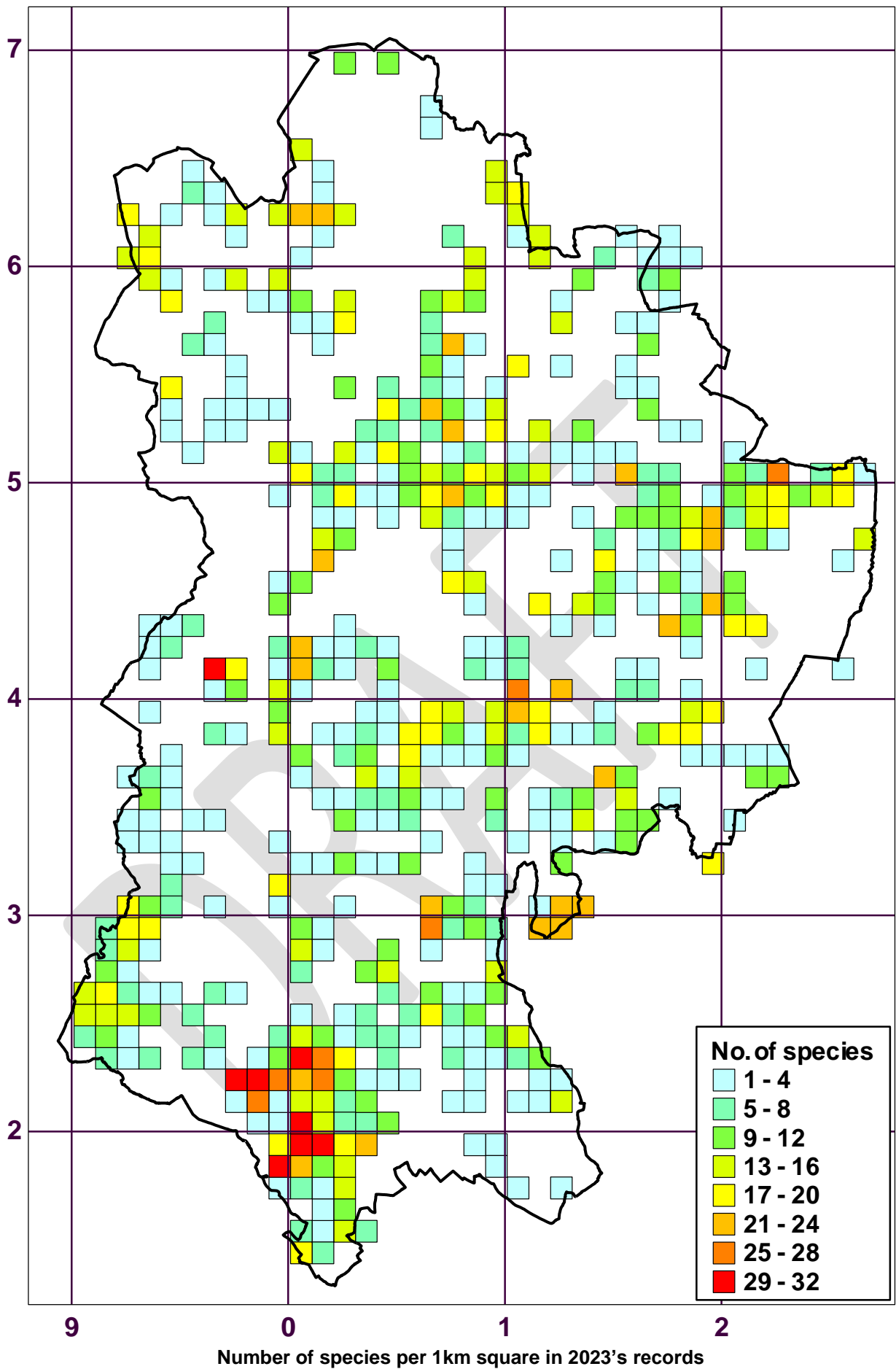
During November, two Brimstones, one Comma, one Peacock and a Small Tortoiseshell were reported but Red Admiral maintained its abundance with 44 seen up to the 25th.

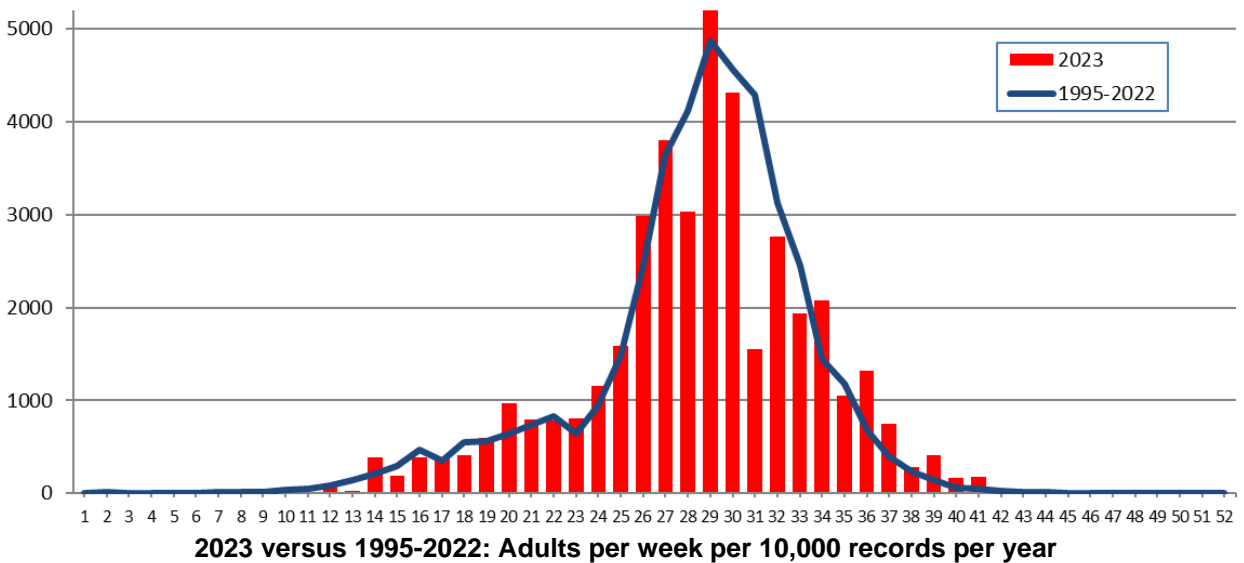
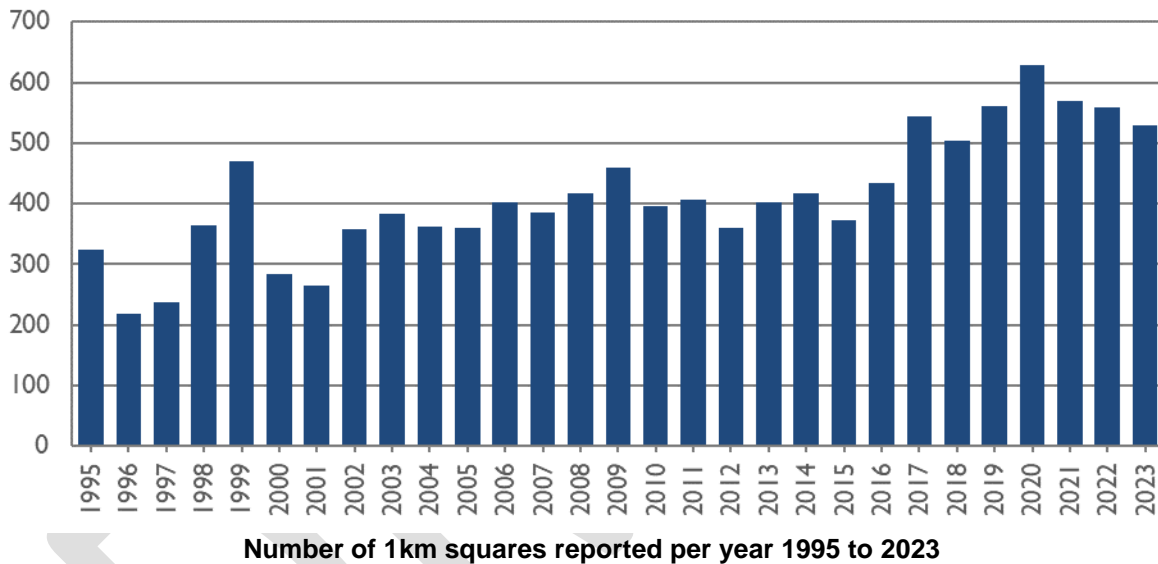
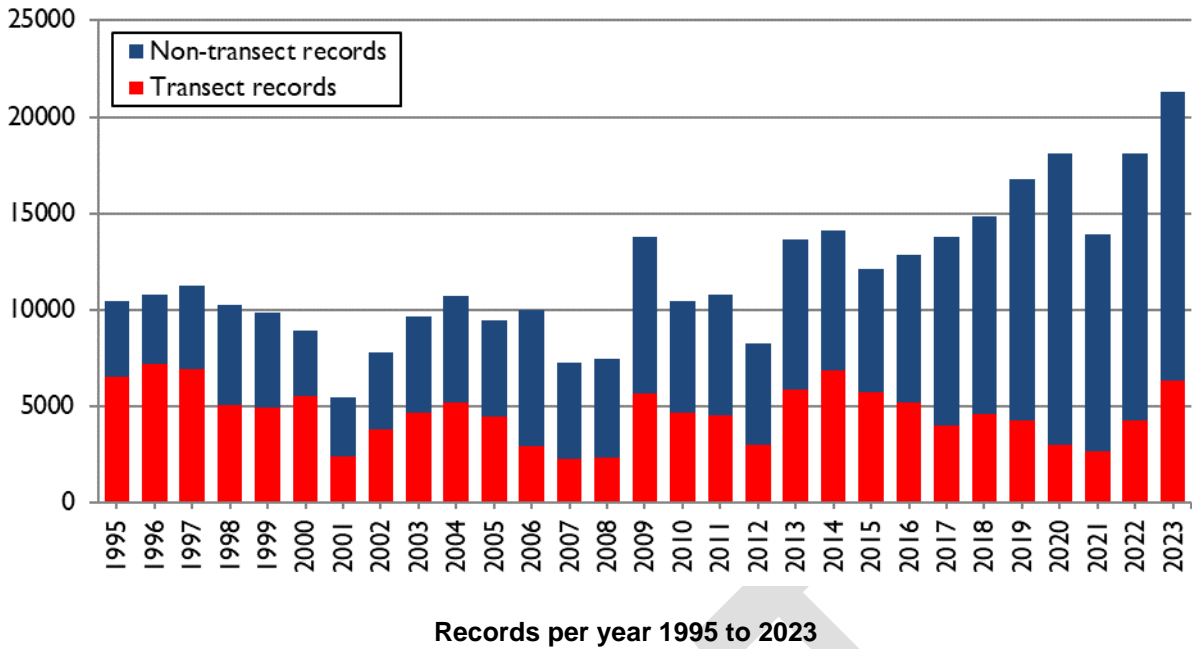
The only outdoor flight observed in December was a Peacock on Boxing Day, presumably disturbed from hibernation.

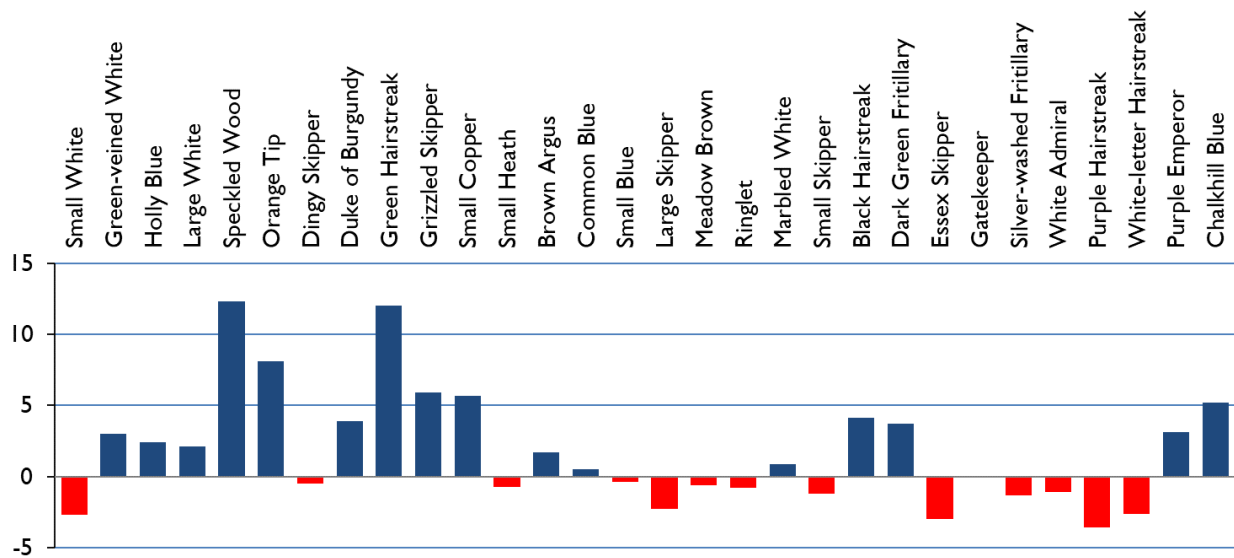
### **Analysis of Data**

At the time of analysing records for this report (2nd February 2024) 21,288 records had been received and computerised, containing reports of 87,647 adults from 530 1km squares. 60 records were of the immature life-stages. Records were analysed at this date and may be subject to minor revision. 6,346 records were from transects and 14,942 records were from other sources, mostly casual recording.

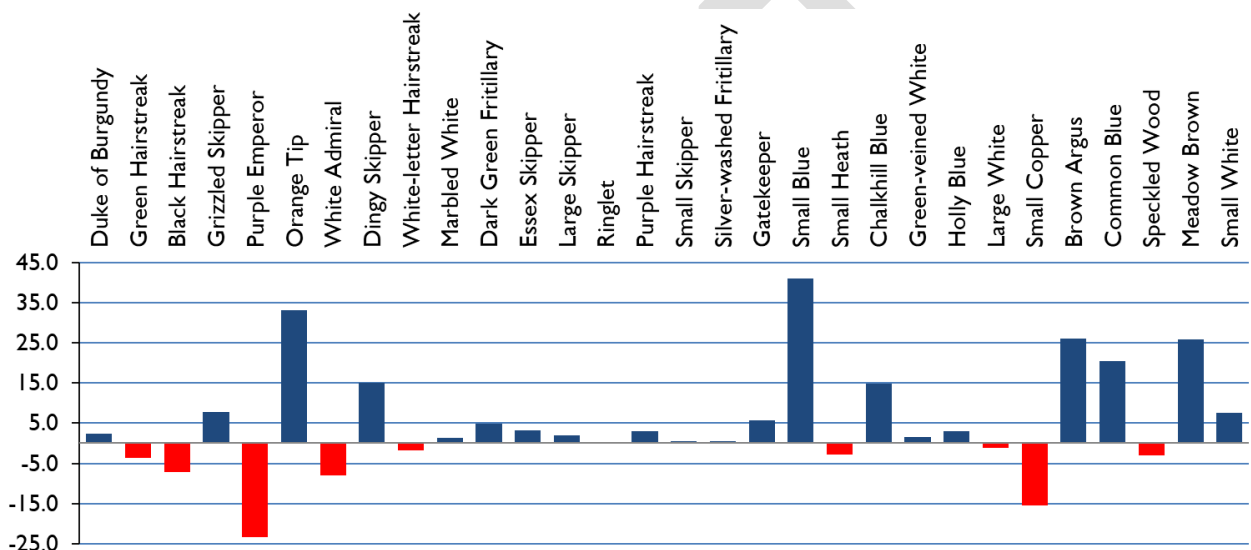
Where an abundance was reported through an App using a letter (i.e. A=1; B=2-9; C=10-29; D=30-99; E=100+) the lowest value of the range has been assumed in the statistics (i.e. B=2; C=10; D=30; E=100) as this is the only abundance of which I can be certain. It is therefore much better to report abundances using digits please.







2023's first sightings: days earlier (red) or later (blue) than their ten-year average, ordered by emergence. (Hibernators and migrants omitted)



2023's last sightings: days earlier (red) or later (blue) than their ten-year average, ordered by disappearance. (Hibernators and migrants omitted)

### Transects

The total number of adults, numbers of species ( ), and number of weekly walks out of the theoretically possible 26 [ ] for the recent transects are shown in the table below. Six new transects were walked this year. My thanks again go to those who attempt to systematically walk and record these transects once per week every year, between 1st April and 30th September, allowing year-on-year comparisons to be made. These data are also combined at the national level with data from other transects as part of the United Kingdom Butterfly Monitoring Scheme (UKBMS).

	2019	2020#	2021	2022	2023
Dunstable Downs	1873 (31) [17]	2259 (29) [17]	2816 (30) [17]	2701 (29) [19]	2764 (31) [21]
Harrold Odell CP	2022 (21) [24]	1117 (19) [15]	158 (15) [9]	*	*
Hill Rise	*	*	*	222 (15) [21]	241 (15) [22]
Knocking Hoe	2369 (25) [25]	2497 (25) [25]	2083 (23) [23]	1663 (24) [24]	1535 (21) [24]
MCP Callow Mounds	*	*	*	*	256 (23) [22]
MCP Marston Meadow	*	*	*	*	410 (19) [22]
Mowsbury Hill	1090 (19) [13]	655 (18) [9]	1071 (18) [17]	901 (22) [13]	1795 (21) [14]
Old Warden Tunnel	829 (21) [21]	421 (20) [13]	715 (22) [23]	700 (21) [23]	411 (21) [16]
Pegsdon Hills	2481 (26) [24]	3011 (24) [23]	2991 (25) [25]	2419 (24) [25]	2379 (25) [25]
Potton Wood	*	*	*	1851 (22) [19]	2492 (18) [24]
Priory CP	2171 (23) [26]	1615 (19) [18]	1182 (20) [23]	1277 (21) [20]	1200 (21) [20]
Rectory Wood	*	*	*	*	835 (26) [26]
Ridgeway Wood	*	*	*	*	799 (23) [17]
Sharpenhoe Clappers	3288 (29) [15]	1092 (27) [9]	80 (16) [2]	6079 (25) [18]	3160 (28) [13]

Shocott Spring	*	*	*	*	1241 (20) [24]
Strawberry Hill Farm	*	*	*	*	2574 (25) [22]
The Lodge NR	*	*	*	474 (23) [16]	619 (22) [25]
Totternhoe Quarry	1280 (26) [17]	1621 (24) [14]	1843 (25) [19]	*	*
Whipsnade Downs	*	*	*	270 (22) [6]	1089 (28) [11]
Whipsnade Zoo	2767 (27) [11]	*	*	*	*

\* The transect was not walked this year.

# 2020's season was affected by COVID-19 restrictions.

## Species Reports

In the following species reports "10ya" is an abbreviation for "10-year average". Analyses look back to 1995 unless stated otherwise.

### Papilionidae

#### Swallowtail *Papilio machaon*

A Swallowtail species is reported every few years, so it was no great surprise when two fishermen on the banks of the Great Ouse in St. Neots observed one fly past on 4th August. It wasn't identified to subspecies and its origin is the usual mystery, of little significance as it is unlikely to breed here.

### Hesperiidae (Skippers)

#### Dingy Skipper *Erynnis tages tages*

The transects don't agree with each other on whether Dingy Skipper had a good year, with some counts low and others high, but overall recording suggests slightly reduced abundance. Distribution however was good, reported from 42 1km squares, the most ever. The largest site records were: Barton bypass (1), Brogborough Landfill (4), Chicksands base (1), near Dagnall (5), Dog Kennel Down (4), Dunstable Downs (4), Dunstable Busway (1), Galley and Warden Hills (12), Houghton Regis Chalk Pit (13), Kensworth Quarry (5), Knocking Hoe (3), near Marston Thrift (1), Millennium CP (4), Old Warden Tunnel (1), Pegsdon Hills (3), Rectory Wood (8), Rookery Pit (1), Sandy Smith NR (3), Sewell Cutting (3), Sharnbrook Summit (3), Sharpenhoe Clappers (27), Sundon Chalk Pits (5), Totternhoe (18), Whipsnade Downs (20). Most reports came between mid-May and mid-June, the first brood finishing at the end of June. Partial second brood adults were noted on 28th and 29th July at Houghton Regis Chalk Pit.

#### Grizzled Skipper *Pyrgus malvae*

Grizzled Skipper proved harder to find this year at its usual sites, with low maximum site records of: Brogborough Hill (2), Bromham Lake (1), Chicksands base (1), Dunstable Downs (5), Millennium CP (2), Rectory Wood (1), Sharnbrook Summit (3), Totternhoe (4), and Whipsnade Downs (4). Additionally, Kensworth Quarry (1) was last reported in 2012, and a site near Daisley's Lake, Willington (3) was a new location. Its season from 30th April to 1st July was about one week later than the 10ya.

#### Essex Skipper *Thymelicus lineola*

Essex Skipper is best distinguished from the very similar Small Skipper by viewing it face-on, when its antennae tips appear black. As this isn't always easy to do, 75% of this year's "small skipper" records were reported simply as Small/Essex Skipper. Those positively identified as Essex Skipper were seen between 22nd June and 17th August, both dates close to their 10ya. Abundance peaked in week 29 (16th-22nd July) when 78 were reported. The species develops on a range of grasses, including Cock's-foot, so can be found in grassland, verges and woodland rides throughout the county. This year it was reported from 8.3% of visited 1km squares, up from the 10ya 5.5%. With low numbers of records submitted, abundance is hard to assess, but reported numbers were slightly higher than in recent years.

#### Small Skipper *Thymelicus sylvestris*

Three times as many Small Skippers were reported as Essex Skippers, and from more than twice the proportion of visited 1km squares (19.8%), but from a similar county-wide distribution. It too can be found in grassland, but Small Skipper favours Yorkshire Fog as the larval foodplant. Its flight season also starts slightly earlier than for Essex, this year on 15th June, and peaked two weeks earlier in week 27 (2nd-8th July) when 247 were reported. Again, abundance can be hard to assess but there appears to have been a steady decline over the last three decades and 2023 fitted into this trend.

#### Large Skipper *Ochlodes sylvanus*

Large Skipper is the first of our "golden" skippers to fly, seen on 28th May this year, close to the 10ya. The patterned wings and hook-tipped antennae make this the easiest of the three species to be identified. Largest counts usually come from woodland rides, as was the case this year, e.g. Chicksands Wood (100+), Home Wood, Northill (36), King's Wood, Heath and Reach (150+), Maulden Wood (20+), the peak spread across the first three weeks of July. Its preferred larval food plant is Cock's-foot, and records came from assorted grassland throughout the county, in 22% of visited 1km squares, close to the 25% 10ya. Abundance on transects was generally a little low, but the overall counts were up a little, possibly due to diligent surveying by a few reporters.

## **Pieridae (Whites, Yellows)**

### **Orange-tip** *Anthocharis cardamines britannica*

Orange-tip was slow to emerge, not seen until 8th April, eight days later than the 10ya, presumably delayed by the cool March. Peak abundance was in week 20 (14th-20th May) when 272 were reported, and the penultimate sighting was on 24th June. An uncommon second brood male was later seen in a garden near Eaton Bray on 23rd July. It was reported from 40% of visited 1km squares, a typical proportion, and from all parts of the county. Abundance on the transects and in overall recording was slightly reduced. The largest count was of 18 near Sewell on 3rd June. A total of 23 eggs were reported on Lady's Smock and Garlic Mustard between 7th May and 3rd June, and 17 larvae between 29th May and 18th June, all on Garlic Mustard.

### **Large White** *Pieris brassicae*

Large White's first brood began at the start of April, close to the 10ya, and after peaking in mid-May, finished in mid-June, when the second brood started to emerge. As usual, this was much the larger and peaked in mid-July, followed by a long decline to early October, which may have included continental migrants or a partial third brood. Abundance was only slightly below average and distribution remained good, reported from 41% of visited 1km squares, county-wide. Eggs and larvae were reported using *nasturtium* in an Eaton Socon garden from late July to mid-August, and where two pupae were found on 10th August. 99+ more eggs were found on 10th September. Eggs were also reported from Studham, and larvae from Meppershall, Potton and Renhold. The largest adult count was of 45, in Billington on 17th July and there were 16 double-digit records.

### **Small White** *Pieris rapae*

Across most transects Small White's abundance was slightly below average, in agreement with overall recording. Distribution though was solid, reported from 48% of visited 1km squares, the fourth-most widespread species this year, with records coming from all parts. The first brood was noted from 22nd March, three days before the 10ya, peaked at the end of May, and finished in mid-June. The second brood was larger as usual, began at the end of June and peaked at 548 adults in week 29 (16th-22nd July). Numbers declined before a third peak of 325 in week 36 (3rd-9th September) presumably caused by migration or a partial third brood. The decline then resumed through autumn and the last reported flight was on 28th October, though one later emerged from a Wigmore loft hatch on 17th December while retrieving Christmas decorations. The only immature stage reports were of egg laying in Dunstable on the 9th and 24th September, rather late in the season.

### **Green-veined White** *Pieris napi sabellicae*

Green-veined White's observed flight period from 3rd April to 10th October was very similar to its 10ya, as was its reported proportion of visited 1km squares (37%), a slight revival over the prior two seasons, and the species remains widespread. Abundance relative to other species however was again down a little and the species appears to be in a slow decline. The Potton Wood transect contributed 17% of the county's total this year, and nearby Pegnut Wood produced the largest record (14) on 7th August, though the county's peak abundance during the second brood was in week 29 (16th-22nd July) when 251 were reported. A single record of an egg, laid on Garlic Mustard on 7th May, was the only report of an immature stage.

### **Clouded Yellow** *Colias croceus*

Only eight people were lucky enough to see a Clouded Yellow this year. Just 11 of this migrant species were seen and the largest count was of two, in Houghton Regis Chalk Pit on 15th October, the final report of the year. The first sighting was on 7th July. The 10ya total is 46, so this counts as a disappointing season and there was no suggestion of local breeding.

### **Brimstone** *Gonepteryx rhamni rhamni*

Brimstone continues to do well and may be encountered anywhere in the county. Post-hibernation adults appeared strongly in week 12 (19th-25th March) and flew until late June. The largest record, of 39, was made on Galley and Warden Hills on 26th May. The new brood emerged from early July peaking before mid-August and had largely gone into hibernation by mid-September, with just a handful seen during autumn. Increased counts were returned by several transects, e.g. Dunstable Downs 167 (10ya 120), Pegsdon Hills 86 (9ya 60), Old Warden Tunnel 32 (10ya 13), Sharpenhoe Clappers 186 (10ya 86), but others were nearer to average. Overall statistics show strong abundance and distribution, reported from 313 1km squares, its most ever, and 59% of visited 1km squares, its largest ever proportion. Despite them being relatively easy to find, there were just two records of eggs and one record of larvae on Purging Buckthorn submitted this year.

## **Nymphalidae (Browns, Fritillaries, Aristocrats)**

### **Speckled Wood** *Pararge aegeria tircis*

Speckled Wood larvae develop on a variety of grasses and the adults favour dappled sunlight in woodland, scrub, hedgerows, parks, etc. The start to its season, on 7th April, was delayed by 12 days relative to its 10ya, another species affected by the cool March. As the species can overwinter as both larvae and pupae its subsequent three broods between spring and autumn can overlap, but there were peaks in abundance in week 20 (14th-20th May), week 24 (11th-17th June) and week 34 (20th-26th August). Overall abundance and distribution were both up slightly on their 10ya. The largest count of 27 was from Marston Thrift on 1st June, and the final sighting was on 25th October, three days before the 10ya. It was reported from 42% of visited 1km squares. One larva was found in Millhouse Fen in 26th July, and one pupa in a firewood store in Renhold on 1st December.

#### **Small Heath** *Coenonympha pamphilus pamphilus*

Small Heath is the smallest of our Browns, preferring shorter swards and finer grasses for development than the others, and is therefore reported from fewer visited 1km squares - 25% this year. The first and last sightings, on 3rd May and 29th September respectively, were both close to their 10ya. The first brood peaked in week 24 (11th-17th June) and the second in week 36 (3rd-9th September). Counts on the Dunstable Downs and Knocking Hoe transects were well down on average, normal on Pegsdon Hills, and up at Sharpenhoe Clappers, so the picture is confusing. Overall, abundance seems to have been a little reduced, but distribution remained good, reported county-wide. The largest counts were mostly from chalk grasslands, but a scattering of other sites had counts in the twenties.

#### **Ringlet** *Aphantopus hyperantus*

Ringlet prefers lush coarse grasses in sheltered areas, so woodland rides, hedgerows and scrub are favourite locations. Local abundance can be high, 118 double-digit records were submitted this year, with these habitats predominating. Despite coming sixth for overall abundance, Ringlet actually had a poor year, well below the 10ya for abundance, and lower distribution, reported from 28% of visited 1km squares (10ya 33%). The first and last sightings on 12th June and 20th August exactly corresponded with their 10ya, and the peak was in week 27 (2nd-8th July) as usual.

#### **Meadow Brown** *Maniola jurtina jurtina*

Meadow Brown was, as usual, the most reported species with twice the number of adults as Gatekeeper. 18.8% of all adults were of this species and it was seen in 46% of visited 1km squares, both statistics equal to the 10ya. Its single protracted brood started at the 10ya, 3rd June, and through diligent observation was seen flying until 27th October, 26 days later than the 10ya. The peak was in week 29 (16th-22nd July) when 2,100 were reported. This species develops on various grasses and a larva was swept at dusk at Mowsbury Hill on 29th May, pupated on the 6th June and emerged on the 17th, the only immature stage records this year for this most abundant species.

#### **Gatekeeper** *Pyronia tithonus tithonus*

Gatekeeper had a very good year, appearing on 22nd June, the 10ya, peaking in the second half of July when over 2,000 were reported each week, and was last seen on 16th September, six days later than the 10ya. Abundance statistics were well above the 10ya, as was distribution, reported from 42% of visited 1km squares (10ya 33%). Oddly, some transect counts were well up, e.g. Dunstable Downs 445 (10ya 180) and Sharpenhoe Clappers 254 (10ya 140), but others were down, e.g. Knocking Hoe 59 (10ya 97) and Pegsdon Hills 93 (9ya 132), presumably reflecting local conditions. Overall, Gatekeeper was the second-most reported species, though in ninth place for 1km squares, indicating strong local abundance. Larvae develop on grasses near shrubs and hedges (where the adults are mostly found) and one was swept from Mowsbury Hill on 29th May, pupated on the 10th June and emerged on the 23rd. A second larva was found to be parasitized by an *Aleiodes coxalis* wasp.

#### **Marbled White** *Melanargia galathea serena*

Marbled White has the shortest season amongst the Browns, this year lasting 64 days, from the 13th June to 16th August, both one day later than their 10ya, and peaked in week 27 (2nd-8th July) when 1,525 were reported. Larvae develop in a tall sward containing a mixture of fine and coarse grasses and the butterfly has extended into this habitat northwards and eastwards over the last few decades. Although the 146 1km squares reported was a slight drop from the 165 in 2022, it is still on the trendline, and local abundance seems stable. Chalk grasslands still produce the larger counts, 200+ being the casual recording maximum, at Totternhoe on 1st July, but the Sharpenhoe Clappers transect reported 263 on 7th July.

#### **Queen of Spain Fritillary** *Issoria lathonia*

Although widespread in mainland Europe, Queen of Spain Fritillary is an infrequent migrant to the UK and thought unable to survive our winters. It uses several *viola* species as larval food plants. An adult was photographed on Pegsdon Hills on 7th August. With little evidence for a migration before this date, but a field near Brantham in Suffolk found to contain over 50 adults about three weeks earlier, a release there is suspected and possibly the source of this individual. The only known prior county record was from White Wood on the Cambridgeshire border in 1803.



**Queen of Spain Fritillary, Pegsdon Hills, 7th August 2023. Photo credit - Paul Kaiser**

**Silver-washed Fritillary** *Argynnis paphia*

The first and last sightings of Silver-washed Fritillary, on 22nd June and 22nd August respectively, were both close to their 10ya. It was reported from 9% of visited 1km squares, 48 in total, both new highs for this species. Abundance however was much reduced, similar to that of a decade earlier, and one wonders if the extreme heat of 2022 was a factor? The species is mainly encountered in our larger woodlands, where it develops on violets, but wanderers may turn up elsewhere such as gardens. The largest woodland records in 2023 were Chicksands Wood (10), Home Wood, Northill (4), King's Wood, Heath and Reach (8), Maulden Wood (6), Salem Thrift (7), and West Wood (8), but there were many records of smaller abundance.

**Dark Green Fritillary** *Speyeria aglaja aglaja*

The observed flight period, from 18th June to 16th August, was four days later than the 10ya. Transect counts were notably below average except at Sharpenhoe Clappers, a stronghold for the species, where they were nearer to normal. With the exception of a wanderer in a Lower Stondon garden, all reports this year came from chalk sites, with largest individual records of: Dunstable Downs (6), Houghton Regis Chalk Pit (1), Kensworth area (2), Knocking Hoe (1), Pegsdon Hills (1), Sharpenhoe Clappers (30), Totternhoe (6), and Whipsnade Downs (4), but the Sharpenhoe Clappers transect totalled 61 on 7th July.

**White Admiral** *Limenitis camilla*

This species is restricted to larger woodlands where it develops on Honeysuckle. This year it was reported from only five woods, with maximum counts: Chicksands Wood (10), Home Wood, Northill (2), King's Wood, Heath and Reach (6), Maulden Wood (1), and West Wood (2). One was also seen close to Putnoe Wood, not known to have a population. All sightings were between 24th June, close to the 10ya, and 25th July, eight days earlier than the 10ya.

**Purple Emperor** *Apatura iris*

It was feared that the near-40C temperatures of July 2022 may have damaged the eggs of this species<sup>1</sup> and this may have been the case as only four adults were reported this year in Bedfordshire. (10ya 27). The first two were in King's Wood, Heath and Reach on 3rd July. The last was in Chicksands Wood on 7th July, an extremely early end to Purple Emperor's very short observed season, surprisingly making it only the fifth species to cease being reported this year. The fourth sighting was of a wing found by a volunteer at Priory Country Park on 6th July, an unusual location. Hopefully the species will be able to rebuild its population in the coming years, if the weather isn't too extreme.

**Red Admiral** *Vanessa atalanta*

It was a delight to see so many Red Admirals clothing buddleias during July. There was an exceptionally large migration during this month, with 1,484 reported during the peak in week 29 (16th-22nd July). A second smaller peak during September and into October may have included offspring from the first, raised on nettles. Egg laying was witnessed as late as 22nd October. More records were submitted (1,906), and from more

<sup>1</sup> <https://www.eakringbirds.com/butterfliespurpleemperor2022.htm>



1km squares (314) than for any other species this year, though for total abundance (5,905) it came third behind Gatekeeper and Meadow Brown. There were 113 double-digit counts received, and one triple (250+) in Chicksands Wood on 17th July. It was Red Admiral's best year on record. The observed season lasted from 30th January to 25th November, with some able to survive our winters.

#### **Painted Lady** *Vanessa cardui*

Painted Lady is another migrant species that comes to the UK with variable numbers each year. Following the first arrival, seen on 20th April, there was a small wave in May totalling 23. 96 were seen during a second wave in July, and a third wave of 34 was reported during September. The final sighting was on 7th October. Overall, 2023 was a relatively poor season, the total of 181 adults was below the 10ya of 263.

#### **Peacock** *Aglais io*

Peacock seems to have had a good year, with transect numbers at or above their 10ya, and overall statistics for records, abundance and distribution also above their 10ya. It was reported from 55% of visited 1km squares, county-wide. Its reported season of 347 days, from 13th January to 26th December, was the longest for any species. Post-hibernation numbers rose rapidly in the first week of April and remained high for three weeks before declining to an early-June finish. New brood emergence began in mid-July, peaked in week 30 (23rd-29th July) when 834 were reported, and was largely over by mid-August, with most in hibernation. A few continued to be reported in most weeks to the end of October. It had been a pleasure to see many adults feeding alongside Red Admirals and 57 double-digit count records were received, the largest of 40 was from section 3 of the Strawberry Hill transect on 7th August. There were seven records of larvae on nettles, between 16th June and 9th July.

#### **Small Tortoiseshell** *Aglais urticae*

Small Tortoiseshell continues to struggle for reasons that aren't clear. The reported first brood abundance was only slightly larger than the abundance of post-hibernation adults, and the second brood yet again was almost non-existent. Other nettle-feeding species like Comma and Peacock are faring well, so the food plant may not be a problem? Is the fly *Sturmia bella*, or some other parasitoid, the cause? It was seen in 29% of visited 1km squares, a steady decline from 56% in 2014, but still retains a county-wide distribution. When compared with other species it is clearly faring badly, with its lowest-ever percentage of adults and records, though in 2013 it came back from similar lows, so hopefully will again. The largest adult count was of just six on Dog Kennel Down on 15th April, and only one larval web was reported, from Wrest Park on 17th June.

#### **Comma** *Polygonia c-album*

Comma continues to do well, reported from 43% of visited 1km squares, another annual high. Abundance was also strong with above-average counts on most transects, the most notable being 183 at Priory Country Park. Post-hibernation adults flew from from 21st March to early June, the peak being of 80 in week 14 (2nd-8th April). The first new brood flew from mid-June to mid-August, with a peak of 462 reported in week 29 (16th-22nd July). There was a smaller second brood, from late August to mid-October, its peak of 46 was in week 39 (24th-30th September). A record of "100+" from Chicksands Wood on 17th July was extreme, the next largest being of 32 at Priory CP, four days earlier.

#### **Riodinidae (Metalmarks)**

##### **Duke of Burgundy** *Hamearis lucina*

Duke of Burgundy is found on a small number of chalk sites where the larvae develop on cowslips. The first reports came of four on 29th April, four days later than the 10ya, from Totternhoe, where the largest site count of 30 was made on 14th May. The largest count of 32 on Whipsnade Downs was made the same day. The annual total of 20 on the Dunstable Downs transect was above all recent years other than 2022's 25. The only other site to be reported was the recently discovered population in the western end of Kensworth Quarry, where the maximum count of 11 was made on 17th May. A further discovery was made this year at the eastern end of the quarry where one was seen on 28th May. How extensive is the population within this large inaccessible quarry? The final sighting was on 13th June, close to the 10ya. Duke of Burgundy was the first species this year to cease being reported.

#### **Lycaenidae (Coppers, Hairstreaks, Blues)**

##### **Small Copper** *Lycaena phlaeas phlaeas*

It was pleasing to see Small Copper reported from 19.3% of visited 1km squares against the 10ya of 10.6%, suggesting range expansion. Local abundances were low, as normal, the only site producing a double-digit count (10) was Clophill Lakes, on 11th May. The first brood was seen from 2nd May, six days later than the 10ya. This transitioned into the larger second brood around week 25 (18th-24th June) which in turn led into the smallest, third brood, around week 36 (3rd-9th September), seen until 15th October, 15 days earlier than the 10ya. There was good county-wide coverage, with most areas represented.

##### **Purple Hairstreak** *Favonius quercus*

Purple Hairstreak can potentially be found on mature oaks anywhere in the county. The species has been recorded from 190 1km squares, but, as usual, only a portion were reported this year – 28 versus the 10ya of 20. The largest site records were: Chicksands Wood (5), Home Wood, Northill (3), King's Wood, Heath

and Reach (21), Linslade Wood (1), Maulden Wood (10+), Oakhill Spinney (1), Old Warden (9), Potton, Myers Farm (1), Potton Wood (1), near Putnoe Wood (1), Renhold (4), Rowney Warren (1), Sandy Quarry (1), Sewell (1), Swineshead Wood (1), The Lodge NR (1), Totternhoe (2), Upper Staploe (3), West Wood (1), and Whipsnade Heath (5). Adult sightings were made between 24th June and 21st August, both dates within a few days of their 10ya. Eggs can be sought on oak buds during winter and one was found at Sandy Heath Quarry on 29th December apparently sucked empty, possibly by a bug.

#### **Green Hairstreak** *Callophrys rubi*

This small green species can usually only be found in low numbers in scrubby grassland mostly on the chalk, the Marston Vale brownfields, and occasionally on our western heaths. The largest site records in 2023 were: Dog Kennel Down (3), Dunstable Green Lanes (1), Dunstable Downs (3), Galley and Warden Hills (3), Houghton Regis Chalk Pit (4), Kensworth Quarry (2), Millennium CP (2), Pegsdon Hills (4), Rectory Wood (2), Rushmere CP (1), Sewell Cutting (5), Sharpenhoe Clappers (2), Totternhoe (2), and Whipsnade Downs (2). The first sighting on 29th April, was 12 days later than the 10ya, presumably delayed by the cool spring, but the last on 14th June was four days before the 10ya.

#### **White-letter Hairstreak** *Satyrrium w-album*

Although White-letter Hairstreak has been recorded from 114 1km squares, mostly in the northern two-thirds of the county, an average of only 13 1km squares are reported per year. This year it was 12. The largest counts were: Biddenham (2), Biggleswade (1), Chicksands Wood (1), Hill Rise NR (3), Home Wood, Northill (10), Maulden Wood (1), near Putnoe Wood (1), Ravensden (1), near Shefford (3), and Wrest Park (2). The reported flight period of 24th June to 30th July was close to the 10ya. It's worth during July looking for adults flying around any elms, the larval foodplant, or feeding on nearby thistles or brambles. Eggs can also be sought during winter months.

#### **Black Hairstreak** *Satyrrium pruni*

This elusive species, with a 10ya count of only eight, develops on blackthorn in a small area of Marston Vale. This year it was only seen on 16th June, when two were spotted near the ponds in Marston Thrift and two more feeding on wild privet on Route 51, about 700m from Marston Thrift towards Holcot Wood.

#### **Long-tailed Blue** *Lampides boeticus*

There was a surprise on 19th August when a female Long-tailed Blue was photographed laying on a 'large perennial sweet pea' in a Potton garden. Widely established in southern Europe, this is an uncommon migrant to the UK, and the only prior known Bedfordshire record is of two specimens in Hitchin Museum labelled "Sharpenhoe, Beds, June 1974", an early date as migrants are usually seen on the south coast in August and September. There is therefore no breeding record for this county so it was disappointing to hear that the three eggs subsequently found were collapsed and therefore infertile, the female presumably never having encountered a male. We don't know if this specimen was a migrant or accidentally imported with foodstuffs such as mangetout, or garden plants such as sweet pea. If global warming continues this species could become established in the UK but our winters are currently too severe.



**Long-tailed Blue in a Potton garden, 19<sup>th</sup> August 2023. Photo credit - Keith Blomerley**

### **Small Blue** *Cupido minimus*

Small Blue is the UK's smallest butterfly and it is dependent upon Kidney Vetch for larval development, found mostly on the chalk. Sites with double-digit counts this year were: Dog Kennel Down (18), Dunstable Busway (13), Houghton Regis Chalk Pit (38), Kensworth Quarry (45) and Totternhoe (250), though many other sites had smaller counts. Brogborough Landfill, the species' only known non-chalk site, had a maximum count of 12. The overall coverage of 28 1km squares was the best for any year, exceeding 2004's 24. The first sighting was on 14th May, the 10ya date. The first brood lasted until the start of July, with a smaller second brood picking up from mid-July and lasting until late August. Seven were reported during September, presumed to be from a partial third brood, diligent observations pushing the end of season date to 25th September, 41 days later than the 10ya.

### **Holly Blue** *Celastrina argiolus britanna*

Holly Blue had an excellent year, setting new highs for abundance and distribution, reported from 47% of all 1km squares visited. (10ya 22%). The first brood lasted from 3rd April until around the 25th June when the second brood began without a gap. This was only slightly smaller than the first and lasted until mid-September. A small rise in numbers from late September to 10th October suggested a small third brood again, but not as evident as in 2022. Holly Blue is polyphagous, developing on many food plants. This year Wild Liquorice was confirmed as a host, as, after observing egg-laying again, two final instar larvae were beaten from the plant on 5th July and successfully raised on the developing seedpods. Larvae were also reported from Dogwood and Ivy.

### **Brown Argus** *Aricia agestis*

Brown Argus seemed to have a good year, seen in 21% of visited 1km squares (10ya 12%). There were some large counts such as 165 on Whipsnade Downs on 16th August, and the Dunstable Downs transect total of 178 (10ya 124). Chalk sites produced the largest counts, but Myers Farm near Potton had 40 on 20th July, and The Lodge NR 22 on 28th August. The first brood was seen from 10th May, close to the 10ya, peaked in the last week of May, and finished near the end of June. The much larger second brood flew from early July, peaked in mid-August, and finished near the end of September, though a handful of fresh-looking adults flying until 22nd October suggest a partial third brood, extending the season 26 days beyond the 10ya. Larvae develop on Common Rock-rose and several crane's-bills, and laying was observed on a diminutive Dove's-foot Crane's-bill in a grass verge in Bedford on 10th August.

### **Common Blue** *Polyommatus icarus icarus*

Those transects with a long history returned counts well-below average for Common Blue, and casual records also suggest a slightly weak season. Distribution however, seen in 26% of visited 1km squares over much of the county, was typical. The first brood was seen from 11th May, at the 10ya, peaked over weeks 22-24 (28th May-17th June), ending around the first week of July when the slightly-larger second brood took over. This peaked in week 34 (20th-26th August) and ended in late-September, but fresh-looking individuals flying until 24th October suggest a small partial third brood. The largest count of 65 was from Totternhoe Quarry on 20th August. Egg laying was witnessed on 30th July and 11th August.

### **Chalkhill Blue** *Polyommatus coridon*

As Chalkhill Blue is anchored to chalk sites by its larval foodplant, Horseshoe Vetch, there is no scope for range expansion, so the 20 1km squares reported was normal. Where present, numbers can be large, demonstrated by 220 at Totternhoe on 20th August, and 427 at Houghton Regis chalk pit on the 24th. The total of 965 on the Dunstable Downs transect was second only to 2021's 1,116, but totals at Knocking Hoe and Pegsdon Hills were both below average suggesting local variation. The first sighting was on 9th July, five days later than the 10ya and the season was largely over by mid-September, but diligent observations showed that it continued to fly at Houghton Regis chalk pit until 8th October.

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Map produced using DMAP.

*Keith Balmer is the Society's honorary butterfly recorder, a position he has held since 2003, jointly with Peter Glenister throughout this period until the autumn of 2019 when Peter retired from the role.*

Data tables continue on the following pages...

### Flight periods and peak abundances in 2023

Species	Earliest Date	Latest Date	Peak Date	Peak Abundance
Swallowtail	04/08/2023	04/08/2023	04/08/2023	1
Dingy Skipper	27/04/2023	29/07/2023	18/05/2023	27
Grizzled Skipper	30/04/2023	01/07/2023	11/05/2023	5
Essex Skipper	22/06/2023	17/08/2023	20/07/2023	30
Small Skipper	15/06/2023	22/08/2023	06/07/2023	30
Large Skipper	28/05/2023	19/08/2023	16/07/2023	150+
Orange-tip	08/04/2023	23/07/2023	03/06/2023	18
Large White	04/04/2023	13/10/2023	17/07/2023	45
Small White	22/03/2023	28/10/2023	25/07/2023	23
Green-veined White	03/04/2023	10/10/2023	09/07/2023	14
Clouded Yellow	07/07/2023	15/10/2023	15/10/2023	2
Brimstone	13/02/2023	23/11/2023	26/05/2023	39
Speckled Wood	07/04/2023	25/10/2023	12/06/2023	27
Small Heath	03/05/2023	29/09/2023	14/06/2023	32
Ringlet	12/06/2023	20/08/2023	01/07/2023	100+
Meadow Brown	03/06/2023	27/10/2023	01/07/2023	200+
Gatekeeper	22/06/2023	16/09/2023	17/07/2023	100+
Marbled White	13/06/2023	16/08/2023	01/07/2023	200+
Queen of Spain Fritillary	07/08/2023	07/08/2023	07/08/2023	1
Silver-washed Fritillary	22/06/2023	22/08/2023	07/07/2023	10
Dark Green Fritillary	18/06/2023	16/08/2023	19/07/2023	30
White Admiral	24/06/2023	25/07/2023	17/07/2023	10
Purple Emperor	03/07/2023	07/07/2023	03/07/2023	2
Red Admiral	30/01/2023	25/11/2023	17/07/2023	250+
Painted Lady	20/04/2023	07/10/2023	17/07/2023	5
Peacock	13/01/2023	26/12/2023	07/08/2023	40
Small Tortoiseshell	07/02/2023	12/11/2023	15/04/2023	6
Comma	19/02/2023	05/11/2023	17/07/2023	100+
Duke of Burgundy	29/04/2023	13/06/2023	14/05/2023	32
Small Copper	02/05/2023	15/10/2023	11/05/2023	10
Purple Hairstreak	24/06/2023	21/08/2023	16/07/2023	21
Green Hairstreak	29/04/2023	14/06/2023	29/04/2023	5
White-letter Hairstreak	24/06/2023	30/07/2023	16/07/2023	10
Black Hairstreak	16/06/2023	16/06/2023	16/06/2023	2
Long-tailed Blue	19/08/2023	19/08/2023	19/08/2023	1
Small Blue	14/05/2023	25/09/2023	11/06/2023	250
Holly Blue	03/04/2023	10/10/2023	10/05/2023	15
Brown Argus	10/05/2023	22/10/2023	16/08/2023	165
Common Blue	11/05/2023	24/10/2023	20/08/2023	65
Chalkhill Blue	09/07/2023	08/10/2023	24/08/2023	427

Adults reported per month in 2023

Species	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Swallowtail								1				
Dingy Skipper				2	309	199	6					
Grizzled Skipper				1	33	41	1					
Essex Skipper						23	246	12				
Small Skipper						232	628	25				
Small/Essex Skipper						252	3262	74				
Large Skipper					2	564	1289	40				
Orange-tip				203	767	79	4					
Large White				26	162	133	1261	526	233	19		
Small White			4	115	262	191	1623	848	917	87		1
Green-veined White				46	279	47	739	348	135	12		
Small/G.V. White				11	90	32	363	127	210	16		
Clouded Yellow							3	4	2	2		
Brimstone		15	172	863	1095	356	525	555	46	37	2	
Speckled Wood				166	472	985	552	889	409	23		
Small Heath					148	1119	266	516	411			
Ringlet						859	3224	109				
Meadow Brown						3340	7437	3870	1784	49		
Gatekeeper						67	5288	2992	28			
Marbled White						1748	2890	37				
Queen of Spain Fritillary								1				
Silver-washed Fritillary						16	209	35				
Dark Green Fritillary						26	246	30				
White Admiral						9	43					
Purple Emperor							4					
Red Admiral	1	8	9	10	203	190	3120	740	1068	512	44	
Painted Lady				2	23	9	96	15	34	2		
Peacock	1	7	40	1039	448	35	1174	721	37	13	1	1
Small Tortoiseshell		6	15	160	51	22	220	11	10	1	1	
Comma		1	16	145	44	154	1208	170	133	28	1	
Duke of Burgundy				7	294	18						
Small Copper					96	39	121	90	31	11		
Purple Hairstreak						10	98	16				
Green Hairstreak				7	77	10						
White Letter Hairstreak						4	29					
Black Hairstreak						4						
Long-tailed Blue								1				
Small Blue					179	873	117	64	7			
Holly Blue				186	1018	265	411	500	60	13		
Brown Argus					170	202	468	1202	145	6		
Common Blue					278	987	219	977	326	21		
Chalkhill Blue							1016	2990	845	7		
<b>Totals</b>	<b>2</b>	<b>37</b>	<b>256</b>	<b>2757</b>	<b>5227</b>	<b>11617</b>	<b>31709</b>	<b>17858</b>	<b>6638</b>	<b>840</b>	<b>49</b>	<b>2</b>

### Summary of 2023's records of adults

Species	Records	Adults	Squares		Records (%)	Adults/All-species adults <sup>2</sup> (%)				
			10km	1km		2019	2020	2021	2022	2023
Swallowtail sp.	1	1	1	1	0.01	0.00	0.01	0.00	0.00	0.01
Dingy Skipper	163	516	12	42	0.77	0.89	0.78	0.80	0.95	0.59
Grizzled Skipper	44	76	10	18	0.21	0.18	0.11	0.19	0.15	0.09
Essex Skipper	99	281	14	44	0.47	0.17	0.22	0.15	0.31	0.32
Small Skipper	295	885	19	105	1.39	1.22	0.98	0.90	1.08	1.01
Small/Essex Skipper	269	3588	15	49	1.26	1.08	0.96	0.36	4.40	4.09
Large Skipper	385	1895	19	115	1.81	1.53	2.01	1.96	1.91	2.16
Orange-tip	551	1053	20	212	2.59	2.10	2.82	2.32	1.52	1.20
Large White	1121	2360	20	219	5.27	3.96	3.99	3.31	2.91	2.69
Small White	1584	4048	21	257	7.44	6.50	7.04	5.59	3.78	4.62
Green-veined White	754	1606	20	197	3.54	1.92	2.78	1.79	2.13	1.83
Small/G.V. White	222	849	11	62	1.04	0.71	0.83	0.33	0.27	0.97
Clouded Yellow	10	11	6	10	0.05	0.03	0.13	0.01	0.14	0.01
Brimstone	1503	3666	20	313	7.06	3.47	2.91	3.99	3.52	4.18
Speckled Wood	1257	3496	20	224	5.90	2.58	2.53	3.24	3.72	3.99
Small Heath	639	2460	19	132	3.00	4.34	4.52	3.29	2.09	2.81
Ringlet	582	4192	19	150	2.73	7.59	4.80	6.68	8.66	4.78
Meadow Brown	1817	16480	21	244	8.54	25.71	21.97	20.28	14.37	18.80
Gatekeeper	1270	8375	21	220	5.97	6.69	6.86	6.23	5.85	9.56
Marbled White	575	4675	19	146	2.70	5.72	5.44	5.76	6.02	5.33
Queen of Spain Fritillary	1	1	1	1	0.01	0.00	0.00	0.00	0.00	0.01
Silver-washed Fritillary	116	260	14	48	0.54	0.63	0.58	0.67	0.81	0.30
Dark Green Fritillary	81	302	7	17	0.38	0.60	0.80	0.71	1.10	0.34
White Admiral	27	52	6	9	0.13	0.09	0.09	0.09	0.14	0.06
Purple Emperor	3	4	3	3	0.01	0.06	0.04	0.08	0.04	0.01
Red Admiral	1906	5905	21	314	8.95	3.65	2.13	3.80	1.28	6.74
Painted Lady	144	181	18	77	0.68	2.24	0.09	0.51	0.40	0.21
Peacock	1360	3517	20	291	6.39	1.86	4.48	5.70	3.92	4.01
Small Tortoiseshell	352	497	21	154	1.65	1.37	2.37	1.97	2.22	0.57
Comma	832	1900	20	230	3.91	1.67	2.18	2.08	2.03	2.17
Duke of Burgundy	60	319	4	7	0.28	0.42	0.27	0.33	0.55	0.36
Small Copper	243	388	19	102	1.14	0.41	0.75	0.41	0.37	0.44
Purple Hairstreak	40	124	11	28	0.19	0.10	0.34	0.09	0.46	0.14
Green Hairstreak	59	94	8	20	0.28	0.35	0.14	0.18	0.35	0.11
White-letter Hairstreak	16	33	5	12	0.08	0.15	0.14	0.03	0.09	0.04
Black Hairstreak	2	4	1	2	0.01	0.01	0.01	0.01	0.03	0.01
Long-tailed Blue	1	1	1	1	0.01	0.00	0.00	0.00	0.00	0.01
Small Blue	163	1240	6	28	0.77	0.58	0.21	0.16	1.37	1.41
Holly Blue	1183	2453	20	248	5.56	1.62	2.28	0.99	1.65	2.80
Brown Argus	523	2193	18	110	2.46	1.30	1.12	1.12	1.10	2.50
Common Blue	732	2808	19	136	3.44	2.44	2.98	2.41	4.24	3.20
Chalkhill Blue	243	4858	7	20	1.14	4.05	7.32	11.48	14.07	5.54
Overall	21228	87647	21	530						

<sup>2</sup> These values show the number of adults reported for each species relative to the number of adults reported for all species, allowing crude year-on-year comparisons to be made using data partially acquired by casual recording.